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Trends in India's Trade in Pharmaceutical Sector: Some Insights

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Section I

Introduction

Over the past 50 years, Indian pharmaceutical industry has undergone a massive makeover – from a modest beginning of "process patents regime" in the seventies to a modern and WTO-compatible regime under the TRIPs Agreement in 2005. In last two decades, India has witnessed significant trade and industrial policy liberalisation, which have led to structural changes in the domestic industries. This was accompanied by rapid growth in the pharmaceutical sector in India which was led by the migration of economic and research activities from Europe to India in particular and some other fast-growing markets.[1]

According to the Organisation of Pharmaceutical Producers of India (OPPI), the Indian pharmaceutical industry is highly fragmented and is estimated to have over 10,000 manufacturing units. The organised units account for just 5% with around 300 players, while 95% of the units are in unorganised sector. A large number of players of the latter are small and medium enterprises and this segment contributed 35% of the industry's turnover. Turnover of the unorganised segment, though difficult to assess, is estimated to be around Rs 160 bn. There have been cases of unproductiveness in large number of firms under this segment.

Indian pharmaceutical sector consists of manufacturers of bulk drugs and formulations. Bulk drugs include the Active Pharmaceutical Ingredients (APIs) which are used for the manufacture of formulations. The 2005 estimates suggest that the ratio of formulations and bulk drugs is in the order of 75:25. Over 60,000 formulations manufactured in India are under more than 60 therapeutic segments. Almost 85% of the formulations produced in the country are sold in the domestic market. India is largely self-sufficient in respect of formulations, though some life saving, new-generation-technology-barrier formulations continue to be imported.[2] Drug prices in India are amongst the lowest in the world. India is also a source of relatively good quality cheap drugs for the rest of the world. This indicates a healthy growth of this sector in India.

However, the scenario has changed after the amendment of Patent Act in 2005 leading to the introduction of product patents as mandated by India's WTO obligations. In 2005 total turnover of organised sector companies aggregated Rs 302 billion; of which 81% was by Indian owned companies and only the balance was the contribution of MNCs.[3] Till recent

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1 EFPIA, "***The Pharmaceutical Industry in Figures 2011"***, European Federation of Pharmaceutical Association, p.2.

2 SMERA, Industry Reports, "Overview of the Indian Pharmaceutical industry", SME Rating Agency of India, http://www.dnb.co.in/pharmaceutical/overview.asp, visited on 13-02-2012.

3 This is subject to variation as per merger and acquisitions and other related activities.

years the MNCs[4] did not dominate the production network in India, but in the second half of 2000s the industry has witnessed some structural changes with an increase in Merger and Acquisition (M&A) activities. In general there was an unprecedented rise (2005-06 onwards) in M&A activities as Indian companies accepted inorganic growth through M&A as a core strategy initiative. They were supported by a liberal credit regime and the corresponding recognition by the international community as credible global competitors. Some of the other prominent sectors wherein the M&A activities were prominently noticed were consumer goods; telecommunication; audio-visual media & entertainment; information technology and IT enabled services; and infrastructure.

India's pharmaceutical industry is US$ 14 billion and will continue to be an attractive proposition for the global players.[5] Growing interest to take control of the Pharmaceutical sector through the Merger and Acquisition (M&A) activities, an inorganic growth path, is the most prominent strategy. This has been the strategy of Japanese pharmaceutical company Daiichi Sankyo which took control over Ranbaxy- one of the largest companies of India in 2008. In 2010, Abbott acquired Piramal Healthcare for $3.72 billion (Rs 17,500 crore).[6] Ninety one percent stakes in Dabur Pharmaceutical Limited was transferred to Fresenius SE of Germany. There were some major structural shifts in India's Pharmaceutical industry in terms of shareholding and controlling patterns, with a movement towards more foreign controls in the existing companies. It peaked by the year 2010 after which there was decline in M&A activities. Number of deals dropped to 806 during 2011 from 1,135 deals in 2010.[7] These M&A have caused major changes in the forward and backward linkages. Opportunities for outsourcing are immense and are being grabbed mainly by players with economies of scale in terms of production and those with capabilities for constant quality of deliverables. Therefore, India being dominated by SMEs, there is a growing need for increasing competitiveness. This would require huge capital investments fixed assets and to create technological capabilities to sustain operation.[8]

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4 In the early stages of production of pharmaceuticals in India, the industry produced only conventional drugs such as tinctures and other spirituous preparations, vaccines etc. Antibiotics and synthetic drugs were introduced after the Second World War. Soon after the independence of the country, the multinationals and the trading concerns started importing the finished formulations. Subsequently, the production activity was stepped up based on imported bulk drugs. The establishment of public sector units during 1954 to 1961 was an important milestone in the development of pharmaceutical industry in India. By 1965-66 there were about 2000 manufacturing units producing formulations worth Rs. 1,500 million. Production of bulk drugs was also picking up and had reached to the level of Rs. 180 million. Refer to Pranob Sen Report submitted to Department of Chemicals & Petrochemicals, 2005.

5 **KPMG Report**, "***The Indian M&A Landscape: A Perspective"***, 2009.

6 Balakrishnan Reghu, 2012, ***"Pharma deals down after spectacular 2010",*** Saturday, Feb 11, , **Business Standard**, http://www.business-standard.com/india/news/pharmadeals-down-after-spectacular-2010/460219/

7 Press Trust Of India, 2012 ***"M&A Deals Of Indian Firms Dip To $34.4 Bn In 2011: E&Y"***, January 2, **Business Standard**, http://business-standard.com/india/news/madealsindian-firms-dip-to-344-bn-in-2011-ey/460479/

8 SMERA, Industry Reports, ***"SMEs in Indian Pharmaceutical Industry",*** SME Rating Agency of India, http://www.dnb.co.in/pharmaceutical/smes.asp, visited on 13-02-2012.

The M&A activity in India has undermined the domestic production and its inter-linkages between the formulations and bulk drug producers.[9] Hence, the second phase of liberalisation, which was largely M&A based, is distinct from the first phase of domestic-linked-liberalisation experienced in 1991 and has raised many questions. In this context it becomes important to analyse trade trends to ascertain whether India has increasingly become dependent of one source - China – for its imports. Over-dependence on any country runs the risk of import disruptions causing havoc for Indian manufacturers, as was seen in the case temporary shortage of bulk drugs required for penicillin coinciding with the Beijing Olympic.[10] Such an eventuality in future may have a severe adverse impact the whole pharmaceutical sector in India. This could pose a threat to health security of millions of poor Indians as it could raise the drugs prices or even lead to non-availability of the essential medicines. Further, in the long run, it could adversely impact the exporting capabilities of India in the formulation segment. Therefore, it was considered useful to undertake this study on the Indian pharmaceutical sector and its import linkages.

Scheme of the Paper

Section two will address the relevant literature in the area of pharmaceutical sector in order to identify the issues which have been overlooked by the previous works. Section three will discuss the objectives of study, data sources and methodologies adopted to study the questions posed. Section four will undertake the detailed data analysis of exports and imports. We also look at individual 6 digit product-wise trends of import dependence. Section five will analyse the increasing dependence on China using various indices and correlations. Section six draws some conclusions based on the increasing import dependence on a single country and consequently challenges for the Indian pharmaceutical sector.

[9] CCI, 2010, "Competition Law and Indian Pharmaceutical Industry", Centre for Trade and Development (Centad), New Delhi.

[10] To quote.... *"China shut down an entire swath of industry to clear the air over Beijing for the games. Among the shutdowns were plants that churn out raw materials for drugs and active pharmaceutical ingredients. During the games, Indian drug makers were finding active ingredients scarce, and costly, too."* http://www.fiercepharma.com/story/olympics-spawned-api-shortages/2008-09-05

Section II

Literature Review

In order to identify the gap in the research we have undertaken an extensive literature survey of the pharmaceutical sector in general and in India and China. Therefore, this section addresses the literature on India's and China's pharmaceutical industry in the context of the interplay between with trade and investment. The issues are in the nature of competitiveness; research and development (R&D) intensity; TRIPs issues; productivity and competitiveness; import intensity; and lastly the structural changes of these two economies. It is observed that the pharmaceutical industry has been witnessing an accelerated pace of change this is especially true for the last decade.

This section is further divided into two parts, the first part addresses the issues related to India's pharmaceutical sector and the second part deals with the issues on Chinese pharmaceutical sector.

Indian Pharmaceutical sector

There have been a number of studies on India's pharmaceutical sector. These range from the studies on liberalisation of the economy, TRIPs compatibility, R&D intensity and performance in terms of competitiveness. The external sector liberalisation which was initiated in 1991 is a major issue across many of the studies reviewed under this section. The issue of product patent regime introduced in 2005 and its implication for the R&D and innovation across this sector's is another issue reviewed.

The structure of the Indian pharmaceutical has undergone significant changes over time. Pharmaceutical products consist of two main components - (i) the active pharmaceutical ingredient (API) or bulk drug; and (ii) the formulation segment (*i.e.,* a suitable final dosage form). Up to the year 2001, the bulk drug production increased by nearly 20 per cent annually, whereas the value of formulations increased at an average rate of 15% per year (Joshi, 2003). A comparison of value or production of bulk drugs and formulations to the value of exports of formulations and bulk drugs shows that **80% of the formulations produced** are consumed indigenously, whereas the majority of the bulk drugs manufactured are exported. The Associated Chambers of Commerce and Industry of India (Assocham) forecasted that the Indian pharmaceutical industry will account for about 30% of the increasing generics market from the current figure of 22 percent of the generics world market. In the process of industrial restructuring, the pharmaceutical sector has seen policy interventions across countries, both developed and developing countries. The Indian pharmaceutical industry in the 1950s had little technological capabilities to manufacture modern drugs locally. However, it emerged as the most dynamic technological content segment in the Indian manufacturing in the 1990s. Indian pharmaceutical industry consisting of about 20,000 registered units is one of the most well organised sectors in India's economy. India's pharmaceutical sector is ranked 3rd in volume and 14th in value in the global pharmaceutical market (Kalani, 2011). Policies of import liberalisation, export promotion, attracting foreign investment are the major ingredients of the opening up of external sector.

Such economic integration across countries has created a global market for different types of products segments. **There are few studies on the structural issues of India's pharmaceutical sector and very few studies on the trends seen in the exports and imports.**

In the first few decades following the independence of India, the pharmaceutical industry in India was characterised by the dominance of very few MNC's which were engaged in production and exporting drugs. These were mainly either low priced generics or a few high-priced speciality items. These firms imported most of the bulk drugs (the Active Pharmaceutical Ingredients) from their parent companies abroad and sold the formulations (as the end products in the form of tablets and capsules, syrups etc.) at unaffordable prices to vast majority of poor Indians (Saranga and Phani, 2009). So one can visualise that imports of bulk drugs was happening immediately after the independence. In contrast, a few state owned companies were producing cheap bulk drugs even during the 1950s and 1960s. Saranga and Phani (2009) suggested that these were the firms which later laid the foundation of the Indian pharmaceutical industries. They also indicated that the government initiatives to reduce the country's strong dependence on MNC's led to the formulations of several policies such as high tariffs and patent laws which reduced the attractiveness of the Indian market for the MNC's. Consequently many firms left the Indian market.[11] The production process was mainly dependent on reverse engineering which was allowed under the patent law of 1970.

Lall (2003) briefly reviewed the **economic case for uniform and strong intellectual property rights (IPRs) in developing countries** and threw light on potential impact of strengthening IPRs and applying them uniformly to all countries (as envisaged by the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement). The paper argues that countries at different levels of industrial and technological development may be faced with varying economic costs and benefits from stronger IPRs. He further illustrates the technological differences with the help of country classifications using various measures of domestic innovation and technology imports, both of which are expected to respond to stricter IPRs. However, the paper does not deal with issues such as the cost of medicines, agricultural inputs, bio-diversity or genetic materials. Nor does it try to measure the strength of IPR regimes in different countries or quantify the general impact of IPRs on development.

Lall (2003), categorised countries according to technological activity, industrial performance and technology imports to illustrate that there exists a great heterogeneity among them and that any move towards the standardisation of norms (as envisaged by the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement) should take into account this factor. With respect to India, he observed that, *"**India has now reached a stage in pharmaceutical production where stronger IPRs would induce greater innovation by local firms** (the benefits of which would have to be set off against the closure of other firms)".* Ganguli (1999) and Lalitha (2002) also indicate that TRIPS is likely to induce greater innovation creation, more R&D expenditure and more patents by both Indian and foreign firms in bio-pharmaceutical sector. The impact of the TRIPs Agreement on developing

[11] Saranga and Phani, 2009.

countries was discussed under its specific role of supporting the R&D activities and increasing the investments in the context of India. Studies have examined the impact on final prices in the market, policies for improving distribution, foreign direct investment, incentives for R&D for local firms, technology transfer through foreign collaborations and market demand.

Some of the contextual issues of **TRIPs Agreements and its impact on the general innovative capacity** of the India's pharmaceutical firms was analysed by Lanjouw and Cockburn (2001). Their study concluded that the protection of pharmaceutical innovations is being dramatically extended, as much of the developing countries introduced patent protection for new drug products. This change in intellectual property rights may lead to more research on drugs to address tropical diseases. Lack of a strong IPR in the past had impeded the development of new treatments for classical tropical diseases like malaria.

The picture presented provides a "baseline" against which future patterns in research activity can be compared - although limited evidence of an increase in the mid- to late 1980s which appears to have levelled off in the 1990s. Lanjouw (2002) at the *Annual World Bank conference on Development and Economics (2002/03)* presented the case of a policy initiative for optimal patent protection between the developed and developing countries. As this policy of optimal patent would lower the price of pharmaceuticals in developing countries for a selected group of global diseases, those like cancer which affect people everywhere- while allowing protection to increase where it is most likely to lead to the creation of new products for diseases that affect primarily people in developing countries.[12] In a further study Lanjouw (2003) concludes that it would allow the implementation of a global patent regime that was sensitive to countries with development needs and the characteristics of particular drug markets.

The Indian pharmaceutical industry has undergone a major change mainly from 2005 when the Patent Act of the government of India got revised. Patents are critical aspects in the development and marketing of pharmaceutical products. A patent can be obtained for a new drug molecule, a new application for an existing molecule, or for a new drug delivery system of an existing product. Analysis of patenting showed that the patents in drugs and pharmaceutical industry have grown at a higher rate of 6.06 (2005-2008) percent per annum as against the 5.57 (1994-2008) percent growth of total patents granted (Mainak et al., 2009). **The new patent law has provided incentives for the return of the multinational companies who are not only keen to take advantage of country's with strength in manufacturing but also looking for location for research and development.** Globalisation and Liberalisation are supposed to increase the technical and investment collaborations in the pharmaceutical sector. However, since Indian firms are not fully participating in the development of new drugs per say, the benefits of this **process of liberalisation in terms of technology transfer is very limited** and this has increased their dependence on the foreign companies.

[12] Lanjouw Jean O., 2002/03, "A Patent Policy Proposal for Global Diseases", Annual World Bank Conference on Development and Economics, Rourke Kevin H.O, Cohen Daneil, Cooper Richard N. and Venables Anthony J., (Eds.), Globalization and Inequality on Health and Development, World Bank.

On the other hand, the studies by Ramani and Maria (2005) have argued that many countries of the world, including India**, have achieved self-sufficiency in knowledge intensive sectors by allowing for a loosely defined intellectual property rights (IPR) regime**. The implementation of TRIPS represents a step in the opposite direction and its has a negative impact on the production and innovative capacities of developing countries in knowledge intensive sectors like the biotech segment of the Pharmaceutical sector. **Ramani's study concluded that TRIPS is not likely to have a significant impact on incentives for innovation creation in the biotech segment**. Pharmaceutical segment in India has been one of the early exploiters of biotechnology due to existence of such capabilities. This feature has been observed world-over and the literature is replete with information on how firms have evolved various strategies to meet this requirement. Feinberg and Majumdar (2001) explored the implications of India's economic and industrial policy goals and implementation in light of the presence of MNCs. They examined the **knowledge spill-over from MNCs' local R&D activities benefitting domestic firms in the Indian pharmaceutical industry for the period of 1980-1994**. It was suggested by them that the policy environment should be conducive and should not restricted FDI in combination with intellectual property protection. The study provide evidence of significant R&D spill-over between the MNCs in the Indian pharmaceutical sector. The study suggested that a situation of lack of effective intellectual property protection could lead to a scenario wherein there could be minimal interaction between the MNCs and domestic Indian firms.

Prior to the introduction of the new patent legislation in 2005, the Indian pharmaceutical industry was characterised by the production of generic drugs i.e. many Indian drug producers copied expensive original preparations from foreign firms and produced these generics by means of alternative production procedures. At one-fifth, India's share in the global market for generic drugs is considerably higher than its share in the overall pharmaceuticals market. Pradhan (2006) suggested that the production of these generic drugs was considered to be more cost effective and hence it increased India's competitiveness. In a study relating to growth rate of Indian pharmaceutical and R&D, it was seen that even though the exports have consecutively achieved impressive growth rates of about 14% in 1990–94 and 44% in 2000–04, the R&D share in the global pharmaceutical has not shown any improvement. **Also the growing trend of R&D expenses may provide a positive outlook about the future growth of the sector, but it is still not a sufficient condition to ensure a rising competitiveness for Indian sector,** see Pradhan (2006). **Unless the sector sets aside an increasing proportion of its value-added for the R&D activities over time and across countries, expanding global position would be difficult.** Joseph (2011) also observed a similar trend in the growth of R&D intensity, which began to decline after reaching its peak in 2005-06. The result seemed contrary to expectations since the **new patent regime introduced in 2005 was expected to boost R&D in the pharmaceutical industry.** Further there were additional incentives like tax benefits, grants and soft loans, being provided for promoting R&D. The study also pin points the important role played by two companies-namely Ranbaxy and Dr. Reddy's in promoting R&D activities. The study says that these companies were initially successful in developing a few molecules in-house, which prompted them to invest in R&D activities. However, realising the higher failure rates as well as the

fact that most of the other MNCs were not interested in developing molecules, these companies also curtailed their R&D investments.

Obligations under the TRIPS agreement ensured that the Indian pharmaceutical firms could no longer produce cheap copies of the foreign patented medicines by using alternative production processes. This necessitated the need for increased expenditure on R&D activities by the Indian firms in order to face the increased competition from the foreign MNCs. There have been various studies analysing the growth in R&D and R&D intensity in the post TRIPs period. The study by Kiran and Mishra (2011) tries to analyse the impact of TRIPS on R&D, exports and patenting activity of the Pharmaceutical Industry of India. It was seen that growth in R&D of the industry as a whole was more in the post-TRIPs period (6.56) when compared to pre-TRIPS period (4.89). The same result was seen at firm level (top 9 Indian Pharmaceutical firms). This might be due to the fact that these firms have realized the need of R&D in post TRIPs period and as such, they are increasing the percentage of R&D expenditure. **Also, industry level analysis showed that the annual growth rate of India's pharmaceuticals exports increased marginally from 5.29 percent in pre-TRIPS period to 5.68 percent in the post-TRIPS period.** The same results were observed in the case of analyses of the export intensity at company level. Many of these firms have been exporting more than half of their sales turnovers. It seems likely that for these companies, foreign markets are as equally important as their domestic markets, and this gives them the impetus to improve their operating efficiencies. There are contradictory studies with respect to R&D expenditure intensity in the India's pharmaceutical sector; therefore it is difficult to conclusively say anything about the causality of R&D intensity and export performance and other indicators.

Malhotra and Lofgren (2004) studied the Indian pharmaceutical industry in the context of an array of measures which supported domestic firms. The absence of product patents enabled Indian companies to become world leading producers of generic versions of patented drugs. Low costs and a strong engineering tradition continued to sustain the competitive strength. The implementation of the TRIPS regime in 2005 is driving a transformation of the industry. Key elements of the present change include the return of *'big pharma'* companies on a large scale and the emergence of several Indian firms that aim to become full-fledged research-based multinationals. They further studied the development and structure of Indian pharmaceutical industry and explored questions and challenges arising from its integration into global markets. They critique the notion of a cross-national convergence of institutional and policy responses to science-based technologies. The continued significance of institutional legacies is demonstrated through a comparative analysis of strategies for the bio-pharmaceutical industry in two radically different settings: India and the European Union (EU). Tensions are evident in both the EU 'high' route and the mixed strategy pursued in India. State promotion of bio-pharmaceutical is seen in India as a pathway to economic development, framed by a vision of India as a global power. The 'low' route of cost advantages is combined with a 'global' rhetoric of innovation, modelled on US experience. **The pursuit of product innovation was reinforced by India's adoption of TRIPS-mandated intellectual property rights.** The authors conclude that the EU's aim was

primarily to integrate policy and regulatory approach to sustain and legitimise the European integration, with the ultimate intent of overtaking the USA in patents related investigations.[13]

A study by Visalakshi and Sandhya (1997) attempted to assess the R&D capabilities in the pharmaceutical companies in India in the context of biotechnology commercialization. The study was conducted on the R&D capabilities of 33 companies. The companies represent 3 categories of the Indian industry like: (a) purely medicinal chemistry based pharmaceuticals; (b) diversified (both medicinal chemistry and biotechnology); (c) dedicated biotechnology companies. Discriminate analysis was performed to understand (i) the distinctiveness of the three groups of companies; and (ii) the characteristics of their R&D capabilities. With respect to eight of the ten chosen parameters like R&D intensity, skill intensity, linkages, output of R&D, size, age, R&D manpower as a proportion of total manpower and number of skilled R&D employees, the three groups are observed to be distinct from each other.[14] The study concluded that there was no linkage between the R&D capabilities and the biotechnology commercialization.

A study on India's exports and imports trends in pharmaceutical sector was carried out using the SITC nomenclature (Joseph 2012). It was feared that firms would shift from indigenous production to imports, especially of bulk drugs, as direct outcome of the change in the patent law. The study concludes that these apprehensions have only come partly true. Exports of formulations have grown faster while their imports have not registered any jump, keeping the balance of trade positive. But there has been a decline in domestic production of bulk drugs and a growth in imports because the industry is moving away from intermediates and is focusing on bulk drugs at the high end of the value chain. Joseph 2009, points out that there are various data sources on drugs and pharmaceuticals trade and it is important to adopt a uniform definition of the term "drugs and pharmaceuticals". The lack of a uniform definition has resulted in divergent conclusions on the performance of the industry on the trade front.

According to a Report by the Competition Commission of India, the Indian Pharmaceutical industry is believed to be meeting around 70% of the country's demand for bulk drugs, intermediaries, pharmaceutical intermediaries, chemicals, tablets, capsules, orals and injectibles. India holds several advantages in terms of a highly competent workforce, cost-effective chemical synthesis which makes it possible to produce and export sophisticated bulk drugs and extensive production and research units, making it possible for the industry to register an excellent growth rate of 8-9% annually. The study finally recommended that the CCI would have to keep a strict vigil over various issues like: patent abuse; practices in the pharmaceutical supply chain; price monitoring in drug procurement and possible anticompetitive practices and other practices affecting the supply chain; sensitizing various stakeholders; innovation policies; issues around compulsory licenses; relationship between

[13] Lofgren, Hans and Benner, Mats 2011, *"A global knowledge economy? Biopolitical strategies in India and the European Union"*, Journal of Sociology, vol. 47, no. 2, pp. 163-180.

[14] Visalakshi S. and Sandhya G,D, 1997, "***An analysis of biotechnology and non-biotechnology R&D capabilities in the Indian pharmaceutical industry"***, R&D Management, vol.27, Issue 2, pp. 177 – 180.

competition law and intellectual property rights; interventions in case of excessive pricing; and to prevent anticompetitive mergers/acquisitions.[15]

In our study we do not be undertake a detailed examination of most of the issues addressed in the literature as highlighted above. India was endowed with comparative advantage associated with cheap and skilled labour and the first mover advantage among the developing countries under a protected patent regime until 2005. However, some structural changes and policy compulsions have made the situation challenging for Indian pharmaceutical sector. First of these changes have been in terms of change in ownership of firms. Few dominated players in the sector were Ranbaxy, Cipla, Dr. Reddy's Laboratories, Lupin, Nicolas Piramal, Aurobindo Pharma, Cadila Pharmaceuticals, Sun Pharma, Wockhardt Ltd. and Aventis Pharma. By 2010 all of these companies lost their Indian identity. India's pharmaceutical sector which was considered to be the global leader in bulk drugs and formulations in the 1990's by the second half of 2000's due to increasing M&A activities seem to be losing its position in global arena.

Chinese Pharmaceutical Sector

The global economy has been virtually dominated by the Chinese exports (or trade) in nearly all manufacturing sectors. China has been increasing its presence in bulk drugs and formulations segments. Therefore, it is believed under this section we would undertake a detailed analysis of the literature on the Chinese pharmaceutical sector, which would help us to understand and appreciate the existing complementarities and the challenges that exist between India and China.

According to a Report by KPMG, with the booming economy and high GDP growth, the Chinese pharmaceutical industry is the fifth largest in the world. With the domestic growth projected about 20% p.a. combined with high volume, the industry is expected to overtake Japan and subsequently push into the second place in the world by 2015. United Nations Conference on Trade and Development (UNCTAD) in 2004-05 conducted a survey of world's top R&D spending MNCs nearly all them identified China as the most attractive location for future investments in R&D. China has been an important producer of **bulk drugs** *(raw material or APIs***)** which is required for the manufacture of several essential drugs, including anti-retroviral for the treatment of HIV/AIDS. These two factors can give China required strength to compete at the global market with Indian pharmaceutical sector. All these factors suggested that China had potential for growth in the Pharmaceutical sector. It should also be noted that since 1978 China has been following 'opening door' policy due to which the Chinese pharmaceutical industry has been one of the fastest growing sectors. The output of the pharmaceutical industry increased annually at the rate of 16.1% annually between 1978 and 2005 with an exceptional annual growth rate of 22% during the period 1990 – 1995 (Zhang and Bulcke, 2007).

[15] Centre for Trade and Development, 2010, ***"Competition Law and Indian Pharmaceutical Industry",*** http://www.cci.in/images/media/completed/PharmInd230611.pdf.

An important issue that could decide the fate of the pharmaceutical industry in China is the expiry of patents for blockbuster drugs between 2011 and 2013. Many of the multinational companies are eagerly waiting to seize this opportunity and acquire the generic drug companies to compensate for the loss in income due to the expiring patents. **The pharmaceutical industry in China comprising about 5,000 units is characterized by both minor and major players.** Though the domestic companies lack the necessary administrative or R&D sophistication possessed by the international players, they manage to compete with them with their scale of operations and ability to penetrate the market. The domestic companies' strength lies in manufacturing of generics and active pharmaceutical ingredients (API) for exports. China is one of the world's largest exporters of API – it constituted about 80% of China's export in 2009.

The Chinese pharmaceutical industry has three sub-pharmaceutical industries: (a) the chemical medicine; (b) the traditional Chinese medicine (TMC); and, (c) the biological products. The pharmaceutical industry has undergone a substantial industrial and corporate restructuring process over the last decades as a result of the various reforms, **combined with the introduction of western corporate governance and the increase of M&As.** This process has positively affected the agglomeration of the sector, especially in the **sub-sector of TCM** and **chemical raw materials**, which traditionally had a dispersed and fragmented geographical lay-out. The agglomeration in these two sub-sectors has enhanced the industry's structure and global competitiveness and resulted in the higher concentration ratio of the industry on one hand and its improved export performance on the other hand.

The Chinese pharmaceutical industry boasts of numerous success stories. To illustrate, Eli Lilly failed to collect a series of specific human tissue samples in the U.S. The firm contracted Shanghai-Bio, which was able to collect 100 relevant samples in China in the course of three weeks time for a USD 300 per sample. The cost of similar sample collection can be as much as USD 2000 per sample in the U.S. In India and China the cost of such services are cheap.[16] **As such cost advantages are temporary in nature owing to lack of regulations and subject to new and unregulated markets opening up for such activities and the MNCs may shift the testing aspect of pharmaceutical sector. The clinical trials may be cheap in China and India when compared with western countries, but it is cannot be a long term advantage and should be reviewed as medium to short term or even temporary phenomenon.**

The Chinese state has undertaken steps to provide incentives for new science firms that focus on R&D segments in order to develop new drugs. The major funding for developing biotechnology in China came from various ministries of the state, in which different agencies were responsible for their own targets (Bartlett & Ghosal, 2000). Based on the pharmaceutical industry value curve and prior research into China's drug innovation the R&D evolution can be viewed to have the following four phases (Lin, 2007; Zhang et al.,

[16] Wadhwa Vivek, Rissing Ben, Gereffi Gary, Trumpbour John and Engardio Pete, 2008, "***Globalization the of Innovation: Pharmaceutical- Can India and China Cure the Global Pharmaceutical Market?***", Global Engineering and Entrepreneurship, Kauffman Foundation. http://unstats.un.org/unsd/trade/s_geneva2011/refdocs/RDs/Pharmaceutical%20Industry%20(Gereffi%20-%20Jun%202008).pdf

2009): (1) pure imitation, (2) innovative imitation, (3) imitative innovation, and (4) independent innovation. In phase I, pure imitation, the pharmaceutical firms fully depended on copying synthetic methods and preparation technologies of drugs from foreign companies. In phase II, innovative imitation, China's drug innovation was mainly based on **modifying delivery methods** and preparing formulations of existing drugs without changing the drug molecular structure. In phase III, imitative innovation, drug innovation was focused on chemical modifications of the structure of existing drugs, such as **changing acid or basic group**, altering optical configuration, and developing isomers of original drugs to develop "me-too" drugs. In phase IV, independent innovation, **Chinese companies will be able to discover new chemical entities,** see Liang et al., (2011).

Studies have observed contradiction in Chinese Pharmaceutical policies which seem to have been plagued. The government intends to develop the domestic pharmaceutical industry and has used drug pricing to cross-subsidize public hospitals. The government also aims to control drug spending through price caps and profit-margin regulations to guarantee access even for poor patients. It has been observed that the resulting system has distorted market incentives, increased consumers' costs, and financially rewarded inappropriate prescribing, thus undermining public health. Pharmaceuticals account for about half of total health spending in China, representing 43 percent of spending per inpatient episode and 51 percent of spending per outpatient visit. Yet some essential medicines are unavailable or of questionable quality, see Sun et.al. (2008).

In 2002 as part of the WTO accession commitments, China fully implemented the product patent rules in compliance with the TRIPS as a part the WTO obligations. This gave Chinese firms a clear advantage of 3 years upon India which only implemented product patent in the 2005. Several firms in China are performing advanced R&D and are moving into the highest-value segments of the pharmaceutical global value chain. The patented drugs are dominated by global pharmaceutical and the rest are shared by domestic firm. Since patented drugs are expensive, although foreign firms supply only a small portion of drugs to the Chinese market, they earn a disproportionate profit in the market. **For example, according to Business Monitor International (2010), the Chinese firms' supply 97% of the drugs to the market; they have earned only 60% of the revenue**. This was almost similar to that seen in India. Also, it was observed that foreign firms supply expensive drugs and domestic firms supply cheap generic drugs to the hospitals (Wan and Chen 2011).

Wang (2005) propagated different set of issues with the Chinese pharmaceutical market in absolute size (the second largest in Asia) which is very large, but it also faces problems similar to those faced by other developing countries such as a lack of adequate patent protection; low pharmaceutical spending per capita; high pharmaceutical expenditure as a proportion of total medical spending; and a lack of health insurance coverage.

The Chinese pharmaceutical industry does not contribute much to the R&D expenditure. **Chinese R&D spending in the industry is low**, see Chu, Sun and Liang (2010). The R&D intensity of Chinese medicine manufacturers is just a bit higher than the average level of the manufacturing industry, which is far lower than developed countries and also lower than the

average level of the Chinese high-tech industry, see Zhang, Li, *et.al*. **Unique clinical trials in R&D linkages of the pharmaceutical industry have the characteristics of strong modularity(segmentation), low technical spill-over, and high labour intensity**. These make outsourcing the main type of vertical specialisation in the R&D links. A study by Grace in 2004 found through the experimental results show that **lower cost motivates multinational companies to transfer clinic trials to China**. But still **R&D partnerships involving MNCs are at a nascent stage**; a need for better translational processes between academic centres and industry has been identified, as well as improved ability to commercialise inventions in general.

There have been studies comparing India and China's pharmaceutical industries. In one such study by Zhang et al., the authors calculated the **Trade Competitive Index** (2004-2008) for China and India's raw and prepared medicine. **China and India both have a certain degree of overall competitiveness in the pharmaceutical industry, but the origin of the competitiveness differs greatly**. The Chinese **TC index is very high for raw medicine**, **showing that China has absolute comparative advantage** in raw medicine production, while India is located at a relatively low position. Since 2004, in the global pharmaceutical value chain production link, **China is mainly specialized in raw medicine, while India is specialized in prepared medicine**. Also it was observed that the China exported raw medicine while it imported the manufactured medicine products, i.e., formulations. So these trade flows are not characterized by intra-industry trade. Hence, it can be said that the policy driven **Chinese pharmaceutical industry is in a race to meet the twin objectives of quantity and quality set by the reforms of 2009**. The industry has all the necessary incentives as well as support to achieve these objectives.

Yeung in 2002 found that Chinese firms have limited capabilities of R&D and global distribution channels, and the virtual non-existence of patented drugs, due to which the Chinese pharmaceutical industry has little chance to enter the global market of Western prescription drugs and compete with the established global giants head-on. **The reality is that they are chasing a moving target and their competitors are becoming bigger and stronger day by day**. The substantial reduction of import tariffs and the granting of comprehensive trading and distribution rights to foreign-financed firms following WTO accession effectively tilted the level-playing field against the Chinese pharmaceutical industry.

Das (2007) suggested that India has given companies an access to the world's best resources with cheap but talented labour, largest markets in terms of size, vast capital market, advanced technologies and lowest-cost suppliers of inputs. Das (2007) concluded that global MNCs find their origin not only in developed countries but also in emerging markets. Emerging markets in particular provide an invaluable springboard to companies to achieve global standards of competitiveness in their core activities at home, which are then leveraged internationally. **These trends are observed in China and partially in India, which necessitated a study to review the key strategies of Chinese and Indian companies, with a view to analyse their success in establishing a global footprint.** It also highlights some major strategies employed by Indian companies in going abroad, particularly the

pharmaceutical and auto companies, the need for creating a powerful brand India Inc. and suggest an innovative roadmap for all aspiring multinationals of South Asia.[17] So it becomes very important as strategy to keep up the "brand India" for long term survival and the success of pharmaceutical sector.

[17] Das Niladri, 2007, "***The Emergence of Indian Multinationals in the New Global Order",*** International Journal of Indian Culture and Business Management, vol.1, no.1, pp.136-150.

Section III
Methodology

This section is divided into four sub sections. To begin with "statement of problem" is the first sub section which is based on the review of literature. The second sub section is the list of objectives which unravels the gap[s] identified in the statement of problem. The third sub section identifies the various data sources for purpose of analysis in this paper; and the last sub section provides a detailed limitation of this study.

Statement of Problem

The problems for India and China are largely common for pharmaceutical sector including the following: low R&D intensity; lack of patented products; heavy dependence on generic market; low productivity owing fragmentation of production activity, etc. An important research issue that has emerged from these different studies is that there is a lack of definition of pharmaceutical sector in India. We have used the HS nomenclature which is used by the World Custom Organisation and also the WTO for negotiation purposes. Primarily this may help the policy makers' form strategic plans. The Standard International Trade Classification (SITC) is used for analysing trade related studies, while mostly all the economic activity indicators like number of units; production; value addition; and employment are based on the Annual Survey of Industries (ASI). This is based on International Standard Industrial Classification (ISIC). The available concordance has many limitations- for example the same SITC code represents multiple ISIC codes and *vice versa*. There is no direct one-to-one concordance between the SITC and ISIC codes. These have led to a number of differing economic and trade indicators for the pharmaceutical sector.[18]

Other issue that has been identified from the literature is that Chinese firms are relatively better placed in terms of productivity in bulk drugs, while the Indian firms are more competitive in the formulation segment. Additionally, India is also being recognised as the cheapest global generic drug producer of the world. China specialises in bulk drugs (APIs) and India on the other hand is specialised in the formulations portion of the Pharmaceutical sector. **We would like to understand the nature of symbiotic relationship between these two emerging Asian trading partners.** These are the two gaps in literature which will be studied in detail in this paper using the objectives which are given in the next sub section.

[18] The SITC codes for the Pharmaceutical sectors are 51-Organic chemicals, 52- inorganic chemicals and 54 - Medicinal and pharmaceutical products. The SITC Rev.3 has total of 282 tariff lines at 5 digit level. On the other hand the HS nomenclature (2012) has close to 533 tariff lines at 6 digit level.

Objectives

The sub-section lays down the issues to be addressed in this paper and the methodology for analysis. At the outset, this paper proposes a clear definition on pharmaceutical products based on HS nomenclature as explained in the sub-section of "statement of problem". [19] This sector has suffered from the absence of a common definition, as evident from the previous studies. Second, best to our knowledge, none of the previous studies have attempted to analyse the growing dependence of India pharmaceutical sector on a single source of import–China. This paper would attempt it under the following specific objectives:

1. To identify HS tariff codes which constitute the pharmaceutical sector in India and bifurcation of the sector into sub-sectors- bulk drugs and intermediaries and formulations- **Based on Indian Tariff Classification(8 digit HS)**;
2. To analysis trends in pharmaceutical sector exports and imports of India from China and Rest of World (RoW);
3. To examine the existence of Intra-Industry Trade (IIT) using the Grubel–Lloyd index and to understand the level of diversification of trade by a simple Herfindahl-Hirschman Index;
4. To make an assessment of the top pharmaceutical products exported from India and imported to India; and
5. Finally, an assessment for the cost competitiveness of Indian pharmaceutical sector: using the global average unit as a benchmark prices.

Grubel–Lloyd index

The paper uses the Grubel-Lloyd Index to establish the extent of intra-industry trade at 6 digit level.

The following formula is used in this paper:

$$GLi = \frac{(Xi+Mi)-|Xi-Mi|}{Xi+Mi} = \quad 1 - \frac{|Xi-Mi|}{Xi+Mi}; \quad 0 \leq GLi \leq 1$$

Where:

***Xi** = exports of pharmaceutical goods **i**,*
***Mi** = imports of pharmaceutical goods **i**.*

Higher the value of GL Index, higher is the intra-industry trade and lower the value of GL index, lower is the intra-industry trade. This exercise should be done at the most disaggregate level to avoid the problem of aggregation bias. In this paper it is done at 6 digit level all the results as shown in this paper reflect this fact.

Herfindahl-Hirschman Index

The Herfindahl-Hirschman Index is a measurement used to understand the level of competition that exists within a market or industry in terms of Chinese imports shares. The lower the Herfindahl-Hirschman Index, the more diversified the products imported. Higher the H-H Indexes more concentrated are the products imported by India.

$$H = \sum_{i=1}^{n} S_i^2 \qquad 0 \leq H \leq 1$$

[19] The definition is subject to modification by the industry experts/academicians are free to contact the authors.

S_i is the percent market shares at 6 digit product level of imports.
n is the number of 6 digit products

The estimation of Herfindahl-Hirschman Index is segregated in to four categories: 1) below 0.01 (or 100) indicates a highly competitive index; 2) below 0.15 (or 1,500) indicates an un-concentrated index; 3) between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration; 4) those above 0.25 (or 2,500) indicates high concentration. Besides these tools some statistical tools like exponential growth rates and correlation were also used for the analysing.

Coefficient of Variation

The coefficient of variation was calculated using a ratio of standard deviation of the sample to mean.

$$CV = \frac{\text{standard deviation}}{\text{average(mean)}} * 100 \qquad 0 \leq CV \leq \infty$$

The higher CV value the higher degree of concentrated among the sample and *Vice Versa*

Data Sources

Pharmaceutical sector covers three sub-sectors, categorised into bulk drug, intermediaries[20] and formulations. [21] Due to definitional issues and non-availability of relevant disaggregate level information on these three categories, we have limited this sector to two basic categories i.e., bulk and intermediaries and formulations. This was not a simple straight forward task as it required the compilation from six different lists of import and export of IDMA and DoP in 2002 and 2004. Finally to this list the authors used their own judgement on the nature of pharmaceutical application of a chemical and further added 203 products at the level of "8 digit HS codes", see Annexure 2 for the detailed list.

Table 1: Indian Trade Classification of Pharmaceutical Sector (DGCIS)

Departments & Author List of Products	Bulk and intermediary	Formulation	Grand Total
Dep. of Pharma. Export	9	16	25
Dep. of Pharma. Import	215	213	428
Export IDMA 2004	103		103
IDMA 2004	6		6
Import Original IDMA 2002	211		211
Import Original IDMA 2004	452		452
Added by the Authors after making an Assessment	203		203
Grand Total	**1199**	**229**	**1428**

Source: Author's calculation based on Department of Pharmaceuticals (DOP) and Indian Drug Manufacturers Association (IDMA) 2002 and 2004 lists.

The paper therefore is based on the available classification of products in the pharmaceutical industry by the Department of Pharmaceutical (DOP) (for the purpose of both export and

[20] Bulk Drug and Intermediary's products are spread across Chapters 28 and 29.
[21] Joseph Reji, 2010, "India's Trade in Drugs and Pharmaceuticals: Emerging Trends, Opportunities and Challenges", **Discussion Paper no: 159**, Research and Information System for Developing Countries, P.10.

import). In addition it has also used the 2002 and 2004 versions of Indian Drug Manufacturer Association (IDMA) classifications. Thereafter, authors have tried to bridge the gap in these definitions by identifying additional products (see Table 1 for details).

The top twenty products at 6 digit level were disaggregated into 239 products at 8 digit ITC HS codes, see Table 2.[22] Coincidently, all 239 tariff lines belonged to categorisation drawn by the Government of India under the DOP or IDMA. The influence of the additions that were made by authors in this paper, (see second last row of the Table 1) will only be limited to its influence on the total figures of pharmaceutical sector.

Table 2: Distribution of the Top twenty products according to the categorisation of the Table 1

DoP and IDMA Lists	Bulk and intermediary
DOP based on Exports	1
DOP based on Imports	59
Export list of IDMA 2004	43
Import list of IDMA 2002	74
Import list of IDMA 2004	62
Grand Total	**239**

Source: Derived by the authors based on DOP and IDMA 2002, 2004 lists.

The 239 products belong to chapters 15, 17, 19, 23, 26, 27, 28, 29, 30, 35, 38, 56 and 96. Finally, the paper harmonises all tariff lines at HS 6 digit for the purpose of comparative analysis of the World and China. In order to capture the loss of information under HS 4 digit classification, these headings have been covered under the HS 6 digit.[23] Further the trade values and quantities were extracted from online WITS COMTRADE database.

Limitations of the Study

Given the spurt in import growth we may have to look at the whole sector of national health systems. This would require us to undertake a detailed analysis of the changing structure of Indian systems of medicines as a mechanism for managing the whole systems of health care. Indian system of medicine comprises five systems i.e., Ayurveda, Unani, Siddha, Indigenous systems of medicine and traditional systems of medicine other than the Allopathic system of medication. One of the limitations of this study is that we only analyse the trend in exports and imports in allopathic segment. Therefore, we do not address broad issues faced by the national health systems and subsequently the majority of alternative medicine system available.

[22] HS 1996 nomenclature was used of the purpose of further analysis.

[23] The first category of the 'Chapters' has been ignored for the present analysis as it would have involve a larger coverage. However, the following four headings (HS 4 digit) have been covered (representing 2922, 2933, 2921 and 2827).

Section IV

Analysis of Sectoral Trade Trends

Asian economies India and China have enjoyed one of the highest GDP growth rates among the emerging world and in many other economic indicators suggesting similarity, with an exception to trade wherein China in the second largest player only after the US. Together, these two economies have an important role to play in the global arena. India has emerged as a major supplier of affordable generic drugs globally. Any disruption of production activities in India, owing to any externalities, may adversely impact the global access to medicine.[24] As discussed earlier, during the last 12 years MNCs did not undertake any major green-field (organic) investments initiatives in India, the MNCs largely opted for brown-field (inorganic) investments. The change in management, we presume has altered the channels of procurement of raw materials, keeping the destinations of exports unchanged. The paper examines the changing pattern of sourcing. The dependence on China can be an advantage for the firms operating in India and sourcing their inputs from China. On the other hand, there is a risk of imports from China displacing domestic production in India. Therefore, using import unit prices, we examine how cheap have imports been throughout the period of study.

Another important issue that would be addressed here the growing fear of US consumers from the imports of specific raw materials supplied by China used in the U.S. manufacture of pharmaceutical and supplement products. [25] This issue may need to be addressed as we may in future use substantial portion of imported raw materials from China. It is also important in the context to under the implications of voluntary standards like the Suppliers Conformity Assessment (SDoC) of the US.

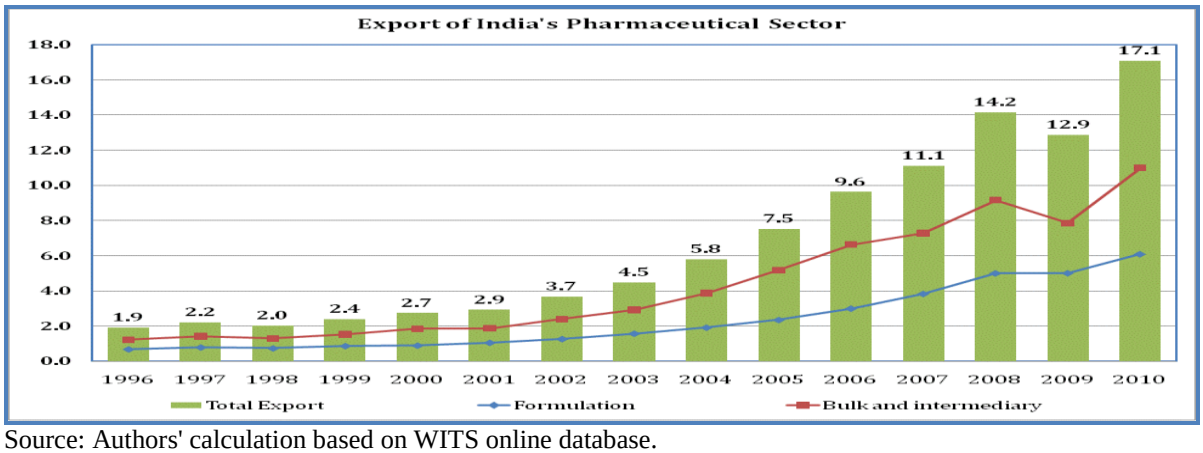
Export of Pharmaceutical Sector

The export of pharmaceutical sector at the 6 digit level of HS classification is analysed in detail. India's cumulative export of pharmaceutical products was approximately US$ 100 billion during the period 1996 to 2010. On an annual basis, the total exports of this sector increased from US$ 1.9 billion in 1996 to US$ 17.1 billion in 2010. Trends in exports of pharmaceutical products is shown in Figure 1. Figure 2 depicts the share of the two sub-sectors in India's exports.

[24] Third World Resurgence, 2012, "An Unhealthy future for the Indian Pharmaceutical Industry", No.259, 2012,

[25] U.S. China Economic and Security Review Commission, 2010, **"Potential Health & Safety Impacts from Pharmaceuticals and Supplements Containing Chinese-Sourced Raw Ingredients",** NSD Bio Group, LLC April 2010.

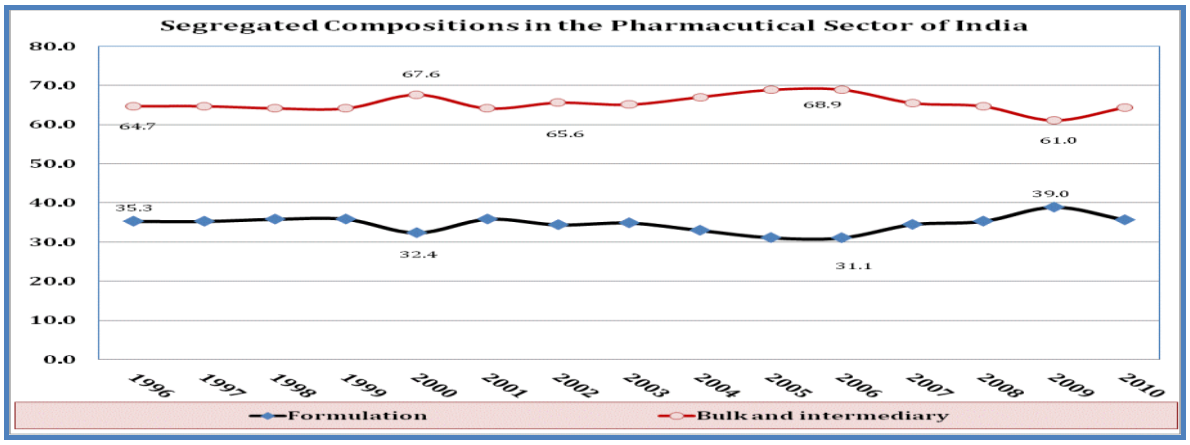
Figure 1: Trend in India's Pharmaceutical Exports (US$ Billions)



Source: Authors' calculation based on WITS online database.

Within the pharmaceutical sector the two sub sectors – formulations and bulk drugs and intermediary – showed a similar growth trend. During the period 1996 to 2001 the sub sector formulations grew at the rate of 8.2 percent on an annual basis. During the subsequent period from 2002 to 2010 the pace of growth accelerated significantly, as this sub sector witnessed an annual growth rate of 21 percent.

Figure 2: Share of Bulk and Formulations in India's Exports (%)



Source: Authors' calculation based on WITS online database.

The bulk and intermediary sub sector witnessed an annual growth of 9.1 percent during the first phase, with a spurted to 20.7 percent during the second phase. Despite both the sub sectors witnessing an accelerated growth during the second phase, the contribution of the bulk and intermediary products to total pharmaceutical exports significantly exceeded the contribution made by formulations (Figure 2). This was mainly on account of the low initial base of exports of the formulations.

Top Ten Exports

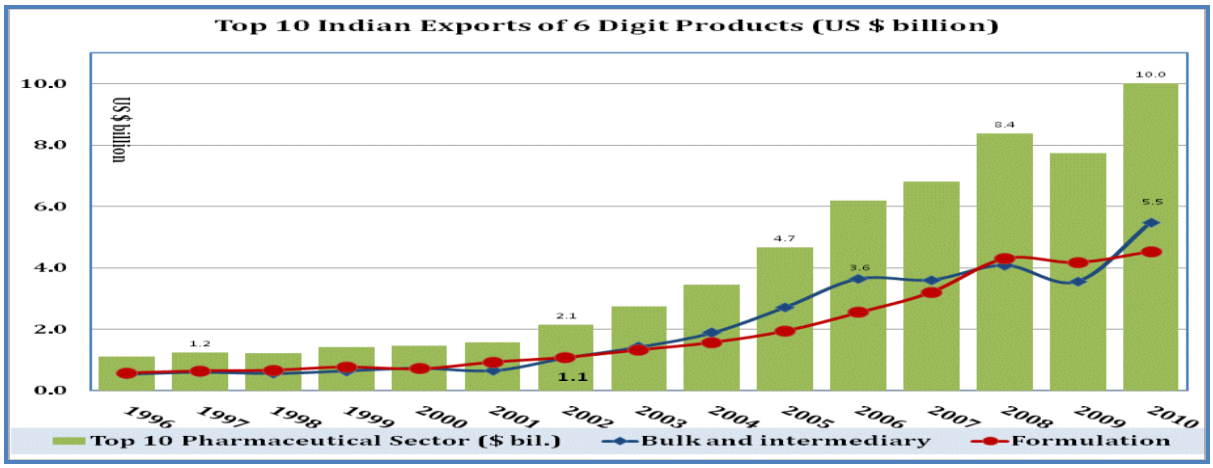
In order to assess the concentration of exports of the pharmaceutical sector, a detailed analysis of top ten products (at 6 digit level of HS classifications) was undertaken. Although the top ten products accounted for less than 2 percent of all pharmaceutical products in terms of numbers, their share in India's total pharmaceutical was on average 60 percent (Figure 3) during 1996 to 2010. This suggests a high concentration of India's pharmaceutical exports in a few products.

Figure 3: Percentage Share of Top Ten products in Total Pharmaceutical Sector Exports

Source: Author's calculation based on WITS online database.

Turning to the trend in exports of the top ten products (Figure 4), it is seen that the exports of bulk and intermediary products grew at a higher rate compared to formulation. During the first phase (1996 – 2001) the bulk and intermediary exports increased from US$ 0.5 billion in 1996 to 0.7 billion in 2001. This represented an annual growth rate of 7.3 percent. In the second phase (2002 – 2010) exports of this sub sector increased to US$ 5.5 billion in 2010, representing an annual growth rate of 25.8 percent. It can be concluded that the sub sector bulk drugs and intermediary witnessed surge in export growth in the second phase.

Figure 4: Trends of Top 10 Exported Products at 6 digit level

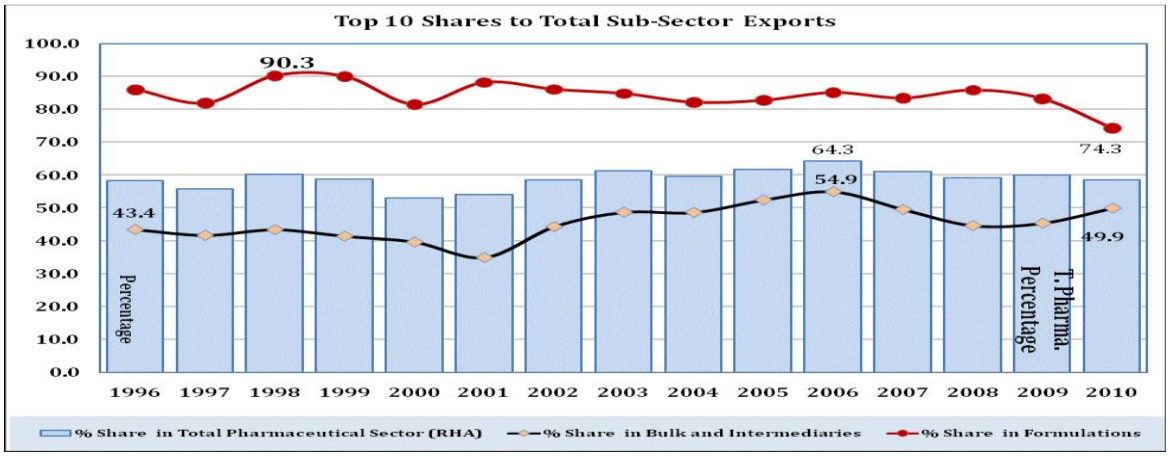


Source: Authors' calculation based on WITS online database.

On the other hand, exports of formulations within the basket of top ten pharmaceutical products showed a more modest growth of 5.0 percent during first phase, which increased to 20.4 percent in the second phase.

We now turn to examine the extent of concentration of exports of the two sub sectors in the basket comprising top ten pharmaceutical exports. Formulations products in the basket of top ten pharmaceutical products had an average share of 85 percent of total formulations exports. However, a declining trend was observed in this sub sector from 2008 onwards with the share of 74.3 percent of total formulations exports. Despite this declining trend it is clear that there is significant concentration in exports of formulations in a few limited products. On the other hand, although the bulk drugs and intermediary in the basket of top ten pharmaceutical products initially had a relatively lower level of concentration in exports as percentage of total exports of this sub sector, but over the years there appears to be an increasing trend towards concentration of exports in few products of this sub sector (Figure 6).

Figure 5: Total of Top 10 Exports to the Corresponding Sub-Sectors



Source: Authors' calculation based on WITS online database.

The exponential growth rate for the entire pharmaceutical sector suggests a relatively flat growth during 1996–2001 and moderate growth during 2002–2010. However, the formulations sub sector showed an increasing trend during the period 2000 – 2008.

Table 3: Correlation of Segregated Annual Growth Rates

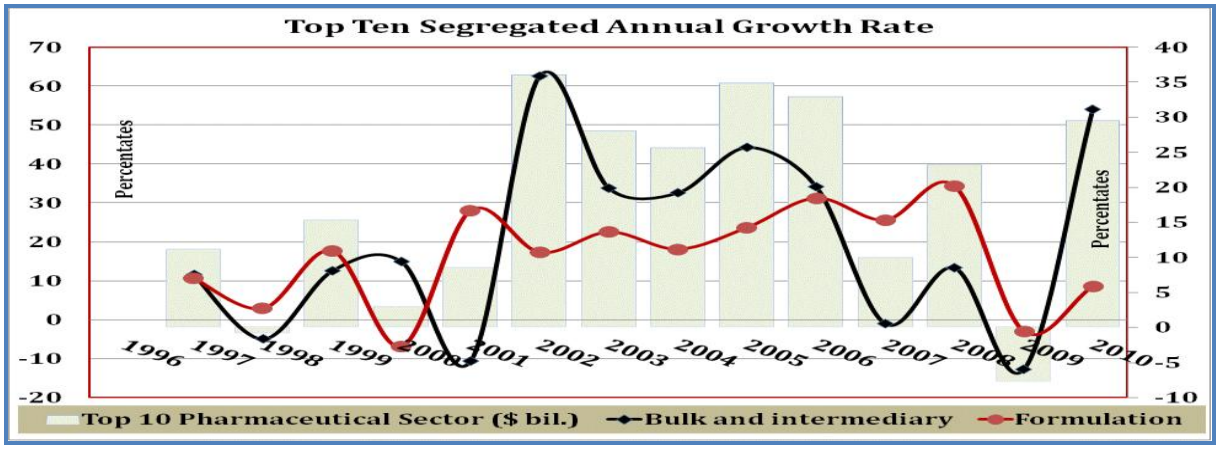
Sector/6 Digit HS	Bulk and intermediary	Formulation
T. Pharma. Export (515 HS codes)	0.98	0.82
Top Ten Total Exports	0.89	0.60

Source: Authors' calculation based on WITS online database.

On the other hand the exponential growth rate of bulk, drugs and intermediary showed significant fluctuation during the entire period. A correlation analysis was undertaken (Table 3) to differentiate between the relationship at two levels; one for the industry as whole and

secondly for the top ten products. In the first level correlation analysis was undertaken between annual growth rate of total pharmaceutical exports and the annual growth rates of the two sub sectors.

Figure 6: Segregated Annual Growth Trends of Top Ten Products of the Pharmaceutical Sector



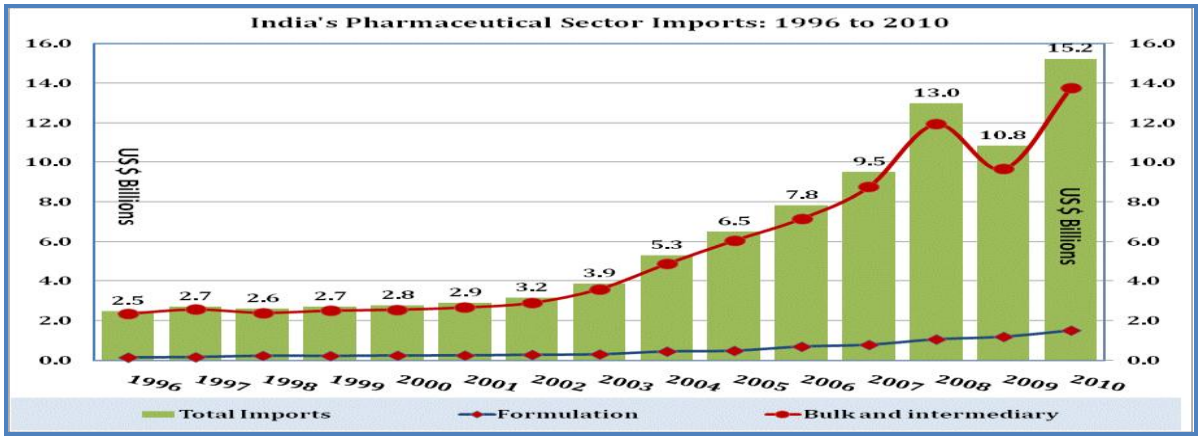
Source: Authors' calculation based on WITS online database.

At the second level correlations analysis was undertaken between top ten products in the total pharmaceutical exports basket and the annual growth rates of the two sub sectors. Based on the correlation analysis its evident that compared to bulk drugs and intermediary, change in exports growth of formulations had a lower impact on overall export growth of the pharmaceutical sector.

Imports of Pharmaceutical Sector

The import of pharmaceutical sector at the 6 digit level of HS classification is analysed in detail. India's cumulative import of pharmaceutical products was approximately US$ 91 billion during the period 1996 to 2010. On an annual basis the total imports of this sector increased from US$ 2.5 billion in 1996 to US$ 15.1 billion in 2010.

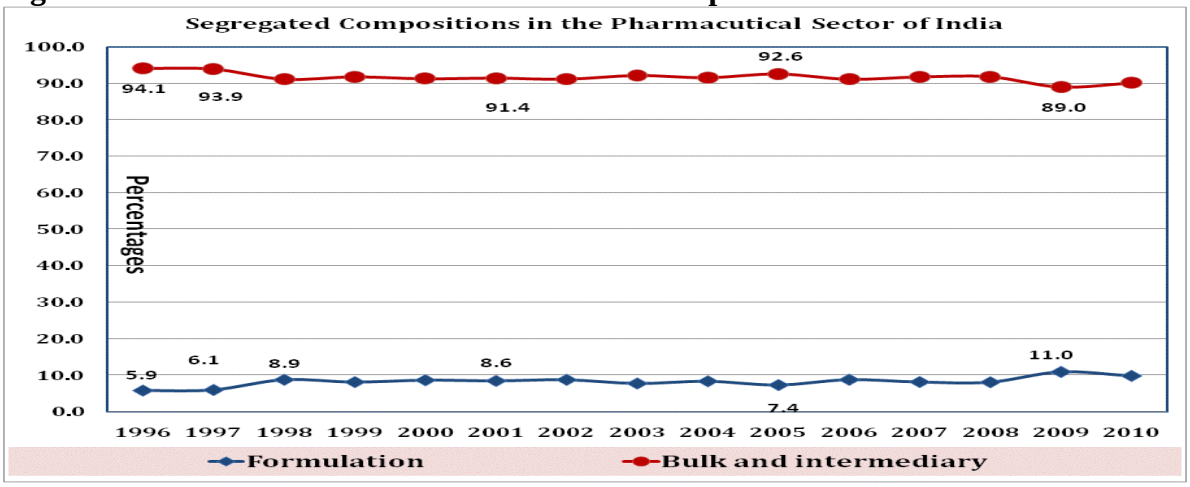
Figure 7: India's Imports of Pharmaceutical Products



Source: Author own calculation based on WITS online database.

Within the pharmaceutical sector the two sub sectors – formulations and bulk drugs and intermediary – showed a similar growth trend (Figure 7). During the period 1996 to 2001 the formulations sub sector grew at the rate of 11.1 percent on an annual basis. During the subsequent period 2002 to 2010 the pace of growth accelerated significantly, as this sub sector witnessed an annual growth rate of 26.2 percent. The bulk and intermediary sub sector witnessed an annual growth of 1.9 percent during the first phase, spurted to 23.2 percent during the second phase.

Figure 8: Share of Bulk and Formulations in the Imports of India



Source: Authors' calculation based on WITS online database.

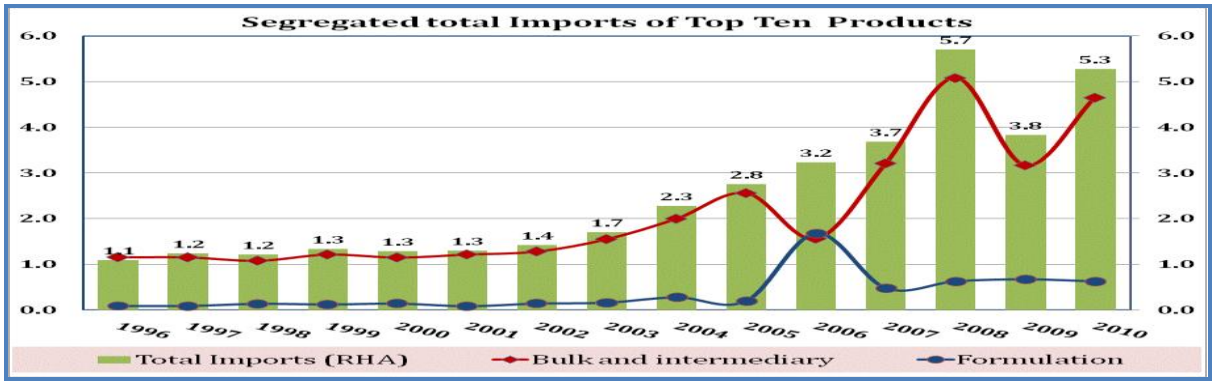
Despite both the sub sectors witnessing an accelerated growth during the second phase, the contribution of the bulk and intermediary products to total pharmaceutical imports significantly exceeded the contribution made by formulations (Figures 7 and 8). The compositional trends were similar in both the exports and imports of India. This was mainly on account of the low initial base of exports and imports of formulations.

Top Ten Imports

In order to assess the concentration of imports of the pharmaceutical sector, a detailed analysis of top ten products (at 6 digit level of HS classification) was undertaken. Although the top ten products accounted for less than 2 percent of all pharmaceutical products in terms of numbers, their share to India's total pharmaceutical was on average 52.4 percent (Figure 9) during 1996 to 2010. This suggests a moderate concentration of India's pharmaceutical imported products.

Turning to the trend in imports of the top ten products, it is seen that the imports of bulk and intermediary products grew at a higher rate compared to formulation sub sector. During the first phase (1996 – 2001) the bulk and intermediary imports increased from US$ 1.1 billion in 1996 to 1.2 billion in 2001.

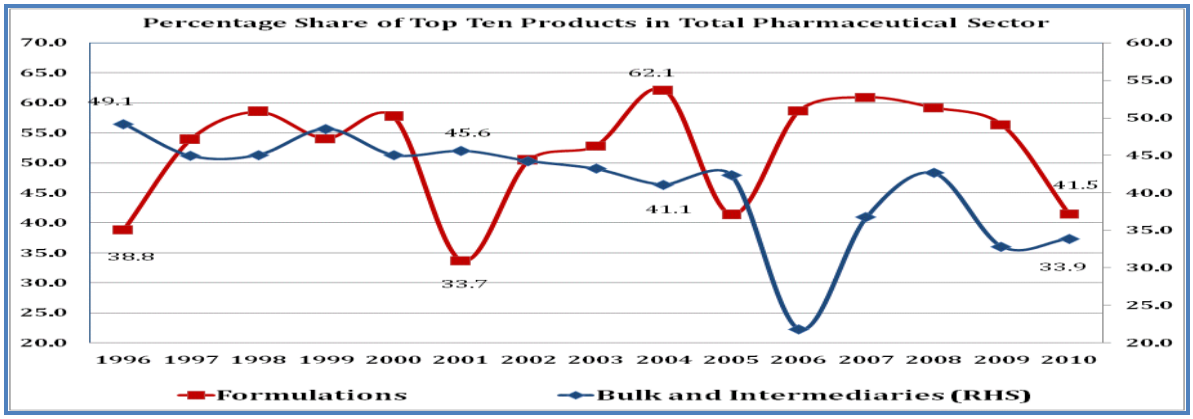
Figure 9: Trends of Top 10 Imported Products at 6 digit level



Note: RHA = Right Hand Axis
Source: Authors' calculation based on WITS online database.

This represented a annual growth rate of 0.4 percent. In the second phase (2002 – 2010) imports of this sub sector increased to US$ 4.7 billion in 2010, representing an annual growth rate of 23.9 percent. It can be concluded that the sub sector of bulk drugs and intermediary witnessed surge in import growth in the second phase.

Figure 10: Total of Top 10 Imports to the Corresponding Sub-Sectors



Source: Authors' calculation based on WITS online database.

On the other hand imports of formulations within the basket of top ten pharmaceutical products showed a growth of 34.0 percent during first phase, which increased to 85.8 percent in the second phase. Given the growth rate of the second phase, the growth observed in the first phase was nominal.

We now turn to examine the extent of concentration of imports of the two sub sectors in the basket comprising top ten pharmaceutical exports. Formulations products in the basket of top ten pharmaceutical products had an average share of 52.3 percent of total formulations imports. However, a declining trend was observed from 2002 onwards with the share of formulations products in the top ten pharmaceutical products basket declined to 41 percent (2005) of total formulations imports. There are no clear indications which point towards a significant concentration in imports of formulations.

On the other hand, although the bulk drugs and intermediary in the basket of top ten pharmaceutical products initially had a relatively lower level of concentration in terms of

imports as percentage of total imports of this sub sector, over the years there appears to be decreasing trend from 49.1percent in 1996 to 33.9 percent in 2010 of this sub sector (Figure 10). The exponential growth rate for the entire pharmaceutical sector suggests a relatively flat growth during 1996 – 2001 and moderate growth during 2002 – 2010. However, the formulations sub sector showed an increasing trend during the period 2000 – 2008. The exponential growth rate of bulk drugs and intermediary showed significant fluctuation during the entire period. On the other hand, the formulations showed nearly consistent positive and double digit growth during the two phases.

Table 4: Correlation of Segregated Sectors Annual Growth Rates (Imports)

Sectors/6 Digit HS Products	Bulk and Intermediaries	Formulations
Total Pharma. Imports (515 Products)	0.998	0.260
Total Top Ten Imports	0.998	0.816

Source: Calculated by the authors.

A correlation analysis was undertaken to differentiate between the relationship at two levels; one for the industry as whole and secondly for the top ten products. In the first level correlation analysis was undertaken (table 4) between annual growth rate of total pharmaceutical imports and the annual growth rates of the two sub sector. At the second level correlation analysis was undertaken between top ten products in the total pharmaceutical imports basket and the annual growth rates of the two sub sectors. Based on the correlation analysis its evident that compared to bulk drugs and intermediary, change in imports growth of formulations sub sectors had a lower impact on overall import growth of the pharmaceutical sector. However, the correlation was positive and high when the total of top ten products was considered. A similar trend was observed in the case of the sub sector of formulations in the case of exports and imports as it did not play a significant role in total imports.

Section V

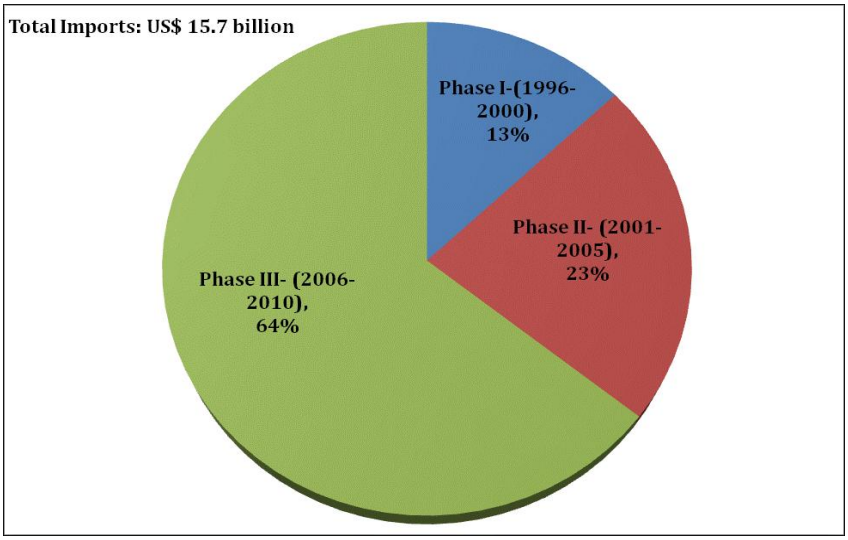
Indian Pharmaceutical Sector Growing Dependence

With a view to understanding the growing dependence on imports from one source, this section examines trends in India's imports of pharmaceutical products from China. The examination is underatken at three levels - overall pharmaceutical sector with focus on the two sub-sectors of bulk drugs and intermediaries and formulations; dissaggregated analysis of the pharmaceutical sector at the 6-digit leval of HS Classification; and dissaggregated analysis of top twenty imports with focus on unit values.

Overall Pharmaceutical Imports

We have taken only pharmaceutical products, under the chapters 28, 29 and 30 as indentified in the Annexure II of this paper, for further analysis of imports under this section. The total imports, by 431 HS 6 digit tariff lines of the pharmaceutical sector, during 1996 to 2010 was close to US$ 15.7 billion, see Figure 11. Decomposition of total imports into three phases like: a) Phase-I constituting of years 1996 to 2000; b) Phase-II constituting of years 2001-2005, and; Phase-III constituting of years 2006-2010. It has been observed that imports have increased from US$ 2.0 billion in the first phase to US$ 3.6 billion and further to US$ 10.1 billion in second and third phases respectively.

Figure 11: Total Imports of Pharmaceutical Sector: 1996 to 2010



Source: Authors' estimates based on WITS COMTRADE online database.

The percent shares of the total imports are represented in Figure 11. It clearly points to the existence of high degree of imbalance in the manner the total imports by the pharmaceutical

sector have been distributed. It indicates to the dominance of the third phase over the first and second phases put together – although each phase has the same number of years.[26]

The difference between the shares of third (64%) and second phase (23%) was recorded to be at 42 percentages which was higher than the total shares of first and second phase put together. This suggests that the third phase was certainly the most significant phase in the Indian pharmaceutical sector and it was decisive phase among the three phases.

Bifurcated analyses of sub-sectors were conducted for a detailed understanding of the distribution of China's imports under the bulk drugs and formulations. Table 5(i) reveals that the total imports of US$ 14.4 billion was of the bulk drugs and rest of US$ 1.3 billion of formulations. In terms of decomposition of individual shares, the bulk drugs had an average of close to 92 percent for the three phases and the residual 8 percent was formulations sub sector, see column 6 of Table 5(i).

Table 5(i): Decomposition of India's Imports in Pharmaceutical Sector

Imports/Shares	1996-2000	2001-2005	2006-2010	Total of the averages (US$ billions)	% Shares
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Bulk Drugs and Intermediaries	94.0	92.8	91.2	14.4	91.9
Formulations	6.0	7.2	8.8	1.3	8.1
India's Imports from Wld. (US$ bil.)	**2.03**	**3.56**	**10.10**	**15.7**	**100**

Source: Authors' estimates based on WITS COMTRADE online database.

However, the trend in composition of the pharmaceutical sector over the three phases suggests a marginal drop in significance of bulk drugs and intermediaries sub sector as its share in total pharmaceutical imports decreased from 94 percent in the first phase to 91 percent in the third phase. On the other hand, in the case of formulations sub sector there was a gain in share over the three phases. This suggests a marginal increase for the formulations sub sector imports, but this increase was seen at a very low base. Therefore the bulk drugs sector continue to be the main sub-sector of imported pharmaceutical products.

Table 5(ii): Trends in Imports of the Bulk Drugs and Intermediaries

Imports/Shares	1996-2000	2001-2005	2006-2010
(1)	*(2)*	*(3)*	*(4)*
India's Imports from World (US$ bil.)	1.91	3.30	9.21
India's Imports from China (US$ bil.)	0.30	0.73	2.83
China's share in India's Imports (%)	**15.60**	**22.15**	**30.71**

Source: Authors' estimates based on WITS COMTRADE online database.

[26] If we ignore the roles of several factors like: (a) devaluation of the rupee against the dollar, and; (b) the appreciation in commodity prices in the recent years. The rupee was trading against dollar at Rs. 34.8 in November of 1995 and Rs 44.8 in December of 2010. Similarly commodity prices have appreciated over the years.

The total import under the bulk drugs sub sector of the pharmaceutical sector was close to 92 per cent. As shown in Table 6, the bulk drugs showed a spurt in import values from US$ 1.9 billion in the first phase to US$ 9.2 billion by the third phase, suggesting a growth of 126 percent in three phases (mostly from Chapters 28 and 29). India's import from China's increased from US$ 0.3 billion in the first phase to US$ 2.8 billion by the third phase, suggesting a growth of 216 percent for bulk drugs. This was 90 percentage points higher than the growth in total imports of India from the world. While imports of bulk drugs from the world increased 5 times by the end of third phase, imports from China surged by almost 10 times during the period 1996-2010. It may be noted that share of China in India's total pharmaceutical imports at the end of 2010 far exceeds the share of any other country in India's import market over the past 2 years.

It is clear that formulation sub sector had a low significance in terms of import values (8 per cent) and coverage in total pharmaceutical tariff lines (7 per cent). The formulations sub sector accounted for nearly US$ 1.3 billion total imports in the three phases from 1996 to 2010. The formulations showed an increasing trend in terms of imported values from US$ 0.12 billion in the first phase to US$ 0.89 billion by the third phase. Based on the decomposition results of Table 5(iii), it is clear that imports of formulations increased 7 times during Phase 3 as compared to Phase 1. This represensts an increase of average phase-wise growth by 179 percent. It is important to note that all products belonged to Chapter 30.

Table 5(iii): Trends in Imports of Formulations

Imports/Shares	1996-2000	2001-2005	2006-2010
(1)	(2)	(3)	(4)
India's Imports from World (US$ mil.)	**122.5**	**256.5**	**891.0**
India's Imports from China (US$ mil.)	**1.6**	**8.6**	**42.4**
China's share in India's Import (%)	**1.3**	**3.3**	**4.8**

Source: Authors' estimates based on WITS COMTRADE online database.

India's imports from China surged from US$ 1.6 million in the first phase to US$ 42.4 million by the third phase, representing a 26-fold increase . The average phase-wise growth rate of imports from China was 411 per cent. This was 233 percentage points higher than the total imports of India. The total import of formulation increased 7 times by the end of third phase. The same trend of movement upwards was reflected in term of the share of China in India's total imports from 1.3 per cent in the first phase to almost 4.8 per cent in the third phase.

Across the board, there have been significant gains for exports of China in the Indian pharmaceutical sector growth story, with each and every indicator suggesting an increasing trend during the 16 years study period. The surprising aspect is phase-wise growth trends observed in the case of formulations. It is surprising to observe this trend in the case of India, particularly because India is considered the global leader of generic/formulation products.

Increasing import dependence on China: Dissaggregated analysis [27]

Most of the products in the pharmaceutical sector are concentrated in chapters 28, 29 and 30. Hence, an analysis comprising pharmaceutical products (431 products) in these three chapters would be broadly representative of the sector as a whole. The analysis in the following section focuses on pharmaceutical products in Chapters 28, 29 and 30 and examines the increasing share of China in India's imports in this sector, diversification of imports, distribution of imports from China according to **categories of dominance** and **decomposition of the imports by market concentration**. It also assesses whether availability of imported inputs from China at competitive prices has enhanced India's export shares in this sector.

Trend in imports from China in the pharmaceutical sector: significant increase in China's share

As shown in Table 6 below, China's share in India's imports of pharmaceutical products in Chapters 28-30 showed a sharply increasing trend, in both relative and absolute terms. During the period 1996-2000(Phase 1), China had 13.79 per cent share in India's imports. This surged to 20.6 per cent during 2001-2005 (Phase 2). The pace of increase in China's share accelerated further to 28.32 per cent during 2006-2010 (Phase 3). Increasing import share reflects the fact that imports from China have increased relative to imports from other countries.

Not only has India's imports from China increased significantly compared to imports from India's other trading partners, it has also increased in absolute terms as well. Average imports during the period 2001-2005 grew at an impressive rate of 162 per cent compared to imports during 1996 - 2000. However, even this impressive growth was outstripped in the subsequent period, as imports during 2006-10 registered a growth of 290 per cent as compared to 2001-2005.

Table 6: China's share in India's pharmaceutical imports

	1996-2000 (USD Mil.)	2001-2005 (USD Mil.)	2006-10 (USD Mil.)
India's Average Global Imports	2,029.3	3,557.6	10,091.1
India's Average Imports from China	280.0	733.0	2,856.6
China's Share in India's Imports	13.8	20.6	28.3

Source: Authors calculation based on the online WITS Database

With almost a quarter of total imports of pharmaceutical products in to India is originating from China, it is clear that India has already become overwhelmingly dependent on one source for meeting its import requirements. The surge in import share *per* se cannot be a basis for concluding that India's pharmaceutical sector is facing adverse effects on account of these imports. Further analysis is required for assessing whether imports from China are trade creating and have mainly displaced domestic production, or these imports have resulted in

[27] The authors acknowledge the contribution of Abhijit Das for this sub-section. This sub section draws substantially from a parallel research being undertaken by him.

trade diversion by displacing imports from other competing countries in those products in which domestic supply is insufficient to meet the demand. Another line of enquiry relates to possible linkages between imports from China causing an increase in India's exports through inputs and intermediates becoming available at competitive prices.

Have imports from China become diversified over time?

Having established that imports from China have increased significantly, in both absolute and relative terms, during 1996 to 2010, it is useful to examine market concentration of these imports. This will be relevant for assessing whether the imports are confined to a few products or span a large number of products. If imports are distributed over a large number of products, it may be indicative of relative decline in competitiveness of India's pharmaceutical sector as a whole, compared to China's domestic industry. This could have serious implications for continued economic survival of India's domestic industry.

Analysis of import concentration is undertaken at two levels - product diversification and decomposition of imports by market share. Both analyses suggest that imports from China are considerably diversified and span a large number of products in the pharmaceutical sector. There is no consensus in literature about which is the most appropriate index, or measure, to capture diversification. This study uses Hirshman-Herfindalh Index (H Index) to assess whether most of the imports from China are concentrated in a few products or are diversified, and how this has evolved during the period under study. It may be noted that lower this index, higher is the diversification in product basket.

As shown in Table 7, H Index for imports from China has remained low, suggesting that the imports are considerably diversified. While, the index shows a slight increase during 2006-2010 compared to 1996-2000, the value of the index continued to remain comparatively low during later period. Hence, the slight increase in H Index does not warrant a conclusion that imports have become less diversified over time.

Table 7: HH Index for imports from China during 1996-2010

Period	H- Index
1996-2000	0.0327
2001-2005	0.0449
2006-2010	0.0366

Source: Authors' calculations based on WITS online

Analysis of imports from China according to categories of market dominance

Having established that imports from China are diversified, it is useful to identify the market segment in which China dominates and how this has changed during 1996 - 2010. This analysis will provide the answer to a basic question - are imports from China distributed over a large number of pharmaceutical products, but with relatively low import shares or are the imports concentrated in a few products which have relatively high import shares. It may be noted that the term 'market segment' has been used in this study to assess the extent of China's domination over other countries competing in India's import market. If imports of a

product from China comprise up to 25 per cent of the total imports of the product, it is classified as a product in which China has low dominance (Table 8). A product belongs to moderate-to-medium category of China's dominance, if imports of the product from China comprise more than 25 per cent and up to 50 per cent of import share (Table 9) . A product in which share of China in imports is between 50 per cent and 75 per cent is categorised as the medium-to-high dominance (Table 10) . Finally, products in which share of China in imports exceeds 75 per cent is categorised as high dominance (Table 11).

Table 8: Imports of products under low dominance category *(China has at most 25% import share)*

Variables	1996-2000	2001-2005	2006-10
India's Average Global Imports (US$ Mil.)	2,029.3	3,557.6	10,091.1
India's Average Imports from China (US$ Mil.)	92.3	85.3	273.8
China's Share in India's Imports	4.6	2.4	2.7
Drop/Increase in Shares over phase I	--	**-2.2**	**-1.8**
No of products	322	256	203
Drop/Increase in Product Counts over Phase I	--	**-66**	**-119**

Table 9: Imports of products under moderate-to-medium dominance category *(China has more than 25% but up to 50% import share)*

Variables	1996-2000	2001-2005	2006-10
India's Average Global Imports (US$ Mil.)	2,029.3	3,557.6	10,091.1
India's Average Imports from China (US$ Mil.)	89.0	317.7	425.1
China's Share in India's Imports	4.4	8.9	4.2
Drop/Increase in Shares over phase I	--	**4.5**	**-0.2**
No of products	63.0	97.0	88.0
Drop/Increase in Product Counts over Phase I	--	**34.0**	**25.0**

Table 10: Imports of products under medium-to-high dominance category *(China has more than 50% but up to 75% import share)*

Variables	1996-2000	2001-2005	2006-10
India's Average Global Imports (US$ Mil.)	2,029.3	3,557.6	10,091.1
India's Average Imports from China (US$ Mil.)	44.6	214.7	1,264.7
China's Share in India's Imports	2.2	6.0	12.5
Drop/Increase in Shares over phase I	--	**3.8**	**10.3**
No. of products	30.0	51.0	73.0
Drop/Increase in Product Counts over Phase I	--	**21.0**	**43.0**

Table 11: Imports of products under high dominance category *(China has more than 75% imports share)*

Variables	1996-2000	2001-2005	2006-10
India's Average Global Imports	2,029.3	3,557.6	10,091.1
India's Average Imports from China	54.0	115.3	893.0
China's Share in India's Imports	2.7	3.2	8.9
Drop/Increase in Shares over phase I	**--**	**0.6**	**6.2**
No. of products	15.0	28.0	62.0
Drop/Increase in Product Counts over Phase I	**--**	**13.0**	**47.0**

Based on the tables above indicating distribution of imports from China by the category of dominance, five observations are made. First, share of China in India's total imports of products in the category of low dominance shows a declining trend over time, although it increased marginally during 2006-2010. China's share in this category was 4.55 per cent during 1996-2000, but dipped to 2.71 per cent during 2006-2010. While the share in imports reflects relative performance compared to other countries in India's import market, it is important to note that in absolute terms imports from China during 2006-2010 was almost thrice the imports during 1996-2000.

Second, although the number of products in the category of low dominance has declined from 322 during 1996-2000 to 203 during 2006-2010, it continued to remain relatively high compared to other categories. This suggests that in a large number of products China's share in total imports remains below 25 per cent. This, in turn, points to the potential market that remains untapped by China, despite its extremely impressive dominance of India's market.

Third, in the category of moderate-to-medium dominance, share of China in India's imports increased from 4.39 percent in 1996-2000 to 8.93 percent during 2001-2005. However, during 2006-2010 the share declined to almost the level during the first phase. The increase in share during Phase 2 was mainly on account of 58 products, which were in the category of low dominance during Phase 1, climbing up into the category of moderate-to-medium dominance. During Phase 3, 42 of these products moved further up in categories of higher dominance, but 17 products slipped down into the category of low dominance. This reduced the overall share of products in category of moderate-to-medium dominance during Phase 2.

Fourth, the category of medium-to-high dominance has seen the highest increase in share of China in India's total imports during the period 1996 to 2010. It increased from 2.2 per cent during Phase 1 to 12.53 per cent during Phase 3. This would largely explain the shift in composition of India's imports from China towards products with higher dominance.

Fifth, the category of high dominance has witnessed a sharp increase in share of China in India's total imports. It increased from 2.66 per cent during Phase 1 to 8.85 per cent during Phase 3. This was mainly on account of 41 products climbing into this category during Phase 3 from categories of lower dominance during Phase 2.

The above analysis of imports from China according to the four categories of market dominance does not provide information on movement of a product across the categories of dominance during 1996 to 2010. Such an analysis would be useful to determine whether the emerging pattern of China's dominance can be sustained over time. If most of the products remain either in the same category of dominance or climb up in to a higher category during the period under study, then it could point to the fact that China's dominance is broad-based and sustainable. On the other hand, if most of the products show a trend which includes descent into a category of lower dominance in at least one Phase this could raise doubts about sustainability of China's domination of India's import market.

An additional analysis was undertaken to track the movement of each of the 431 products across different categories of dominances during the three phases covering 1996 to 2010. The analysis suggests that in respect of 45 per cent of the products, the category of China's dominance remained unchanged during the three phases. Further, in respect of 41 per cent of the products the category of China's dominance showed an increase. Overall, in respect of 86 per cent of the products, the category of China's dominance did not show a decline. This conclusively establishes that China's growing dominance over other countries in India's import market is not confined to a few products, but is broad-based covering almost all the products in the pharmaceutical sector.

The additional analysis also shows that during Phase 2, 26 per cent of the products climbed into a category of higher dominance compared to the preceding phase. This trend became more prominent during Phase 3 with 31 per cent of the products climbing up the ladder of dominance. If this trend sustains in the coming years the share of China in India's imports would further surge.

Shift in category of dominance: decomposition of imports from China

The above analysis of categories of dominance has been undertaken by analysing India's imports from China and calculating the share of each product with respect to India's total imports from all sources. The analysis provides initial evidence of growing concentration of imports from China in the categories of medium-to-high dominance and high dominance. More conclusive evidence of shift in imports from China towards categories of higher dominance is provided by calculating the share of imports from China in each category with respect to India's total imports from China. A detail of decomposition of imports from China by category of dominance is shown in Table 12.

Table 12: Decomposition of imports from China by category of dominance

Category of dominance	Per cent of imports from China		
	Phase 1	Phase 2	Phase 3
Low dominance	32.98	11.64	9.59
Moderate-to-medium dominance	31.8	43.34	14.88
Medium-to-high dominance	15.92	29.29	44.27
High dominance	19.3	15.74	31.26

Source Authors based on WITS online database.

As shown in Table 12, there was a clear shift in imports from China towards categories of higher dominance. During Phase 1, highest concentration of imports - 32.98 per cent - was in the category of low dominance. During Phase 2, the bulge in imports - 43.34 per cent- shifted to the category of moderate-to-medium dominance. The upward trend continued in Phase 3, with 44.27 per cent of imports being concentrated in the category of medium-to-high dominance. Viewed from another perspective, during Phase 1 almost 65 per cent of imports from China were in the categories of low and moderate-to-medium dominance. The trend of shift in imports towards categories of higher dominance continued during Phase 2 and Phase 3, with 75 per cent of imports falling in the categories of medium-to-high and high dominance in Phase 3. This conclusively establishes that there was a clear trend towards larger proportion of imports from China being progressively concentrated in categories with higher import shares.

Overall, the dominance analysis suggests that imports from China appear to have adhered to a systematic pattern - establish market presence in a large number of products and progressively deepen import penetration so that each product either retains its existing share in imports or increases it. If this strategy persists, given the diversified character of imports from China, it is likely that China's dominance of the import market will overwhelm other competitors in the entire pharmaceutical sector.

Analysis of imports from China according to products with intra-industry trade

Having established that India's imports from China have increased significantly and are mainly concentrated in products with high market share, it is useful to examine the decomposition of the imports by the extent of participation in intra-industry trade. This is relevant to answer the question - have imports from China caused an increase in India's export share of pharmaceutical products. This analysis is undertaken in two steps. First, an analysis comparing the distribution of global imports and imports from China is undertaken to ascertain whether the latter has a larger contribution to the intra industry trade. At the second stage a co-relation is undertaken for examining possible association between the extent to which unit values imports from China are lower than global import unit values on the one hand and India's export shares in global market on the other. This analysis assumes that some of the imports from China are processed further for subsequent exports. This is a reasonable assumption, given the fact that 45 per cent of imports from China are associated with high intra industry trade.

India's imports are divided into three categories – products in which intra industry trade can be considered to be at a low level, with GL index being less than 0.33; products in which intra industry trade can be considered to be at the moderate level, with GL index lying between 0.33 and 0.67; and products in which intra industry trade can be considered to be high, with GL index exceeding 0.67. India's global imports and imports from China are

decomposed into these three categories during the three phases. Details are provided in Tables 13 and 14.

Table 13: Decomposition of India's global imports by Intra-industry trade

Global imports	Phase I	Phase II	Phase III
GL< .33	57.1	46.6	52.0
GL between .33 and .67	24.7	28.8	22.7
GL > .67	18.2	24.6	25.3

Table 14: Decomposition of India's imports from China by Intra-industry trade

Global imports	Phase I	Phase II	Phase III
GL< .33	35.5	25.4	22.1
GL between .33 and .67	37.9	40.4	33.5
GL > .67	26.7	34.2	44.4

Based on the two preceding tables, three observations are made. First, during the entire period 1996 – 2010, almost half of the global imports were of products with low intra industry trade. Further, relative to global imports, a lower share of imports from China fell in the category of low intra industry trade. Second, there was a gradual increase in the share of global imports with high intra industry trade. The share increased from 18.16 per cent in Phase 1 to 25.32 per cent in Phase 3. The increasing trend is also reflected in imports from China. However, a larger proportion of imports from China fell in the category of high intra industry trade. To elaborate, 26.66 per cent of imports from China fell in the category of high intra industry trade during Phase 1, which increased to 44.41 per cent during Phase 3. It may be noted that with the passage of time, the gap between the share of imports from China and global imports that fell in the category of high intra industry trade widened. Third, there is a clear shift in imports from China towards products with higher intra industry trade. During Phase 1, 35.50 per cent of imports from China fell in the category of low intra industry trade. During Phase 2, 40.38 per cent of the imports fell in the category of moderate intra industry trade. Finally, during Phase 3, 44.41 per cent of imports had high intra industry trade.

Based on the above observations it can be concluded that progressively a larger share of imports from China was associated with increased level of intra industry trade. This provides the foundation for the second stage of our analysis - have imports from China at competitive prices caused an increase in India's shares in global export market of pharmaceutical products. Imports from China of a product is considered to be at a competitive price if unit value of imports from China is lower than the unit value of global imports into India.

As shown in Table 15, during the entire period of 1996-2010, more than two-thirds of imports from China were at competitive prices. Imports from China are therefore characterised by four features - increasing share of China in India's total imports, progressively increasing concentration of imports from China in products with high market dominance, progressively a larger share of imports from China being associated with increased level of intra industry trade and high share of imports from China accessing India's

import market at competitive prices. All these facts taken together might suggest that the competitive imports have caused an increase in India's global exports.

For each of the three phases three different correlation were determined - correlation between GL Index of a product and difference in unit value between global imports and imports from India; correlation between exports of a product and difference in unit value between global imports and imports from India; and correlation between share in global exports of a product and difference in unit value between global imports and imports from India. It may be noted that the correlations are calculated for a cross-section of products during a particular phase.

Table 15:Phase-wise Import at Competitive Prices from China and the GL Indices

Imports from China	Phase I	Phase II	Phase III
Imports from China ('000 $)	279.9	733.0	2856.6
Imports from China at competitive price ('000 $)	195.0	535.9	1962.9
% of Imports from China at competitive prices	69.7	73.1	68.7
Correlation GL Index and UV difference	-0.19	-0.24	-0.18
Correlation Exports and UV difference	-0.10	-0.03	0.08
Correlation Exports share and UV difference	-0.08	-0.05	0.03

As shown in Table 15, there is no correlation between difference in unit value with either exports of a product or its share in global market. Further, there is a weak negative correlation between GL Index and difference in unit value. This suggests that a decline in unit value of imports from China as compared with the unit value of global imports did not result in increasing India's global export share.

The above conclusion needs to be treated with some caution. It is possible that for certain specific products, imports from China at competitive prices may actually have caused an increase in exports. Further, the correlation analysis has been undertaken for a cross-section of products in each phase, and not on the basis of a time series of data for a product. An analysis using time series data for the same product could have provided more definitive conclusion on the causal relationship between imports from China at competitive prices and an increase in India's exports. In addition, unit values may not accurately capture the price of the various differentiated products which are grouped together under a 6-digit HS code. Unit value analysis also suffers from possible inconsistencies in data reported for quantity of imports.

By way of conclusion based on an analysis of trade in pharmaceutical falling in Chapters 28, 29 and 30, it can be concluded that despite the increasing concentration in imports from China towards products with high market share and high intra industry trade; and the increasing gap between global unit value and China's unit value, the import prices were not associated with an increase in India's global exports.

Import of Top Twenty Products over the Three Phases

The pharmaceutical sector has shown tremendous growth in imports in the last phase as already observed in the above analysis. The question of pharmaceutical industry is becoming

import dependant is partially answered in the above analysis. To understand the underlying reasons, we have conducted a further detailed analysis of the top twenty products over the three phases.

The identification of the top twenty products at six digits was carried-out by aggregating the average imports of each individual phase, *i.e.* Phases 1, 2 and 3. There are 431 products at 6 digit HS in the pharmaceutical sector. Out of these, top twenty products were selected. Given the predominanace of bulk drugs and intermediaries, it is not surprising that the bulk drug sub sector accounted for 95 percent (19 tariff lines) and remaining 5 percent (1 tariff line) belonged to the formulations sub sector. Further, within the sub sector of bulk drugs, only 5 percent (1 tariff line) belonged to chapter 28 and the rest of 95 percent were from chapter 29. So the domination of chapter 29 in the top twenty imported products in the pharmaceutical sector is clearly evident from the analysis carried-out in this paper.

Table 16: Trends in the imports of top twenty products 1996-2000

Product Code	Product Description	GL-Index	India's Import from World (US$ million)	India's Import from China (US$ million)	China's Share in India's	India's Import from China (UV)	India's Import from World (UV)	World Import from China (UV)	India's Price Differences	
									Global and China (%)	China to Wld and India (%)
1	2	3	4	5	6	7	8	9	10= ((8 - 7)/8)*100)	11= ((9 - 7)/9)*100
294200	Other organic compounds	0.67	156.2	28.7	18.4	$ 12.24	$ 14.45	$ 11.73	15.3	-4.4
290243	P-xylene	0.21	138.3	0.7	0.5	$ 0.11	$ 0.42	$ 0.49	74.8	78.6
294110	Penicillins & thr drvtvs wth a peni	0.87	84.5	29.1	34.4	$ 16.99	$ 19.32	$ 19.68	12.0	13.6
290250	Styrene	0.01	83.2	-	-	$ -	$ 0.55	$ 0.67	100.0	100.0
290315	1,2 dichloromethane (cethylne dic	0.00	76.0	-	-	$ -	$ 0.31	$ 0.59	100.0	100.0
291736	Terephthalic acid and its salts	0.14	63.3	1.0	1.6	$ 0.28	$ 0.51	$ 0.61	44.8	53.9
294190	Other antibiotics	0.83	61.2	11.9	19.4	$ 56.27	$ 111.01	$ 80.38	49.3	30.0
300490	Other medcne put up for retail sal	0.19	38.5	0.5	1.2	$ 40.51	$ 24.09	$ 11.84	-68.1	-242.2
292610	Acrylonitrile	0.01	35.8	0.1	0.2	$ 0.78	$ 0.65	$ 1.34	-20.1	41.5
290531	Ethylene glycol (ethanediol)	0.16	34.7	0.1	0.4	$ 0.33	$ 0.55	$ 0.69	39.0	52.0
292910	Isocyanates	0.05	31.3	0.1	0.3	$ 2.99	$ 1.88	$ 1.95	-58.9	-53.3
294150	Erthromycin & its drvtvs slts there	0.75	23.2	1.2	5.1	$ 62.91	$ 78.27	$ 56.69	19.6	-11.0
291590	Othr satrtd acylc,mnocrboxylc acd	0.18	22.7	1.0	4.6	$ 3.94	$ 1.37	$ 11.89	-187.0	66.8
290321	Vinyl chloride (chloroethylene),un	0.00	21.1	0.1	0.6	$ 0.12	$ 0.52	$ 0.83	76.5	85.2
290511	Saturated methanol (methyl alcoh	0.08	15.2	-	-	$ -	$ 0.17	$ 9.77	100.0	100.0
290230	Toluene	0.14	12.3	0.0	0.2	$ 1.01	$ 0.34	$ 0.60	-200.4	-67.7
290711	Phenol (hydroxybenzene) and its s	0.16	10.6	0.0	0.3	$ 1.02	$ 0.58	$ 0.82	-76.5	-24.1
291612	Esters of acrylic acid	0.01	10.6	0.0	0.4	$ 4.97	$ 1.07	$ 1.16	-363.4	-328.5
281820	Aluminium oxide other than artifi	0.31	8.7	1.9	21.5	$ 0.38	$ 0.69	$ 0.31	44.6	-23.7
291521	Acetic acid	0.46	5.6	0.0	0.8	$ 14.55	$ 0.63	$ 1.45	-2207.7	-901.0
Top Twenty Products		**0.26**	**932.8**	**76.5**	**8.2**	**$ 10.97**	**$ 12.87**	**$ 10.68**	**14.75**	**-2.78**
Total Pharmaceutical Sector Imports		**0.33**	**2,029.3**	**279.9**	**13.8**	**$ 24.49**	**$ 62.28**	**$ 129.47**	**60.68**	**81.09**

Source: Authors' estimates based on WITS COMTRADE online database.

Table 17: Trends in the imports of top twenty products 2001-2005

Product Code	Product Description	GL-Index	India's Import from World (US$ million)	India's Import from China (US$ million)	China's Share in India's Import	India's Import from China (UV)	India's Import from World (UV)	World Import from China (UV)	India's Price Differences	
									Global and China (%)	China to Wld and India (%)
1	2	3	4	5	6	7	8	9	10= ((8 - 7)/8)*100)	11= ((9 - 7)/9)*100
294200	Other organic compounds.	0.55	311.3	112.5	36.1	$ 11.03	$ 12.10	$ 10.64	8.8	-3.6
290250	Styrene	0.01	247.4	-	-	$ -	$ 0.81	$ 0.97	n.a.	n.a.
290243	P-xylene	0.72	199.1	-	-	$ -	$ 0.66	$ 0.67	n.a.	n.a.
294110	Penicillins & thr drvtvs wth a penicillan	0.87	144.7	83.0	57.4	$ 12.57	$ 13.53	$ 15.60	7.1	19.5
300490	Other medcne put up for retail sale	0.22	113.3	1.8	1.6	$ 54.76	$ 92.17	$ 14.38	40.6	-280.8
294190	Other antibiotics	0.80	80.9	36.1	44.6	$ 33.93	$ 55.35	$ 39.07	38.7	13.2
290511	Saturated methanol (methyl alcohol)	0.01	80.8	0.0	0.0	$ 0.48	$ 0.22	$ 0.35	-114.2	-35.8
290315	1,2 dichloromethane (cethylne dichlor	0.00	71.1	-	-	$ -	$ 0.32	$ 1.25	n.a.	n.a.
292610	Acrylonitrile	0.01	66.6	0.3	0.4	$ 1.59	$ 0.89	$ 1.42	-78.0	-12.0
292910	Isocyanates	0.12	56.4	0.6	1.1	$ 2.16	$ 1.82	$ 2.19	-18.7	1.3
290321	Vinyl chloride (chloroethylene),unstrtd	0.03	50.8	0.0	0.1	$ 0.19	$ 0.63	$ 0.73	70.4	74.4
290531	Ethylene glycol (ethanediol)	0.71	48.9	0.0	0.0	$ 1.56	$ 0.71	$ 0.99	-120.4	-58.1
294150	Erthromycin & its drvtvs slts thereof	0.82	44.3	14.9	33.6	$ 51.08	$ 53.51	$ 46.41	4.6	-10.0
290711	Phenol (hydroxybenzene) and its salts	0.14	42.4	1.2	2.9	$ 1.97	$ 0.67	$ 1.82	-193.4	-8.8
291612	Esters of acrylic acid	0.06	39.8	0.4	1.1	$ 2.31	$ 1.21	$ 1.89	-90.7	-22.5
291590	Othr satrtd acylc,mnocrboxylc acds & t	0.38	37.2	6.3	16.8	$ 4.41	$ 1.19	$ 6.25	-270.3	29.4
281820	Aluminium oxide other than artificial c	0.29	24.7	6.4	26.0	$ 0.34	$ 0.52	$ 0.39	34.4	12.6
290230	Toluene	0.17	21.1	0.2	0.8	$ 2.89	$ 0.51	$ 0.83	-469.5	-249.7
291521	Acetic acid	0.62	19.7	0.1	0.4	$ 2.29	$ 0.48	$ 0.73	-375.5	-213.2
291736	Terephthalic acid and its salts	0.30	15.6	0.0	0.0	$ 0.20	$ 0.68	$ 1.60	70.3	87.4
Top Twenty Products		**0.34**	**1,716.3**	**263.8**	**15.4**	**$ 9.19**	**$ 11.90**	**$ 7.41**	**22.8**	**-24.0**
Total Pharmaceutical Sector Imports		**0.37**	**3,557.6**	**733.0**	**20.6**	**$ 59.92**	**$ 86.12**	**$ 124.82**	**30.4**	**52.0**

Source: Authors' estimates based on WITS COMTRADE online database.

Table 18: Trends in the imports of top twenty products 2006-2010

Product Code	Product Description	GL-Index	India's Import from World (US$ million)	India's Import from China (US$ million)	China's Share in India's Import	India's Import from China (UV)	India's Import from World (UV)	World Import from China (UV)	India's Price Differences	
									Global and China	China to Wld and India
1	2	3	4	5	6	7	8	9	10= ((8 - 7)/8)*100)	11= ((9 - 7)/9)*100
294200	Other organic compounds	0.46	641.94	384.71	59.9	$ 15.7	$ 15.9	$ 13.8	1.1	-13.8
294110	Penicillins & thr drvtvs wth a pe	0.88	286.29	252.25	88.1	$ 21.9	$ 23.4	$ 25.3	6.4	13.6
294190	Other antibiotics	0.92	297.12	206.78	69.6	$ 59.5	$ 75.4	$ 54.5	21.1	-9.2
294150	Erthromycin & its drvtvs slts th	0.68	102.94	58.24	56.6	$ 54.7	$ 55.9	$ 59.7	2.1	8.4
291590	Othr satrtd acylc,mnocrboxylc a	0.47	83.79	22.67	27.1	$ 4.8	$ 2.0	$ 4.5	-136.8	-7.4
281820	Aluminium oxide other than art	0.51	135.33	20.83	15.4	$ 0.6	$ 0.5	$ 0.8	-26.6	20.3
292910	Isocyanates	0.05	186.57	17.64	9.5	$ 2.8	$ 2.5	$ 2.7	-11.6	-3.3
290711	Phenol (hydroxybenzene) and i	0.10	128.06	9.19	7.2	$ 3.1	$ 1.3	$ 2.3	-130.3	-34.6
291612	Esters of acrylic acid	0.10	144.97	5.72	3.9	$ 2.3	$ 1.8	$ 2.3	-24.2	2.1
290511	Saturated methanol (methyl alc	0.10	232.09	5.55	2.4	$ 1.4	$ 0.3	$ 0.4	-360.6	-231.6
300490	Other medcne put up for retail s	0.31	478.83	5.11	1.1	$ 48.1	$ 252.8	$ 8.6	81.0	-458.6
291521	Acetic acid	0.20	129.71	3.38	2.6	$ 1.9	$ 0.5	$ 0.7	-239.9	-184.3
291736	Terephthalic acid and its salts	0.18	270.74	2.13	0.8	$ 0.5	$ 0.9	$ 1.5	49.8	70.0
290315	1,2 dichloromethane (cethylne	0.03	86.13	1.71	2.0	$ 0.2	$ 0.4	$ 0.6	54.3	67.6
290531	Ethylene glycol (ethanediol)	0.30	350.98	1.57	0.4	$ 2.2	$ 0.9	$ 1.2	-147.6	-81.4
292610	Acrylonitrile	0.01	132.07	0.50	0.4	$ 2.8	$ 1.7	$ 2.1	-63.8	-29.9
290230	Toluene	0.03	139.68	0.33	0.2	$ 6.1	$ 0.9	$ 1.0	-584.6	-519.9
290243	P-xylene	0.69	316.77	0.04	0.0	$ 1.5	$ 1.1	$ 1.1	-33.8	-32.6
290250	Styrene	0.01	507.13	0.02	0.0	$ 1.3	$ 1.2	$ 1.2	-10.3	-7.0
290321	Vinyl chloride (chloroethylene)	0.00	144.51	0.02	0.0	$ 0.6	$ 0.8	$ 1.2	21.6	45.6
Top Twenty Products		**0.29**	**4,795.7**	**998.4**	**20.8**	**$ 11.6**	**$ 22.0**	**$ 9.3**	**47.3**	**-25.0**
Total Pharmaceutical Sector Imports		**0.37**	**10,091.1**	**2,856.6**	**28.3**	**$ 209.5**	**$ 195.8**	**$ 186.9**	**-7.0**	**-12.1**

Source: Authors' estimates based on WITS COMTRADE online database.

Based on information contained in the three tables above, four observations are made.

First, the share of top 20 products in total imports of pharmaceutical products has remained relatively stable during 1996 – 2010. It increase from 46 per cent during Phase 1 to 48 per cent in Phase 2 and thereafter declined to 47.5 per cent in Phase 3.

Second, China's share in the top 20 products was consistently lower than its share in the entire pharmaceutical sector. During Phase 1 while China's share in imports of top 20 products was 8.2 per cent, its share in total pharmaceutical imports was 13.8 per cent. During Phase 2, China's share in top 20 products as well as in the total pharmaceutical sector increased to 15.4 per cent and 20.6 per cent respectively. The gap between China share in top 20 products (20.8 per cent) and total pharmaceutical imports (28.3 per cent) widened further in Phase 3.

To a certain extent the difference in China's share in top 20 imports and total pharmaceutical imports can be explained by the trend in unit value of imports from the world and China into India.

During Phase 1, unit value of imports from China of top 20 products was lower than unit value of global imports into India by 14.75 per cent. On the other hand the difference in unit values for total imports was to the extent of 60.68 per cent. Similarly, during phase 2 unit value of imports from China was lower than the unit value of imports from the world by 22.8 per cent in respect of top 20 products. However, for the pharmaceutical sector as a whole China unit value of imports was lower than imports from the world by 30.4 per cent. It is therefore clear that during phase 1 and phase 2, compare to imports from world, imports from China were relatively more cheaper for the pharmaceutical sector as whole than for the top 20 products. However, this elegant explanation is unable to explain the widening in difference between China share in pharmaceutical sector as a whole and that in top 20 products in phase 3. During this phase the difference in unit value of top 20 products imported from China was more than the difference in unit value of all pharmaceutical imports taken together.

Third, analysis of coefficient of variation (CV) for the three phases indicates a significantly higher degree of concentration in India's imports from China when compared to imports from the world.

Fourth, the trend in unit value of imports from China and that from the world suggests that China has followed a strategic pricing policy for penetrating India's import market. This is best illustrated by tracking imports, import share and difference in unit value between imports from the world and imports from China in respect of four products – 294200 (other organic compounds); 294110 (penicillins and derivatives); 294190 (other antibiotics); and 294150 (erythromycin and derivatives) during the three phases – as shown in Table 21.

Table 19: Trend in imports, share of imports and difference in unit value for products with high imports from China

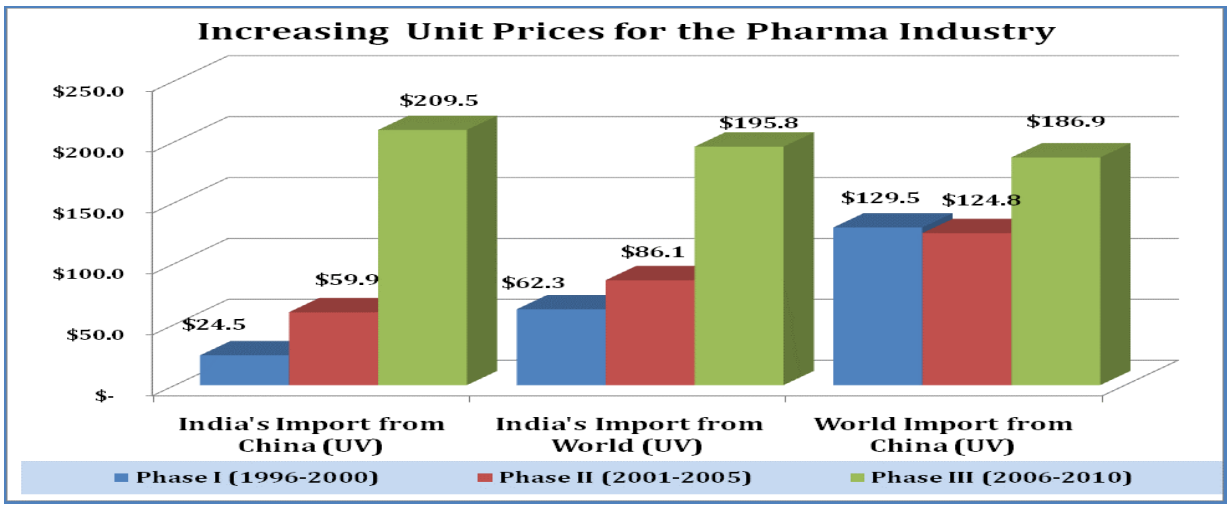
Product	Import from China			China's share in total imports			Diff in UV (World - China)		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Other organic compounds	28.7	112.5	384.7	18.4	36.1	59.9	15.3	8.8	1.1
Penicillins etc.	29.1	83.0	252.3	34.4	57.4	88.1	12.0	7.1	6.4
Other antibiotics	11.9	36.1	206.8	19.4	44.6	69.6	49.3	38.7	21.1
Erythromycin etc.	1.2	14.9	58.2	5.1	33.6	56.6	19.6	4.6	2.1

Source: Authors' estimates based on WITS COMTRADE online database.

It will be clear from Table 19 that an increase in China's share in India's imports was accompanied with a decline in the advantage enjoyed by unit value of imports from China. In other words, as China's share in imports of a product increased, the gap between unit value of imports from the world and that from China declined. This trend is observed consistently for the four products stated above. Through this strategic pricing China has managed to penetrate India's import market, establish its presence and subsequently enhance its share while increasing the unit value. As a result, not only has China managed to increase its share in India's imports significantly, it has achieved this without its profits getting squeezed on account of competition from other countries in India's import market. This is also consistent with some of the conclusions reached earlier regarding increasing concentration of imports from China in products with higher market share.

While the above conclusion is based on trends in import share and unit values for four products, broadly a similar result can also be reached on the basis of unit values for the entire pharmaceutical sector (figure 12).

Figure 12: Average Increase in Total Pharmaceutical Sector Unit Prices



Source: Authors' estimates based on the WITS COMTRADE online database

As shown in Figure 12, during Phase 1 when China's share in India's import market was relatively low, unit value of India's imports from China was lower than the unit value of imports from the world. Furthermore, unit value of India's imports from China was lower

than even the unit value of world's imports from China. Riding on the back of low unit value, China enhanced its market share during Phase 2 and Phase 3. However, during Phase 3 China could afford to increase its unit value to a level higher than that of imports into India from the world. Despite this pricing strategy, China was able to significantly enhance its share in India's total imports of pharmaceutical products.

Conclusions

India's pharmaceutical sector has pre-dominantly been a producer of generic products and has the potential to enhance its global presence. India's cumulative exports of pharmaceutical products were approximately US$ 100 billion during the period 1996 to 2010. On an annual basis, exports of this sector increased from US$ 1.9 billion in 1996 to US$ 17.1 billion in 2010. Bulk and intermediaries constituted 61 - 69 per cent of pharmaceutical exports during 1996-2010, with the contribution of formulations in being 39- 31 per cent.

During the period 1996 to 2001 the formulations sub sector grew at the rate of 8.2 percent on an annual basis. During the subsequent period from 2002 to 2010 the pace of growth accelerated significantly, as this sub sector witnessed an annual growth rate of 21 percent. The bulk and intermediary sub sector witnessed an annual growth of 9.1 percent during the 1996-2001, which spurted to 20.7 percent during 2002 to 2010. Despite both the sub sectors witnessing an accelerated growth during the second phase, the contribution of the bulk and intermediary products to total pharmaceutical exports significantly exceeded the contribution made by formulations.

India's cumulative import of pharmaceutical products was approximately US$ 91 billion during the period 1996 to 2010. The total imports of this sector increased from US$ 2.5 billion in 1996 to US$ 15.1 billion in 2010. Unlike exports, India's imports are relatively more concentrated as bulk drugs and intermediaries constitute 90 per cent of pharmaceutical imports.

During the period 1996 to 2001 the formulations sub sector grew at the rate of 8.2 percent on an annual basis. During the subsequent period from 2002 to 2010 the pace of growth accelerated significantly, as this sub sector witnessed an annual growth rate of 21 percent.

While theer is some anecdotal evidence of increased imports from China and its consequent impact on India's pharmaceutical sector, a detailed analysis of import trends and unit values has so far not been undertaken in any study. For the first time, this study undertakes such an analysis and adds to literature.

In order to undertake a detailed analysis of import trends and assess the extent of India's dependence for imports on China, the period 1996 to 2010 was divided into three phases - Phase 1 comprised 1996-2000, Phase 2 comprised 2001-2005 and Phase 3 comprised 2006 - 2010. The analysis highlights that India has become overwhelmingly dependent for its imports on China. Further, the analysis suggests that China has used a strategic policy for establishing and deepening its presence in India's import market.

While imports of bulk drugs from the world increased 5 times by the end of Phase 3 (2006-2010) over the Phase 1 (1996-2000), imports from China surged by almost 10 times from US$ 0.3 billion to US$ 2.8 billion during the comparable period. In terms of shares in imports

of bulk drugs, China's share increased from 15.60 per cent in Phase 1 to 30.71 per cent in Phase 3.

Total imports of formulations increased 7 times during Phase 3 as compared to Phase 1. However, India's imports of formulations from China surged from US$ 1.6 million in the first phase to US$ 42.4 million by the third phase, representing a 26-fold increase.

China's share in India's imports of pharmaceutical products in Chapters 28-30 showed a sharply increasing trend, in both relative and absolute terms. India's average annual imports from China was US$ 280 mn. during Phase 1, which spurted to US$ 2.85 bn. during phase 3. During the period 1996-2000(Phase 1), China had 13.79 per cent share in India's imports. This surged to 20.6 per cent during 2001-2005 (Phase 2). The pace of increase in China's share accelerated further to 28.32 per cent during 2006-2010 (Phase 3). Increasing import share reflects the fact that imports from China have increased relative to imports from other countries. It also suggests that India has already become overwhelmingly dependent on one source for meeting its import requirements.

As Hirshman-Herfindalh Index for imports from China remained in the range of .03 - .04 during 1996-2010, it can be concluded that the imports were not concentrated in a few products. Instead, the basket of imports from China was considerably diversified.

An examination was undertaken of distribution of imports from China according to the category of dominance, which was based on the share in total imports of the concerned product. Although the number of products in the category of low dominance (China's share in imports of each product was less than 25 per cent) declined from 322 during 1996-2000 to 203 during 2006-2010, it continued to remain relatively high compared to other categories of dominance. This suggests that in a large number of products China's share in total imports remained below 25 per cent. This, in turn, points to the potential market that remains untapped by China, despite its extremely impressive dominance of India's import market. The category of high dominance (China's share in imports of each product exceeded 75 per cent) has witnessed a sharp increase in share of China in India's total imports. It increased from 2.66 per cent during Phase 1 to 8.85 per cent during Phase 3. This was mainly on account of 41 products climbing into this category during Phase 3 from categories of lower dominance during Phase 2.

An additional analysis was undertaken to track the movement of each of the 431 products across different categories of dominances during the three phases covering 1996 to 2010. The analysis suggests that in respect of 86 per cent of the products, the category of China's dominance did not show a decline. This conclusively establishes that China's growing dominance over other countries in India's import market is not confined to a few products, but is broad-based covering almost all the products in the pharmaceutical sector. The additional analysis also shows that during Phase 2, 26 per cent of the products climbed into a category of higher dominance compared to the preceding phase. This trend became more prominent during Phase 3 with 31 per cent of the products climbing up the ladder of

dominance. If this trend sustains in the coming years the share of China in India's imports would further surge.

During Phase 1 almost 65 per cent of imports from China were in the categories of low and moderate-to-medium dominance (China's share in imports of each product was greater that 25 per cent but less than 50 per cent). The trend of shift in imports towards categories of higher dominance continued during Phase 2 and Phase 3, with 75 per cent of imports falling in the categories of medium-to-high (China's share in imports of each product was greater that 50 per cent but less than 75 per cent) and high dominance in Phase 3. This conclusively establishes that there was a clear trend towards larger share of imports from China being concentrated in those categories with higher import shares.

Overall, the dominance analysis suggests that imports from China appear to have adhered to a systematic pattern - establish market presence in a large number of products and progressively deepen import penetration so that each product either retains its existing share in imports or increases it. If this strategy persists, given the diversified character of imports from China, it is likely that China's dominance of the import market will overwhelm other competitors in the entire pharmaceutical sector.

Progressively a larger share of imports from China was associated with increased level of intra industry trade. During Phase 3 almost 45 per cent of imports from China had high intra industry trade. While this could have benefitted India's export share by providing exports access to imported inputs at competitive prices, a correlation analysis suggests that a decline in unit value of imports from China as compared with the unit value of global imports did not result in increasing India's global export share.

Trend in unit value of imports from China and that from the world for four of the top twenty imports - 294200 (other organic compounds); 294110 (penicillins and derivatives); 294190 (other antibiotics); and 294150 (erythromycin and derivatives) suggests that China has followed a strategic pricing policy for penetrating India’s import market. During Phase 1, when China's share in import market in India was relatively low, unit value of imports from China were significantly lower than the unit value of imports from the world. Further, during this phase China also followed a strategy of discriminatory pricing whereby its exports to India were priced significantly lower than its exports to rest of the world. After establishing its presence in India's import market and enhancing its share, during Phase 2 and Phase 3, unit value of imports from China progressively increased and became closer to that of imports from the world.

Through this strategic pricing, not only has China managed to increase its share in India’s imports significantly, it has achieved this without its profits getting squeezed on account of competition from other countries in India’s import market. This is also consistent with some of the conclusions reached earlier regarding increasing concentration of imports from China in products with higher market share.

The trend towards overwhelming reliance on one source - China - for imports in the pharmaceutical sector has the risk of exposing India's production to externalities such as

developments in China, which can disrupt imports. It may be necessary for India to diversify its sourcing to include other countries besides China. While this study does not specifically analyse the impact of increased imports from China on India's domestic industry, it is reasonable to assume that the strategic discriminatory pricing policy followed by China would also have adversely affected India's producers in a manner similar to the effects experienced by producers from other countries in India's import market. This is also reflected in the fact that 8-10 pharmaceutical products from China face anti-dumping duty in India.

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Recommendation

Finally for consistency purposes a definition of pharmaceutical sector would need to be made by the Department of Pharmaceutical (DoP) in consultation with the industry (large, medium, small and micro firms). The idea is to remove the differences in figures of the Indian Drugs and Manufacturers Association (IDMA) and the DoP. Therefore, it would be useful for arriving at a consistent result on figures including production capacities, values of trade (exports and imports) and quantities, etc.

We recommend the use of HS system as the basis for this "sectoral" definition for Pharmaceutical products, as it would be also useful for the multilateral negotiations. Therefore, a definition should be based on the Harmonised system of classification on the pharmaceutical sector - preferably the defining should be disaggregated at Indian Trade Classification (ITC - HS 8 digit level). Some work in this direction has already been done internally by the Department of Pharmaceutical (DoP) and Indian Drugs and Manufacturers Association (IDMA), see Appendix 2, p.77, of this paper for the tentative list of products.

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Annexure 1: TWENTY PRODUCTS ANALYSIS: detailed analysis of selected twenty products

Under this annexure we have taken indentified the top twenty based on the last five year averages. The three categories were arrived from the difference in the exponential growth rates of two periods. The first phase (1996 – 2001) is before China entry into the World Trading Organisation (WTO) and the second phase (2002 -2009) after China's entry into the WTO. The exponential growth rates were calculated for second phase (2002 to 2009) and further average share of the second phase were also calculated. These categories have been drawn based on two variables the difference is shares and the difference in exponential growth rates (E-GR) between the two periods.

The paper finds that of the top 20 products during the study period of 1996 to 2009 wherein the imports by Indian Pharmaceutical sector have been increasing. Some distinct pattern emerge from the analysis of these 20 identified products, which can be further categorised into the following: **the first category**, wherein the contribution in the total imports of India from the rest of world (RoW) were substantial in comparison to Chinese imports; **the second category** are wherein the Chinese imports have dominated over the RoW imports in the Indian total imports under the Pharmaceutical Sector**; the third category** is wherein there is stiff competition between the RoW and Chinese imports. Nearly in all the three categories there was domination of RoW imports in the earlier phase, but with the Chinese entry in 2001, competitiveness increased *vis-à-vis* the Chinese imports.

The first aspect to be noted in nearly all twenty indentified products belonged to sub-segment of bulk and intermediates of the Pharmaceutical sector. The import by this sub-segment was clearly higher than the formulations sub-segment of the Indian Pharmaceutical sector; see Annexure 4.

In this Paper, **the first category** was the criterion of the dominance of RoW imports in the India's total Pharmaceutical imports and was identified as difference index value of less than 2 units- this category had four products. The **second category (10 products)** of products with the criteria of above 2 and less than 10 units, there is some competition between the China and RoW for exports to India. And, **third category (six products)**, wherein import from China has dominated over the RoW imports is identified based on the criteria of more than 10 units - these are products wherein there is absolute dominance of Chinese imports over the others. These are products where in china has had substantial share in imports of Indian Pharmaceutical Sector.

The average of standard deviation is an indicator of the extent of variation in prices data over 1996 to 2009. The highest value for standard deviation was 40.2 and the lowest was value of 1.8. It is observed that the highest variation of 40.2 points was observed in the category of *"high competition between the rest of the world imports and Chinese imports"*. Whereas, in the category of dominance by the rest of the world showed moderate standard deviation of 6.1. The least standard deviation of 1.8 points was observed in the category of Chinese

imports dominating over the rest of the world imports. Hence, suggesting that import from China has led to the cheap inputs (in terms of unit prices), in the form of bulk and intermediaries for the Indian Pharmaceutical sector.

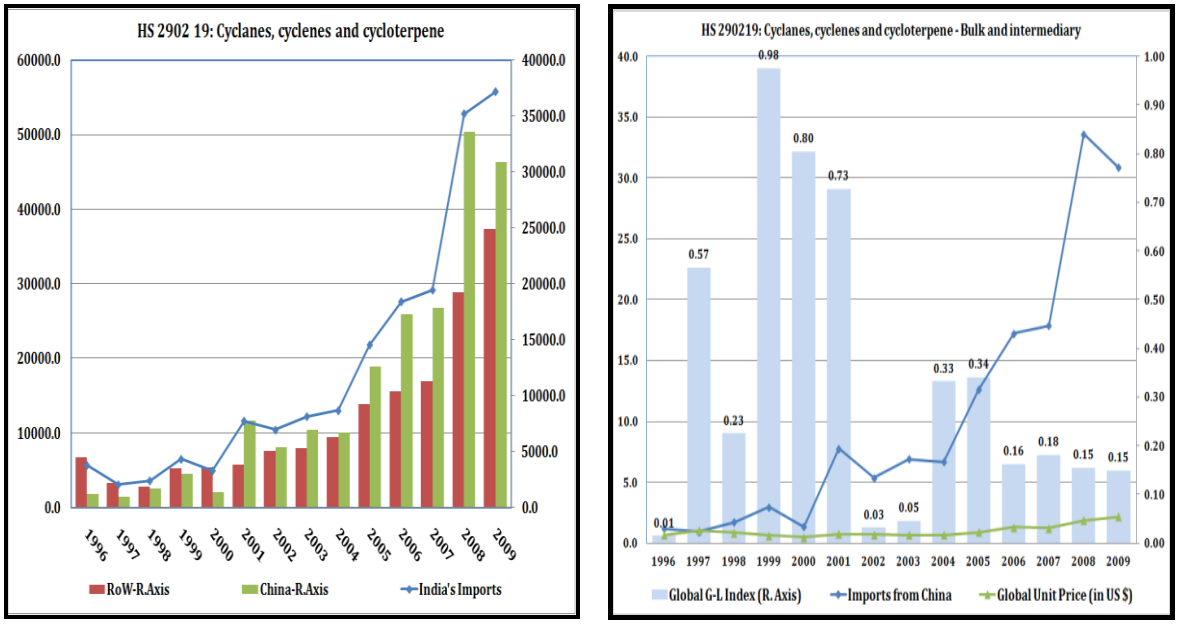
Imports from the Rest of World was Substantial in India's Import

The first category is of the products wherein the Rest of the World (RoW) dominates in terms of imports of the total India's Pharmaceutical sector. There were four products with sub-headings of 290219, 293390, 294150 and 294200. Across the twenty products a simple observation reveals that there is no uniformity in trends or characteristics. The other unique aspect to be discussed at the outset is that in all of the twenty products the rest of the world imports dominated in the initial phase (1996 – 2001), later to be followed by the Chinese domination. The average standard deviation of unit prices observed in this category was 6.1 suggesting moderate levels of price variation over the years.

Cyclanes, Cyclenes and Cycloterpenes (Excl. Cyclohexane)

Cyclanes, Cyclenes and Cycloterpenes (290219) was the first product total of four products wherein the contributions of RoW was significantly higher in total imports. This category when analysed in detail although the Figure 19, does not obviously indicate of a high dependence on RoW imports by India's Pharmaceutical sector.

Figure 13: HS – 290219 - Cyclanes, Cyclenes and Cycloterpenes



Source: COMTRADE, WITS online database

Cyclanes, Cyclenes and Cycloterpenes imports by India increased by an exponential growth rate (E-GR) of 24 percentages, from 5.6 million US$ during 1996 to 55.7 million US$ in the year 2009. The imports from RoW increased by E-GR of 18 percentages from US$ 4.5 million to US$ 25 million in 2009, while at the same time the Chinese imports increased by E-GR of 32 percentages from US$ 1.2 million to US$ 30 million respectively. The cyclones,

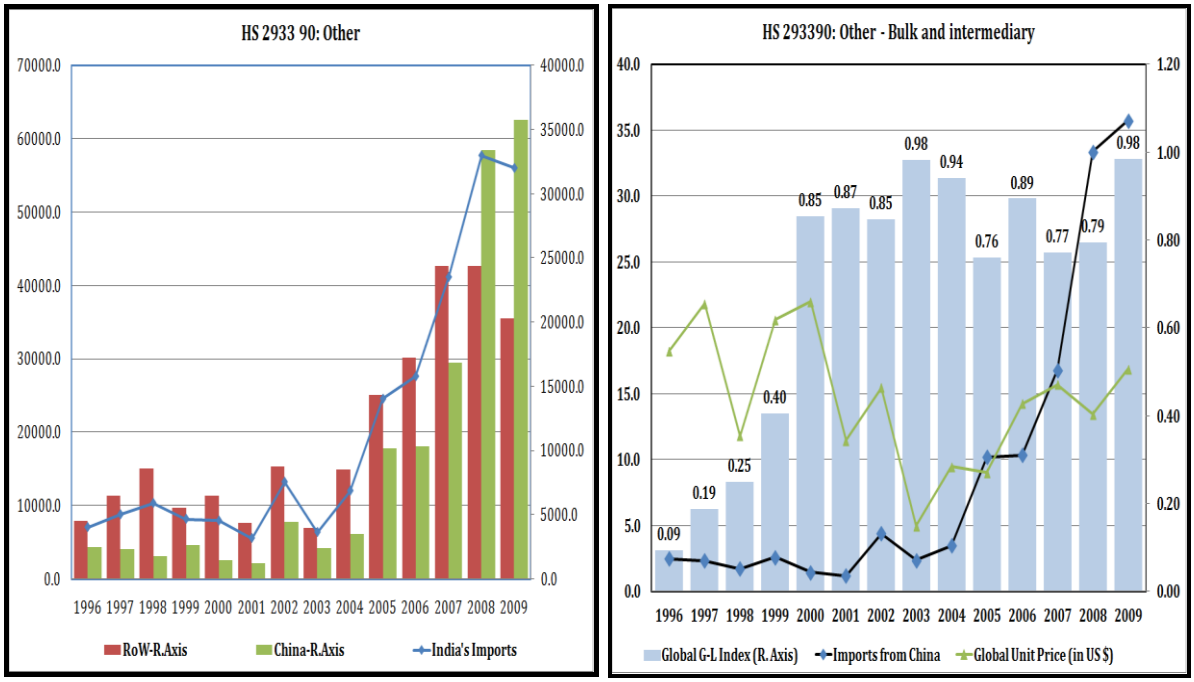
cyclenes and cycloterpenes belonged to bulk drug and intermediaries, which has a very high import share and can be observed in Figure 19 of the earlier section of this paper.

Cyclanes has a share of 0.02 % of the total global exports under Chapter 29, see Annexure 4. Therefore, Cyclanes has not been a significant product among the bulk drugs and intermediaries sub-category. The average GL Index of 0.55 of first phases (1996-2001 decreased sharply to Index value of 0.17 in second phase (2002-2009). The global unit prices (G-PUP) was US$ 0.7 per unit price in 1996 it stayed flat until at this rate till 2002 to increase with an exponential growth of 20 % to touch US$ 2.2 per unit price. It showed remarkable increase from a nominal figure of 0.9 % growth in the first phase to 216 % growth in the second phase.

Heterocyclic compound with nitrogen hetero-atom

Heterocyclic compound with nitrogen hetero-atom (293390) was the second product among the category of dominant RoW imports. Heterocyclic compound total import increased at an E-GR of 18 percentages during the study period, from US$ 7 million in 1996 to US$ 56 million in 2009.

Figure 14: HS – 293390-Heterocyclic Compounds with Nitrogen Hetero-Atoms



Source: COMTRADE, WITS online database

On the one hand, the dominant RoW import increased at an E-GR of 13 percentages from US$ 4 million in 1996 to US$ 20 million by 2009, see Figure 20. On the other hand, the Chinese imports increased at an E-GR of 26 percentages during from US$ 2.4 million to 36 million in 2009. The heterocyclic compounds with nitrogen hetero-atoms also belonged to bulk drug and intermediaries sub-segment. Heterocyclic compounds with nitrogen hetero-atoms had the highest share of 7 percentage of global trade under Chapter 29, see Annexure 4. Heterocyclic compound with nitrogen hetero-atom has been one of the important products

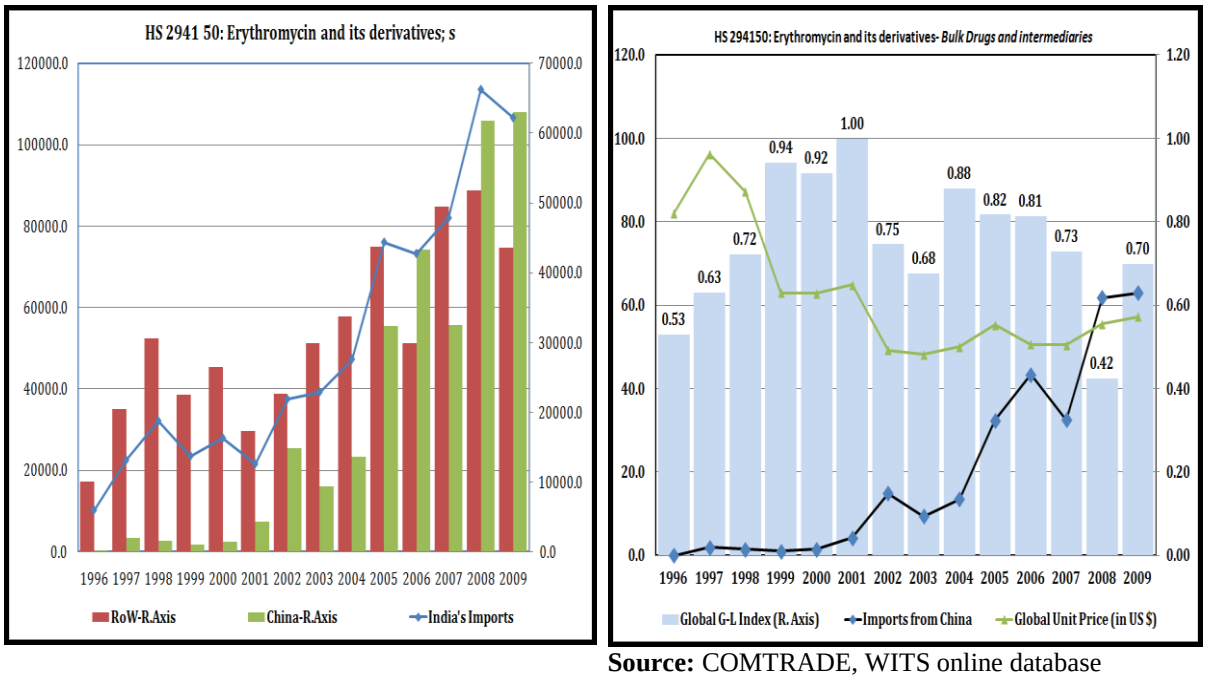
among the bulk drugs and intermediaries globally. The heterocyclic compounds with nitrogen hetero-atoms had an average G-L Index of 0.69 during the study period, it was 0.44 in the first phase (1996-2001) later increased sharply to Index of 0.87 in the second phase. It does indicate to an increasing in Intra-Industry Trade (IIT) in heterocyclic compounds with nitrogen hetero-atoms.

The average global unit price during the period of 1996 to 2009 was close to 13.9 US$ since then it showed an erratic trend and peaked to a record price of US$ 22 per unit in 2000. The global unit price of heterocyclic compounds with nitrogen hetero-atoms was US$ 18.2 in 1996 thereafter decreasing over to US$ 5 in 2003 and later it increased to US$ 16.9 in 2009. Therefore, it could be said the unit prices for heterocyclic compounds with nitrogen hetero-atoms, the most important bulk drug category suggested very little reduction in term of global prices. This does not augur well for the Pharmaceutical sector in India, which has had its fair share of M&A indicating an inorganic growth.

Erythromycin and its Derivatives- Salts Thereof

Erythromycin and its derivatives salts belonged to bulk drug and intermediaries sub-segment. The erythromycin and its derivatives salts is the third product belonging to the category of domination of RoW imports in the India's total import by the Pharmaceutical sector.

Figure 15: HS – 294150- Erythromycin and its derivatives salts



Source: COMTRADE, WITS online database

Just like the earlier case of heterocyclic compounds with nitrogen hetero-atoms (293390), the erythromycin and its derivatives salts too suggested some competition from the Chinese supplies in the Indian Pharmaceutical sector – especially in the later phase of the period of Study.

The total import of erythromycin's increased by 10 times during the period of study from US$ 10 million in 1996 to US$ 107 million in 2009. The total imports from the RoW

increased at an E-GR of 17.2 percentages during and from US$ 10 million in 1996 to US$ 43 million in 2009, while the Chinese imports increased at an E-GR of 59 percentages from US$ 0.03 million to US$ 62 million, see Figure 21. The growth (in time) in the Erythromycin and its derivatives salts was one of highest recorded growths in the Chinese imports across the top 20 products analysed in this paper.

Erythromycin had a share of 0.5 percentage of global trade under Chapter 29, see Annexure 4 in the earlier section. As observed from the shares, erythromycin has not been an important product. However, the product erythromycin had an rather high average G-L Index of 0.79 during 1996-2001 phases this slipped marginally to 0.72 in second phase – translating into the average for period of 0.75. The part II of Figure 21 indicates the trend in global unit prices during the period of 1996 to 2009, the green line in the graph suggested an average of US$ 63 per unit price and it also indicate to sharp decreasing trend. The details of the global unit price of erythromycin bulk drug was US$ 82 per unit price in 1996 thereafter decreasing to nearly half of it value in 2002 to US$ 49.2 and thereafter it increased by 16 percent to reach to US$ 57.2 in 2009.

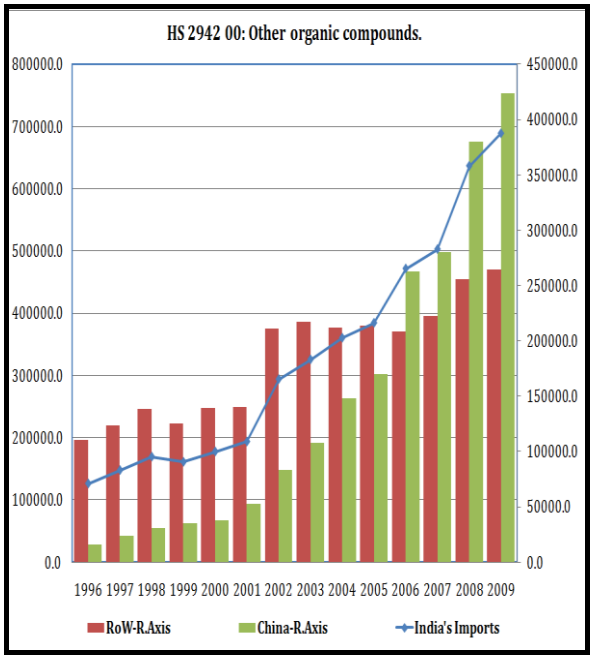
Other organic compound

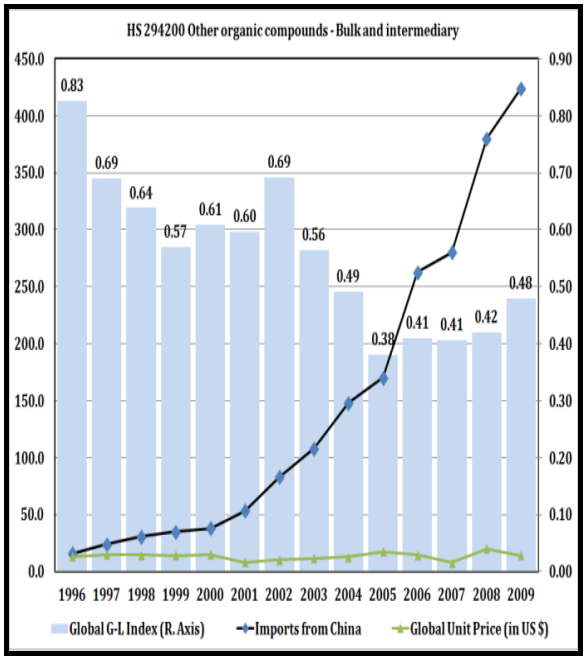
Other organic compound also belonged to the sub-segment of bulk drug and intermediary products and was the last product which belonged to Import dominance of RoW. Like the earlier three bulk drugs examples, the other organic compound (294200) was faced with heavy competition by Chinese supplies. Total import of the other organic compound increased at an E-GR of 14.4 percentages during the study period - from 126 million US$ in 1996 to US$ 688 million in 2009. The imports from the RoW increased at an E-GR of 7 percentages from US$ 110 in 1996 which increased to 264 million by 2009 while the Chinese imports increased at an E-GR of 30 percentages during from US$ 15 million to 424 million in 2009, see Figure 22.

In the chapter 29 total imports, the other organic compound had a share of 0.5 percentages and therefore was not an important product among the bulk drugs and intermediaries in the global scenario. In terms of intra-industry trade the other organic compounds had an average GL Index for the period of study was 0.56. This product had an average G-L Index of 0.66 in the first phase it slipped shapely down GL index of 0.48 in second phase, suggesting a decrease in IIT activities. The trends in global unit prices are discussed in the part II of Figure 22 with green line graphs. The average global price during the study period was close to 13 US$ but the prices have showed a decreasing trend. The global unit price of other organic compound was US$ 13 in 1996 thereafter decreasing by nearly half its value to touch US$ 8 per unit in 2001 and later increased sharply to US$ 20 in 2009. From trend in prices of other organic compound, what can be observed is that with the Chinese entry its impact on prices was to move it downward, but towards the end of the study period it rose back.

From the four cases what could be generalised as a trend across products is that the global unit price falls over the initial periods, until the Chinese entry into WTO.

Figure 16: HS 2942.00 Other Organic Compound





Source: COMTRADE, WITS online database

But as India's imports from China increases toward 2009 the global unit prices were up at 1996 prices. This does suggest that as the Chinese firms' feel confident they are able to set the price, they will raise it even further up.

Competition between the RoW and Chinese Imports

Stiff competition between the RoW and the Chinese imports was the second category in Indian import market in Pharmaceutical sector. While the imports from China have been increased especially after 2002 at the same time it becomes important understand the impact on prices and dependency of Indian Pharmaceutical sector. The Paper finds ten products belonged to this category these products are 292250; 292429; 292690; 293090; 293100; 293339; 293359; 293490; 293799 and 294190. As discussed earlier also all the ten products belong to bulk drug and intermediates sub segment of Pharmaceutical sector.

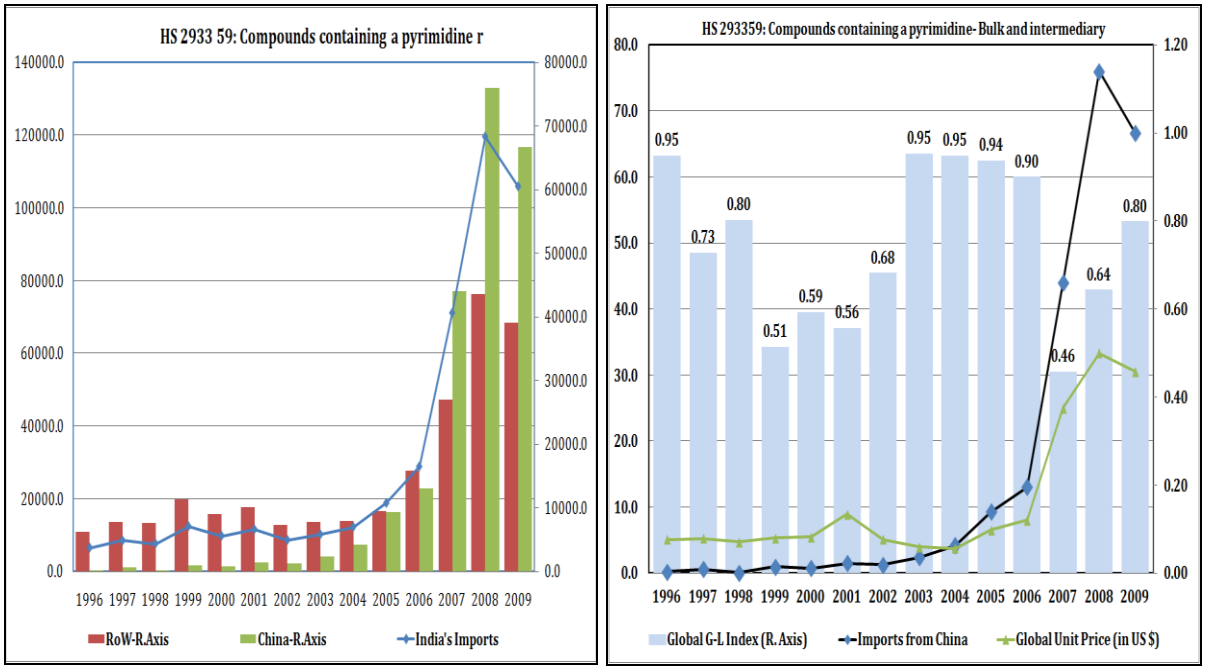
Heterocyclic Compounds with Nitrogen Hetero-Atom

Heterocyclic compound with nitrogen hetero-atom is the first product in the second category of competition between the RoW and Chinese Imports to be analysed in detail. The total import of heterocyclic compounds with nitrogen hetero-atom increased with an E-GR of 22.6 percentages during from US$ 6.5 million in 1996 to US$ 105.8 million in 2009. The Chinese imports increased at an E-GR of 73.7 percentages from US$ 0.6 million in 1996 to US$ 66.7 million in 2009, while the RoW imports also showed an increasing trend with an E-GR of 15.4 percentages during from US$ 6.3 million in 1996 to US$ 39.1 million in 2009, see Figure 23.

However, the scenario has not been one sided, from the very beginning with the India's import from RoW dominating in terms of heterocyclic compounds with nitrogen hetero-atoms up to 2006. By 2010, India's imported close to 64 percent from China; it has now

become India's principle supplier for heterocyclic compounds with nitrogen hetero-atoms. In case of heterocyclic compounds, it is interesting to note that the Chinese imports have dominated immediately after 2006. In term of exponential growth rate of China's imports was close to 86 % while the RoW imports grew at 34 percentages.

Figure 17: HS – 293359 - Heterocyclic compounds its derivatives and salts



Note: Import is thousand US $ except for those in Part II graph.
Source: COMTRADE, WITS online database

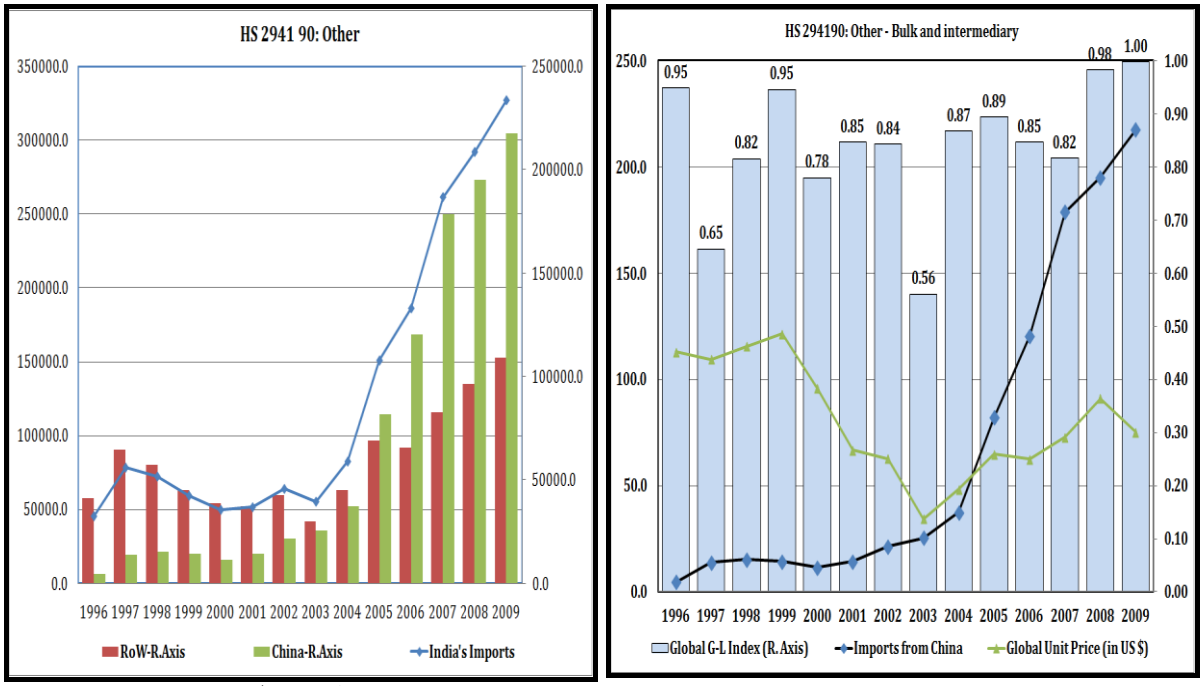
The heterocyclic compounds had an average G-L Index of 0.75 during the study period between 1996 and 2009. However, the index marginally gained from 0.69 in the first phase to 0.79 in the second phase. Therefore, since the GL Index suggested an increasing intra-industry trade (IIT) activity in heterocyclic compounds its derivatives and salts. However, IIT increase can be observed in the second phase particularly this could have helped the Chinese imports, while it is clear that less proportion of heterocyclic compounds was being consumed for domestic needs.

The global price is detailed in the part II of Figure 23, with the green line graph. The line graph shows here explains trend in global prices of heterocyclic compounds with nitrogen hetero-atoms for the period of 1996 to 2009. The average price of heterocyclic compounds with nitrogen hetero-atoms was US$ 11 per unit. The trends in global unit prices of heterocyclic compounds its derivatives and salts was US$ 5.1 per unit in 1996 it remained constant until 2002 thereafter started to increase over the years to reach US$ 31per unit in 2009. This heterocyclic compounds having a share of 2.4 percentages in the total exports of Chapter 29 and hence it was a significant product among the sub-segment of bulk drug and intermediaries.

Antibiotics Excl. Penicillins and Their Derivatives

Antibiotics excl. penicillin and their derivatives was the second product in the category of "*Competition between the RoW and Chinese Imports"*. Total import of antibiotics (excl. Penicillins) increased by 16 times during the study period, from US$ 46 million in 1996 to US$ 326.8 million in 2009.

Figure 18: HS – 294190 - Antibiotics (excl. penicillin) and their derivatives



Note: Import is thousand US $ except for those in Part II graph.
Source: COMTRADE, WITS online database

The Chinese imports increased at an E-GR of 18 percentages during from US$ 4.5 million in 1996 which increased to 217.6 million in 2009, while the RoW imports also showed increasing trend with E-GR of 6 percentages during trend from US$ 41 million in 1996 to US$ 109.2 million in 2009, see Figure 24.

However, the scenario has not been one sided from the very beginning in this product just like the earlier case heterocyclic compounds with the RoW imports dominating in the Indian total imports of Pharmaceutical sector up to 2004. By 2010, India's import from the China was close to 77 percent, it has now become India's sole supplier for antibiotics (excl. Penicillins) and their derivatives. In case of antibiotics, it is interesting to note that the Chinese imports have dominated immediately after 2004 over the imports from the RoW. The exponential growth rate of China's imports was close to 45 percentage actually this helped the Chinese imports gain the position of sole supplier, while the imports from the RoW grew only at 18 percentages during the second phase.

The antibiotics (excl. Penicillins) and their derivatives have a share of 2.8 percentages in the total exports of Chapter 29 and hence it was a significant product among the sub-segment of bulk drug and intermediaries. The antibiotics (excl. Penicillins) and their derivatives also had an average G-L Index of 0.84 which is considered high as per the Paper However, the index

marginally only gained from 0.83 in the first phase to 0.85 in the second phase. Therefore, since the GL Index suggests an increasing intra-industry trade (IIT) activities in the product called antibiotics (excl. Penicillins) and their derivatives.

The global price is detailed in the part II of Figure 24, with the green line graph. The line graph shows here explains trend in global prices of antibiotics (excl. Penicillins) and their derivatives during the period of 1996 to 2009. The average price of antibiotics (excl. Penicillins) and their derivatives was US$ 81 per unit. The global unit price of antibiotics was US$ 113 per unit in 1996 it constantly decreased over the years to US$ 31 per unit in 2003, thereafter it rose at a steady pace to reach almost double of the 2003 rates to touch US$ 75 per unit in 2009. In the case of antibiotics, it fits the same pattern as observed in many of the earlier products of falling prices as an immediate impact of China's entry but thereafter with continuing intra-industry trade the prices gradually rise upwards.

Cyclic Amides, Including Cyclic Carbamates, and their Derivatives; Salts Thereof

Cyclic amide including cyclic carbamates and their derivatives was the third product in the category of "Competition between the RoW and Chinese Imports". The total import of cyclic amides, incl. cyclic carbamates increased at an E-GR of 12.8 percentages during from US$ 13 million in 1996 to US$ 49 million in the year 2009. The Chinese imports increased at an E-GR of 37.2 percentages during from US$ 1.1 million in 1996 to US$ 35.1 million in 2009, while the RoW imports also show a marginal increase with E-GR of 2.3 percentages during US$ 11.7 million in 1996 to US$ 13.7 million in 2009, see Figure 25. This was due to differences in the growth rates in the second phase; the exponential growth rate of RoW imports was at 2 percentages while the Chinese imports into India grew at close to 70 percentages.

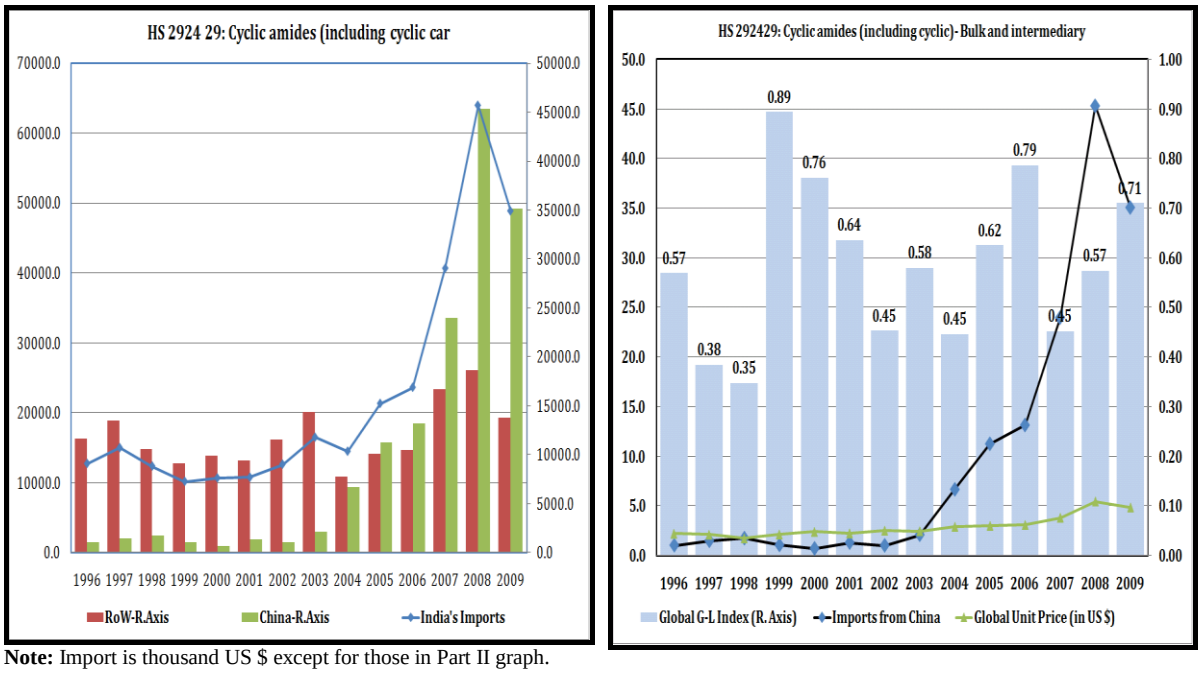
However, the scenario has not been one sided even in the case of cyclic amides including cyclic carbamates product with the imports from the RoW dominating up to 2003. However by 2010, India's import from the China was close to 65 percent, it has now become India's principle supplier for cyclic amides. In case of cyclic amides, it is interesting to note that it is only after 2004, the Chinese imports have dominated over the imports from RoW. In term of exponential growth rates in the second phase, the China's imports were 69 % while the RoW imports grew at 6 percentages.

The cyclic amides and their derivatives have a share of 1.8 percentages in the total exports of Chapter 29 and hence it was a significant product among the sub-segment of bulk drug and intermediaries. The intra-industry trade in the cyclic amides and their derivatives was moderate with an average G-L Index of 0.58 during the study period between 1996 and 2009. However, the IIT index showed a marginally declined from 0.60 during the first phase to 0.59 in second phase. It indicated a nominal trade in the cyclic amides, incl. cyclic carbamates, and their derivatives; salts thereof.

The global price is detailed in the part II of Figure 25 with the green line graphs. The line graph shows here explains trend in global prices of cyclic amides during the period of 1996 to

2009. The average price of cyclic amides, incl. cyclic carbamates, and their derivatives; salts thereof was US$ 3 per unit for the complete study period. The global unit prices of cyclic amides, incl. cyclic carbamates, and their derivatives was US$ 2.5 per unit in 1996 it constantly rose with steady pace to reach US$ 3.5 per unit in 2009.

Figure 19: HS – 292429 - Cyclic Amides, incl. Cyclic Carbamates, and their Derivatives; Salts Thereof



Note: Import is thousand US $ except for those in Part II graph.
Source: COMTRADE, WITS online database

Prices only grew at the compound annual growth rate (CAGR) of 2.2 percentages from 1996 to 2002, while in the second phase the CAGR of 9.7 percentages. It fits the same pattern as observed in many of the earlier products but in a different pattern impact of China's entry did not have any impact on the prices, may be because this product did not have a very high GL index.

Hormones and their Derivatives

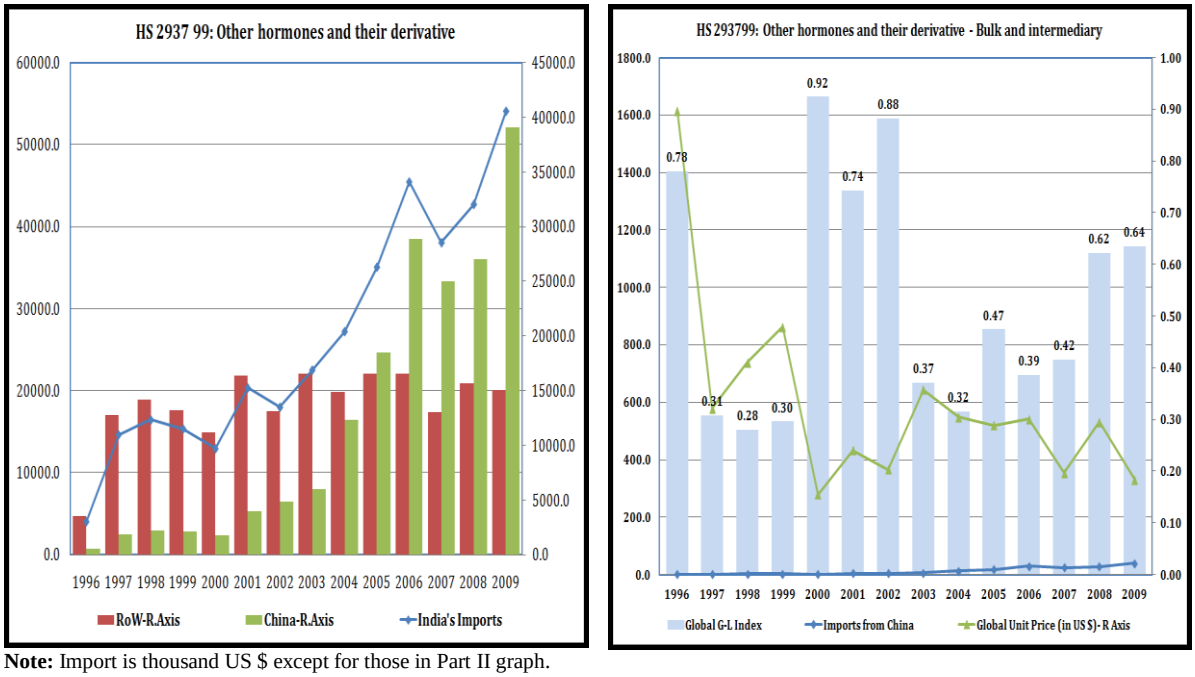
Hormones and their derivatives was the fourth product in the category of "Competition between the RoW and Chinese Imports". The total import of hormones and their derivative increased at an E-GR of 15.8 percentages from US$ 4.1 million in 1996 to 39.1 million by 2009. The Chinese imports into India increased at an E-GR of 36.4percentages during from US$ 0.5 million in 1996 to US$ 39.1 million in 2009, while the RoW imports increased at an E-GR of 5.4 percentages during from 3.5 million in 1996 to 15.1 million in 2009, see Figure 26.

The scenario has not been one sided since 1996, the beginning of this study, virtually import from the RoW dominated the Indian Pharmaceutical sector up to 2003, but by the 2005 the Chinese imports were dominating and it continued up to 2009. By 2010, India's import from

the China was close to 65.5 percent and it became India's principle supplier in hormones and their derivatives one of the important bulk and intermediaries which had share of 1.4 percentages in the Chapter 29 exports of world. It is interesting to note that the Chinese imports have dominated within a short span of time from 2005 to 2009. In the second phase the exponential growth rates of China's imports was close to 34 percentages while the RoW imports grew only at 0.3 percentages.

The intra-industry trade of the hormones and their derivatives was marginal as the average GL Index was 0.53 during the study period between 1996 and 2009. The index marginally declined from an average of 0.56 in first phase to 0.53 in the second phase. Since the GL Index suggests an marginal decrease in the intra-industry trade (IIT) activity of hormones and their derivatives used primarily as hormones. It then becomes important to the price trends in this product which had relatively good share in the Global exports.

Figure 20: HS – 293799 - Hormones and their Derivatives used Primarily as Hormones



Note: Import is thousand US $ except for those in Part II graph.
Source: COMTRADE, WITS online database

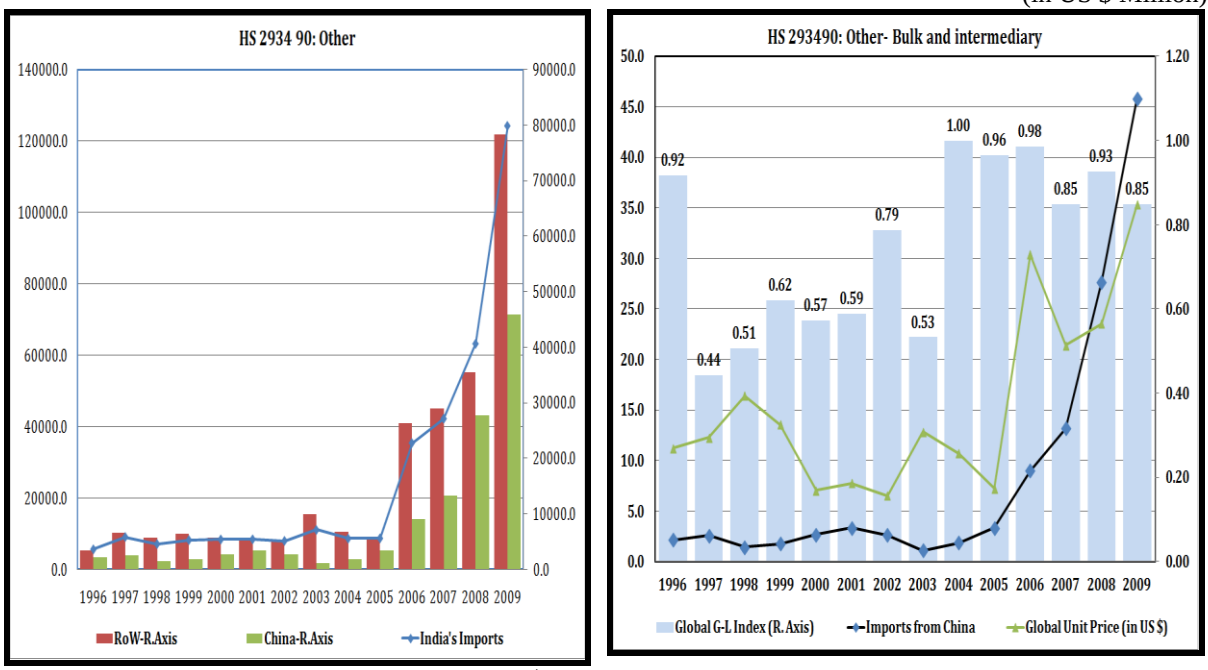
The global price is detailed in the part II of Figure 26 with the green line graphs. The line graph shows here explains trend in global prices of hormones and their derivatives during the period of 1996 to 2009. The average price of hormones and their derivatives was US$ 596 per unit; this could be one of the reasons for relatively low IIT activity. The global unit price of hormones and their derivatives was US$ 1616 per unit in 1996 it has continued downwards with year-to-year variations being highly volatile and ending at US$ 315 per unit in 2009; with a standard deviation of 335. The prices were falling at a higher pace of -77.4 percentages in the first phase when compared to sharp fall in this rate to -9.4 percentages; this again is an indication of how china's entry made all the difference for the Indian Pharmaceutical sector.

Nucleic Acids and Their Salts

Nucleic acids and their salts was the fifth product in the category of "Competition between the RoW and Chinese Imports" and it was an important bulk and intermediaries product with a share of 6 percentages of world exports. The total import of nucleic acids increased at an E-GR of 21.4 percentages during 5.6 million US$ in 1996 to 124 million US$ in 2009. While the Chinese imports increased at an E-GR of 23.4 percentages from US$ 2.2 million to US$ 78.3 million and the RoW imports also showed a similar increase with an E-GR of 20.5 percentages from 3.5 million to 45.8 million, see Figure 27.

Figure 21: HS – 293490- Nucleic acids and their salts

(in US $ Million)



Note: All the import comparison the units is thousand US $.
Source: COMTRADE, WITS online database

However, the scenario observed here in the Nucleic acids has been virtual export domination by the RoW from 1996 to 2009. However by 2010, India's import from the China was close to 31.2 percent and the RoW imports were close 68.9 percent. In the case of nucleic acids, it is interesting to note that the RoW imports have dominated all through the study period; this could have various impacts which need to be studied in detail. In the second phase the exponential growth rate of China's imports was close to 66.7 % and was higher than the RoW imports at 44.7 percentages.

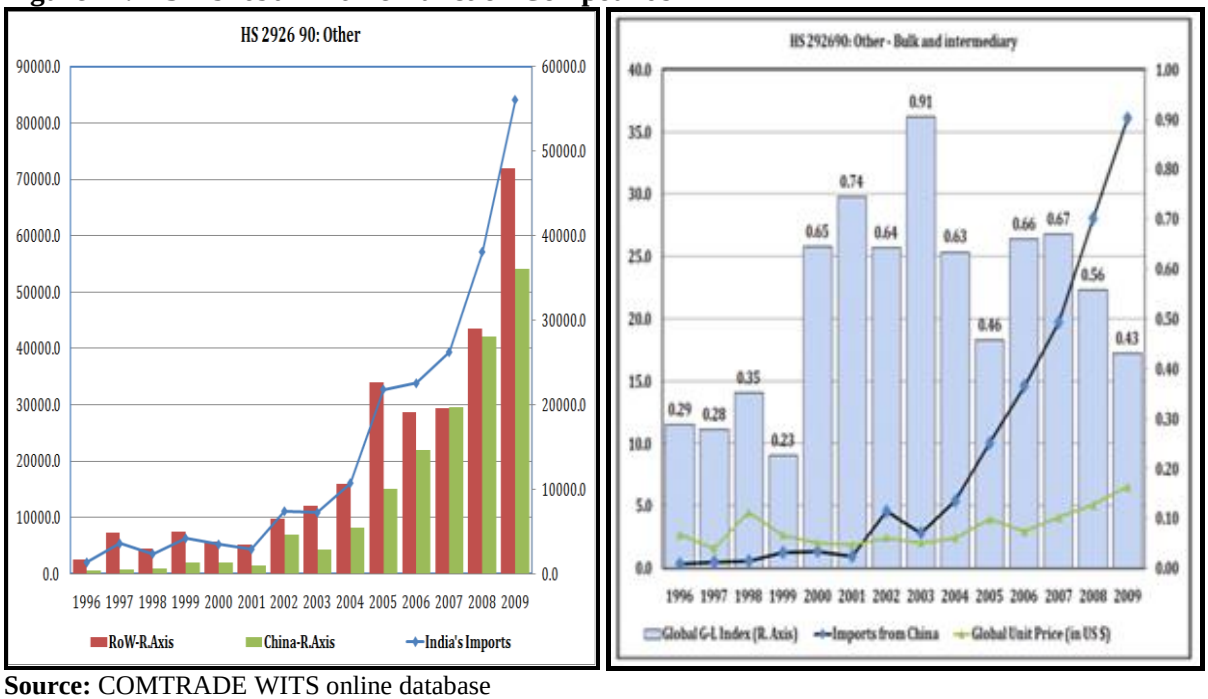
Nucleic acid has a global share of close to 6 % of the total trade under Chapter 29. Therefore, nucleic acids have been a significant player among the bulk drugs and intermediaries sub-category. The Intra-industry trade in this product has higher at an average G-L index at 0.75. The IIT index substantially increased from an average of 0.61 in the first phase to 0.86 in the second phase. Since, the GL Index suggested an increased intra-industry trade (IIT) in nucleic acids and their salts.

The global price is detailed in the part II of Figure 27 with the green line graphs. The line graph shows here explains trend in global prices of nucleic acids and their salts during the period of 1996 to 2009. The average global unit price (GUP) of the top twenty products has shown decreasing trend over the years, the GUP of this particular product has been fluctuating with increasing trend over the years. The average global unit price was US$ 15.5 per unit; it decreased as immediate impact of Chinese imports from US$ 11.2 in 1996 to 6.52 in 2002. However it increased over the year to US$ 34.3 with a suggested exponential growth rate of 7.2 percentages. The very high IIT (GL index), had an impact CGAR of Nucleic acid prices as it fell at a pace of – 8.7 % in the first phase while it substantially increased to cover-up this fall in the second phase by 27.3 percentages.

Nitrile-Function Compounds

Nitrile-function compound was the sixth product in the category of "Competition between the RoW and Chinese Imports". Nitrile-function compounds total imports by India for domestic use increased at an E-GR of 30.4 percentages from 2.1 million US$ in 1996 to US$ 84 million in 2009. The Chinese imports during the same time increased at an E-GR of 44.3 percentages from US$ 0.3 million in 1996 to US$ 36.1 million by 2009, while the RoW imports also showed a similar increase with an E-GR of 25.2 percentages from 1.7 million in 1996 to 47.9 million in 2009, see Figure 28.

Figure 22: HS- 292690 - Nitrile-Function Compounds



Source: COMTRADE WITS online database

However, the scenario observed in the nitrile-function compounds has been one of virtually domination by the RoW imports to India, from 1996 to 2009. This led to a scenario by 2010 when India's import from the China was close to 46.8 percent and the RoW imports were close 54.2 percent.

In case of Nitrile-function compounds, it is interesting to note that the RoW imports have dominated all through the study period unlike the other products taken-up for analysis. In the second phase the exponential growth rates of RoW imports was 30.8 percentages, while the Chinese imports grew at 43.3 percentages.

Although the nitrile-function compounds has a global share of close to 0.7 % of the total trade under Chapter 29. This product therefore was not been a significant player among the bulk drugs and intermediaries sub-category in the global scenario. This product has moderately averages G-L index of 0.53 suggesting the scale of intra-industry trade. However, the index substantially increased from the average GL index of 0.42 in the first phase to 0.62 in the second phase. The second phase had higher IIT activities than the first phase it certainly suggested to increased level of activity in terms of trade in Nitrile-function compounds.

The global price is detailed in the part II of Figure 28 with the green line graphs. The line graph shows here explains trend in global prices of nitrile-function compounds during the period of 1996 to 2009. The average global unit price was US$ 3.2. The price of nitrile-function compounds was US$ 2.7 in 1996 it decreased to 1.9 in 2001. Since 2004 the price increased and the trend continued till 2009; the price was US$ 6.6 per unit. This suggested exponential growth rate of 43 percentages in the second phase. The very high IIT (GL index), had an impact CGAR of nitrile-function compound prices as it fell at a pace by 1.5 % in the first phase while it substantially increased to cover-up this fall in the second phase by 15 percentages.

Organo-Sulphur Compound

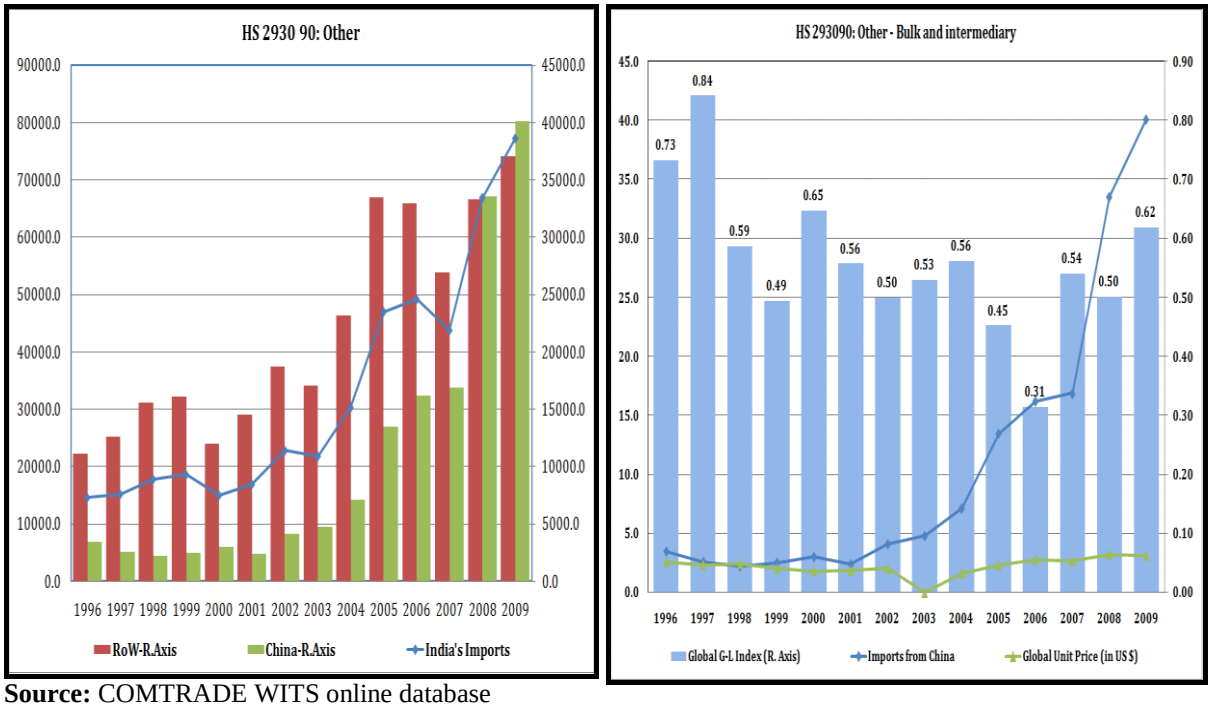
Organo-sulphur compound was the seventh product in the category of "Competition between the RoW and Chinese Imports". Total Indian import of organo-sulphur compounds increased at an E-GR of 14.2 percentages from US$ 14.1 million in 1996 to US$ 77.1 million in 2009. The Chinese imports increased at an E-GR of 25.2 percentages from US$ 3.5 million in 1996 which increased to 40 million by 2009, while the RoW increased at an E-GR of 9.8 percentages from in the RoW imports from 11.2 million in 1996 to 37.1 million in 2009 respectively, see Figure 29.

However, the scenario observed here in the organo-sulphur compounds has been virtually domination by the RoW from 1996 to 2008 except for in 2009 wherein the China managed a slightly exceeded the RoW. Therefore, the scenario by 2010 of the total imports of organo-sulphur compounds the China had 63 percent and the RoW was close 36 percent. It clearly shows that the RoW further drops from where the study period ends. In the case of organo-sulphur compounds, it is interesting to note that the RoW imports have dominated in most of the years taken for study. The second phase which made all the difference, as also observed across the products taken-up for study, the exponential growth rates were the Chinese imports grew by 40.4 % and the RoW imports grew at 10.7 percentages.

Organo-sulphur compound has a global share of close to 1.8 % of the total trade under Chapter 29. Therefore, the organo-sulphur compound is a significant player among the bulk

drugs and intermediaries sub category in the global scenario. This product has moderate levels average G-L index of 0.56. However, the index can be seen to marginally drop between the two phases form the average GL index of 0.64 in the first phase to 0.50 in the second phase. The GL Index suggests a decrease in intra-industry trade (IIT) in organo-sulphur compounds, hence increasing domestic use for the imports of organo-sulphur compounds.

Figure 23: HS – 293090 - Organo-Sulphur Compounds



Source: COMTRADE WITS online database

The global price is detailed in the part II of Figure 29 with the green line graphs. The line graph shows here explains trend in global prices of organo-sulphur compounds during the period of 1996 to 2009. The average global unit price was US$ 2.6 per unit; it decreased as immediate impact of rise seen in the Chinese imports. The trend was US$ 2.2 per unit in 1996 to US$ 1.9 in 2001. Thereafter it increased over the years to US$ 3.1 (2009) with a suggested exponential growth rate of 40 %. It is to be noted that this products imports was for the purpose of domestic use as evident from the lower GL index and therefore the prices also showed a rather flat trend. The very high IIT (GL index), had an impact CGAR of organo-sulphur compound prices as it fell at a pace by 3.9 percentage in the first phase, while in the second phase it got substantially cover-up by rise by 6.3 percentages.

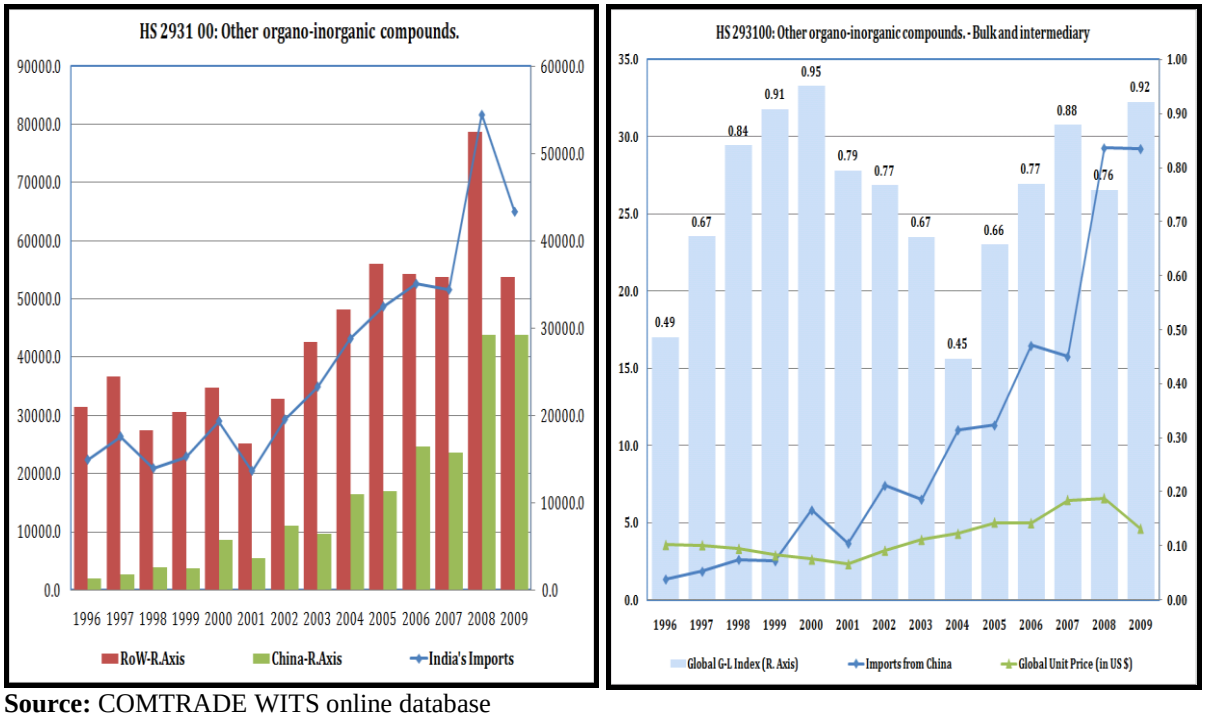
Organo-inorganic compounds N.E.S.

The organo-inorganic compound n.e.s. was the eight products to be analysed in the category of "Competition between the RoW and Chinese Imports". The total import of organo-inorganic compounds increased at an E-GR of 10.5 percentages from US$ 22.3 million in 1996 to 65 million US$ in 2009. The Chinese imports increased at an E-GR of 26.5 percentages from US$ 1.3 million in 1996 to US$ 29.2 million by 2009, while the RoW

imports also increased at an E-GR of 6.8 percentages from US$ 21 million in 1996 to US$ 35.8 million in 2009, see Figure 30.

The scenario observed here in organo-inorganic compound has been virtual domination by RoW exports to India from 1996 to 2009. By 2010 in the total India's import of organo-inorganic compound n.e.s. the share of China was 54 percent and the RoW had a share of 46 percent. Therefore, China became the principle supplier's in organo-inorganic compound n.e.s. In case of organo-inorganic compounds it is interesting to note that the RoW imports have dominated all through the study period. In the second phase, the exponential growth rates showed an increase in the Chinese imports by 24.8 percentages while the RoW imports by 8 percentages.

Figure 24: HS – 293100 - Organo-Inorganic Compounds



Source: COMTRADE WITS online database

Organo-inorganic compound has a global share of close to 1.8 % of the total trade under Chapter 29. Therefore, this compound it was a significant player among the bulk drugs and intermediaries sub-category in the global scenario. This product has a high average G-L index at 0.75 points. However, the index marginally decreased between the two phases from the average GL index of 0.78 in the first phase to 0.73 points in the second phase. The GL Index suggested a marginal decrease in intra-industry trade (IIT) in organo-inorganic compounds which could be temporary phenomenon.

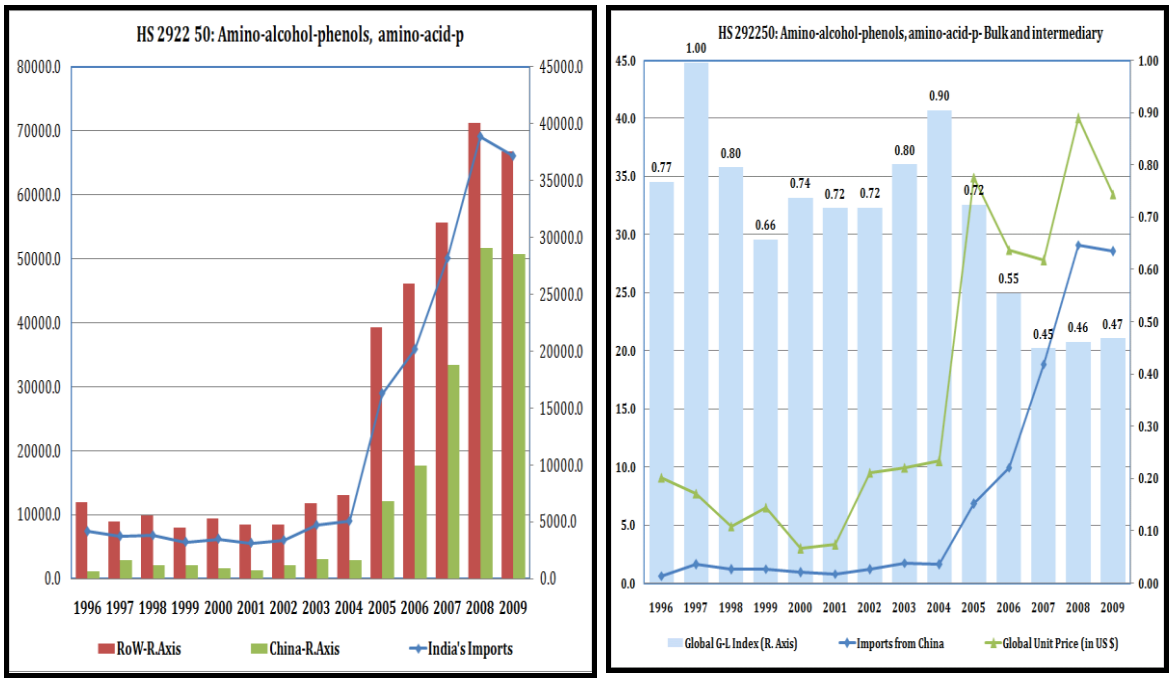
The global price trends of organo-inorganic compound are detailed in the part II of Figure 30 with the green line graphs. The line graph shows here explains trend in global prices of nitrile-function compounds during the period of 1996 to 2009. The average global unit price was US$ 3 per unit. The price of organo-inorganic compound n.e.s. decreased as immediate impact of Chinese imports - US$ 3.5 in 1996 to 2.3 in 2001. However in the second phase it increased over to US$ 6.6 (2008) with a suggested exponential growth rate of 25 %. The very high IIT (GL index), had an impact on prices as it fell at a pace of 1.8 percentages in the

first phase and in the second phase it substantially increased to cover-up this fall by 5.4 percentages.

Amino-Alcohol-Phenols, Amino-Acid-Phenols and Other Amino-Compounds

Amino-alcohol-phenols, amino-acid-phenols was the ninth product in the category of "Competition between the RoW and Chinese Imports". Total import of amino-alcohol-phenols, amino-acid-phenols *etc*. increased at an E-GR of 23.2 percentages from US$ 7.3 million in 1996 to US$ 66.1 million in 2009.

Figure 25: HS – 292250 - Amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function



Source: COMTRADE WITS online database

The Chinese imports increased by the tune 48 times from US$ 0.6 million in 1996 which increased to US$ 28 million in 2009, while the RoW imports also showed a similar increase from 6.7 million in 1996 to 37.5 million in 2009, see Figure 31. However, the scenario observed here in amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function has been virtually export domination by the RoW from 1996 to 2009. By 2010 the Amino-alcohol-phenols, amino-acid-phenols total import of India from the China was 32 percentages and the RoW imports was 68 percentages. In case of amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function, it is interesting to note that the RoW imports have dominated all through the study period. In term of exponential growth rate of China's imports was close to 69.4 % while the RoW imports grew at 39.4 percentages in the second phase.

Amino-alcohol-phenol, amino-acid-phenols has a global share of close to 1.1 % of the total trade under Chapter 29. Therefore, this compound it was a significant player among the bulk drugs and intermediaries sub-category in the global scenario. Amino-alcohol-phenols,

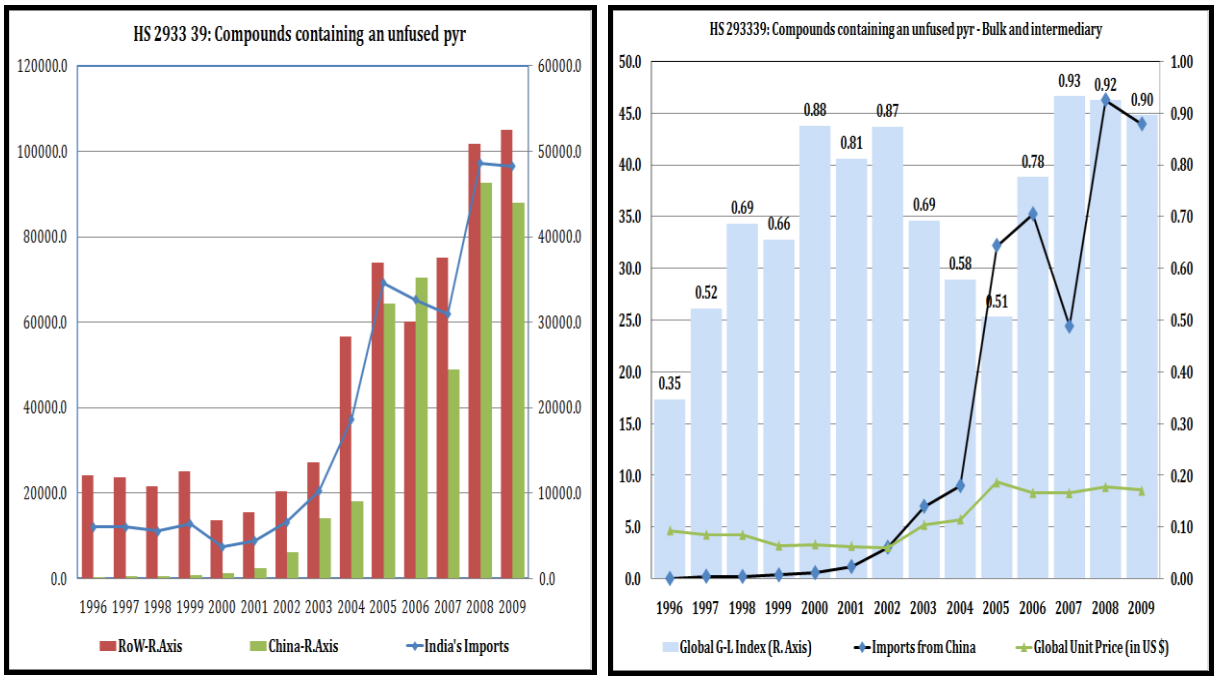
amino-acid-phenols has moderately high average G-L index at 0.70. The index marginally decreased from an average GL index of 0.78 in the first phase to 0.63 in the second phase. Although the GL Index suggested a decrease in intra-industry trade (IIT) in Amino-alcohol-phenols, amino-acid-phenols was moderately high to have an expected impact on prices.

The global price is detailed in the part II of Figure 31 with the green line graphs. The line graph shows here explains trend in global prices of Amino-alcohol-phenols, amino-acid-phenols during the period of 1996 to 2009. The average global unit price was US$ 16.4 per unit. The price decreased as immediate impact of the Chinese imports from US$ 9.1 per unit in 1996 to US$ 3.3 in 2001. However, it increased over the years to US$ 40 per unit (2008) with a suggested exponential growth rate of 27 percentages. The high IIT (GL index), had an impact on prices as it remained a positive CGAR of 0.8 percentages in the first phase and in the second phase it substantially increased further by 19.7 percentages.

Heterocyclic Compounds with Nitrogen Hetero-Atom

Heterocyclic compound with nitrogen hetero-atom was the tenth and the final product in the category of "Competition between the RoW and Chinese Imports". Heterocyclic compounds import of India increased at an E-GR of 23.2 percentages from US$ 12.1 million in 1996 to US$96.5 million in 2009. The Chinese imports increased at an E-GR of 62.1 percentages from US$ 0.03 million in 1996 which increased to US$ 43 million by 2009, while the RoW imports also showed a similar increase at an E-GR of 13.1 percentages from US$ 12.1 million in 1996 to US$ 52.5 million in 2009, see Figure 32.

Figure 26: HS – 293339 - Heterocyclic Compounds with Nitrogen Hetero-Atom



Source: COMTRADE WITS online database

However, the scenario observed in the heterocyclic compounds has been one of virtual domination by the RoW from 1996 to 2009. By 2010, the heterocyclic compound import by

India from China was 46.3 percentages and the RoW was 53.7 percentages - China was the principal supplier in heterocyclic compounds. In the case of heterocyclic compounds, it is interesting to note that the RoW imports have dominated all through the study period. In the second phase, the exponential growth rate of Chinese imports was 45 percentages while the RoW imports grew at 25 percentages. Heterocyclic compound with nitrogen hetero-atom has a global share of close to 3 % of the total trade under Chapter 29. Therefore, this product was very significant player as it was the third product among the bulk drugs and intermediaries sub-category within the global scenario.

The GL Index suggested an increased intra-industry trade (IIT) in heterocyclic compounds with nitrogen hetero-atom. The increases in imports of India were mostly used meeting the external demand, by way of exports; the increasing GL index was clearly suggestive of this scenario.

The global price is detailed in the part II of Figure 32 with the green line graphs. The line graph shows here explains trend in global prices of heterocyclic compound during the period of 1996 to 2009. The average global unit price of heterocyclic compound was US$ 5.8 per unit. The prices decreased as an immediate impact of the Chinese imports; from US$ 4.7 per unit in 1996 to US$ 3.1 in 2002. The price of Heterocyclic compound increased over the years to US$ 8.6 (2009) with a suggested exponential growth rate of 13.8 for the period. The very high IIT (GL index), had an impact on prices as it had negative growth of 6.9 % in the first phase and in the second phase it substantially increased to cover-up this fall by 15.9 percentages. This product has moderately high average G-L index at 0.72. However, the index marginally increased from an average GL index of 0.65 in the first phase to 0.77 in the second phase.

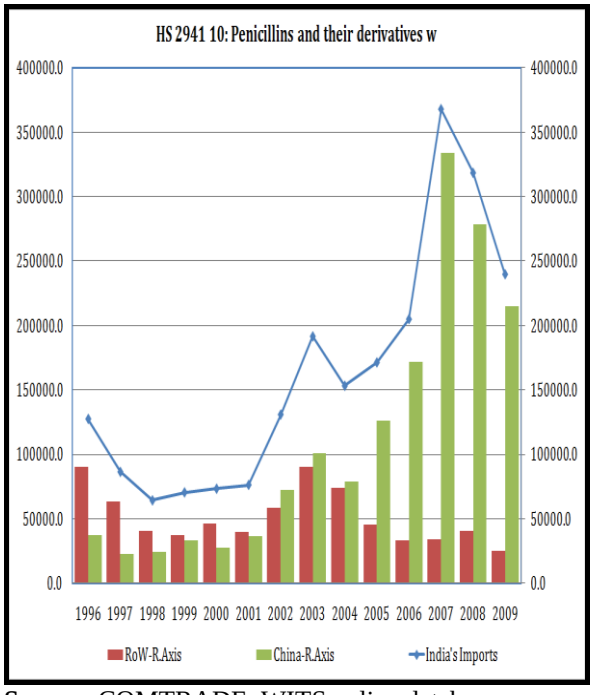
Category of the “Competition between the RoW and China” has higher weight of 50 percentages of top twenty products. Therefore the trend and patterns observed here would have a large significance for Indian Pharmaceutical sector. Besides the fact the initial declining price saw an increase in prices, as Indian firms got solely depended on the imports from China. The other finer detail was that this increase in prices depending upon whether the product was for domestic consumption or external consumption. The patterns observed based on the inter-linkages between the GL index and the movement in Global unit prices. The analysis suggested two possible scenarios: the first scenario being when the price falling in the first phase and in the second phase the price increases with corresponding increase imports from China. This trend was largely observed in those products with relatively high GL index or high intra-industry traded products; or to put it simple language it was exported for external markets consumption. The second scenario being a decrease in prices similar to that observed in the first scenario but it does not increase with increasing imports from China. These are observed in cases were those products are with relatively low GL index (low IIT) or those used for domestic needs. Many Indian pharmaceutical companies have not only shown good performance domestically but have also been able to establish their foothold in overseas markets. Increasing Chinese imports could be way of routing through India in the initial phases where they do not loss any brand value.

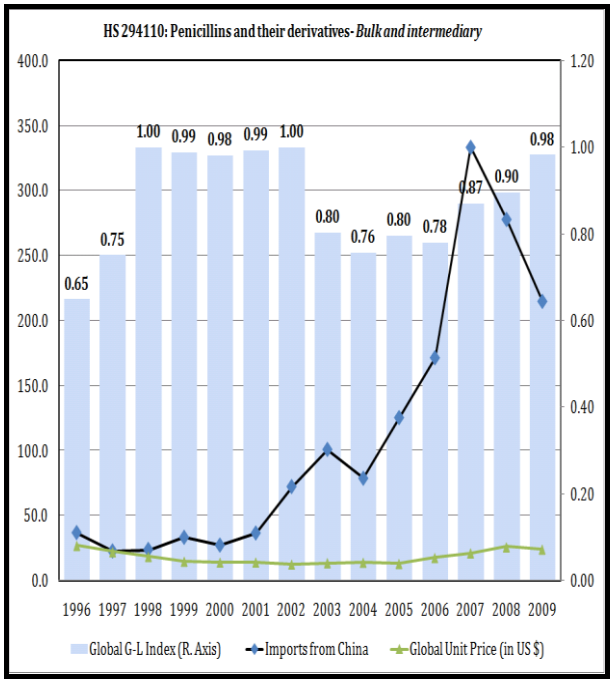
The third category is of products in which the Chinese have an absolute advantage and dominance in the Indian imports over the RoW. These are products under the sub heading like: penicillin's and their derivatives (294110); amino-naphthols and other amino-phenols, their ethers and esters (292229); carboxylic acids with additional oxygen function (291890); esters of other inorganic acids and their salts (292090); citric acid (291814) and Aminohydroxy-naphthalene-sulphonic acids and their salts (292221**).** Some of these belonged to the national list of essential medicine (NLEM) of India, 2011.

Penicillins and their derivatives

Penicillins and their derivatives was the first product to the category two of "Import dominance of China". Total India's import of penicillins and their derivatives increased at an E-GR of 12.2 percentages from US$ 128 million in 1996 to US$ 240 million in the year 2009. The dominating Chinese imports increased at an E-GR of 23.4 percentages from US$ 215 million by 2009 increased from US$ 37 million in 1996, while the RoW imports stunted and decreased to E-GR of -4.7 from 90 million in 1996 to US$ 24 million in 2009, see Figure 33.

Figure 27: HS - 294110- Penicillins and their derivatives





Source: COMTRADE, WITS online database

The RoW can be seen to be putting up a strong fight until 2003 and 2004, but it was a losing battle as the Chinese `exports of Penicillins and their derivatives increased many folds. By 2010, India's import from the China was close to 86 percent of total Indian import. What is interesting to note that the Chinese import were the mirror image of Indian import imports since 2003, thus virtually removing all possible competitors.

Of the Chapter 29 the Penicillins and their derivatives had a share of 0.7 percentage of global trade, for details see Annexure 4. Therefore, penicillins and their derivatives was not a very

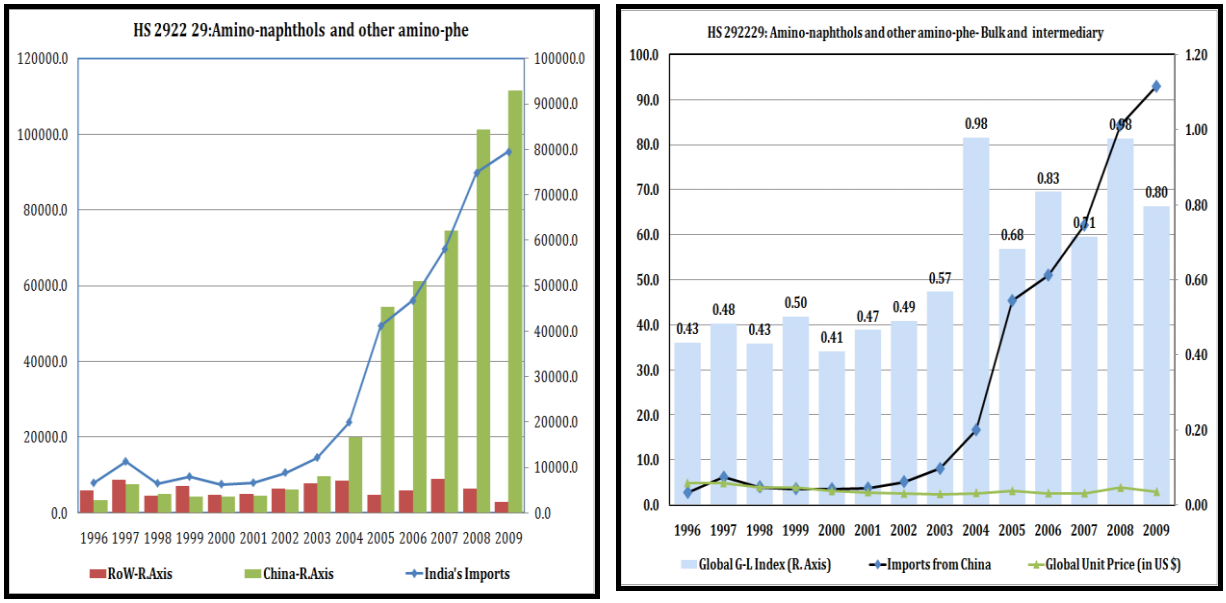
important product among the bulk drugs and intermediaries in the global scenario. The Penicillins and their derivatives had an average G-L Index of 0.89 during the 1996-2001 phases. However, this slipped down by three units with the GL index of 0.86 in second phase. The average GL Index for study period was 0.87, which was relatively high as per the study standard. This suggested intra-industry activities in penicillins and their derivatives, therefore the increase in imports were to meet external demand all through the study period.

The global price is detailed in the part II of Figure 33 with the green line graphs. The line graph shows here explains trend in global prices of penicillins and their derivatives during the period of 1996 to 2009. The average global price was close to US$ 18 per unit. The price of penicillins and their derivatives has showed decreasing trends only to picking up later. The global unit price of penicillins and their derivatives was at US$ 27 per unit in 1996 thereafter decreasing by half the price in 1996 to US$ 12.6 per unit in 2001 and later increased to almost the price in 1996 at US$ 26 to 24 per unit in 2009. Paper highlights that this it is not an encouraging sign for an important product like penicillin and their derivatives showed an increasing trend. The high IIT (GL index), had an impact on prices as it showed a negative CGAR of 12 percentages in the first phase and in the second phase it substantially increased further by 9.7 percentages.

Amino-Naphthols and Other -Phenols, Their Ethers and Esters

Amino-naphthols and other -phenols, their ethers and esters also belonged to sub-segment of bulk drug an intermediary and is the second product in the category of "*Import dominance of China"* to be analysed future. Total import under this sub heading increased at an E-GR of 24.2 percentages from US$ 8 million during 1996 to US$ 95 million in 2009.

Figure 28: HS-292229- Amino-naphthols and other -phenols, their ethers and esters



Source: COMTRADE, WITS online database

The Chinese imports increased at an E-GR of 34.4 percentages from US$ 3 in 1996 which increased to 93 million by 2009 while the RoW imports stunted and decreased at an E-GR of

1.3 percentages from 5 million in 1996 to 2 million in 2009 see Figure 34. The RoW can be seen to be putting up a strong fight up until 2003, but after that it just lost it to the Chinese firms exporting of Amino-naphthols and other -phenols, their ethers and esters to the Indian market. By 2010, out of the total India's import of Amino-naphthols the Chinese share was close to 98.3 percentages. Another significant aspect in this product too, like the case of penicillins and their derivatives the Chinese import is the mirror image of the Indian import since 2003.

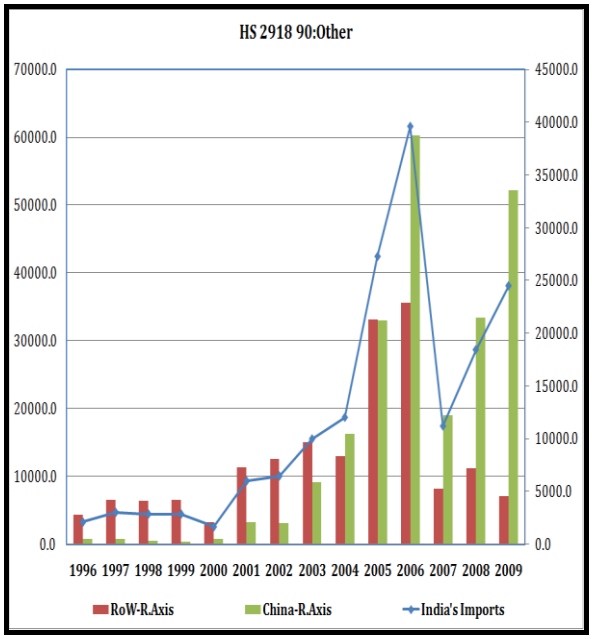
Of the total export of Chapter 29 the Amino-naphthol had a share of 0.1 percentage of global trade (Annexure 4). Therefore, Amino-naphthol was not an important product among the bulk drugs and intermediaries in the global scenario. The Amino-naphthols had an average G-L Index of 0.63 during the study period between 1996 and 2009. However, it had significantly increased from the average GL index of 0.45 in the first phase to 0.75 in the second phase. The increase in intra-industry trade was noticeable a quite significant and the Amino-naphthol was increasingly used for exports purposes.

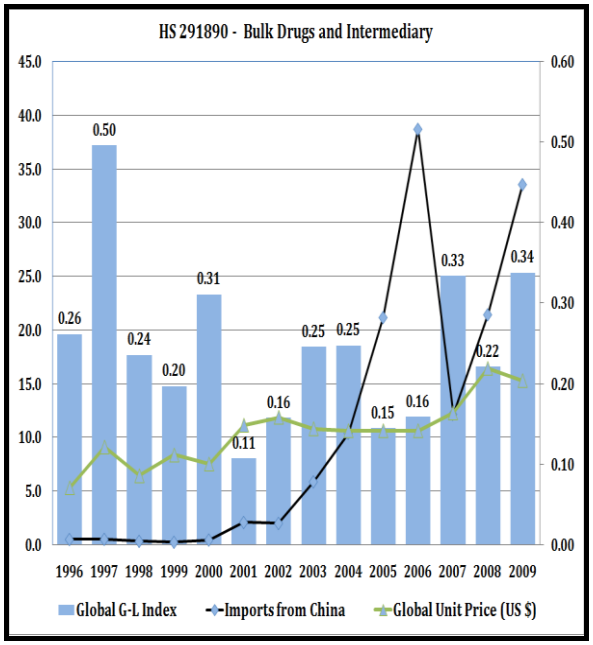
The global price is detailed in the part II of Figure 34 with the green line graphs. The line graph shows here explains trend in global prices of Amino-naphthols during the period of 1996 to 2009. The average prices were US$ 3.4 per unit. The global unit price of amino-naphthols and other -phenols was US$ 5 per unit in 1996 thereafter the prices decreased by over its half to US$ 2.5 per unit in 2003 increased moderately to reach US$ 3.1 in 2009. The increasing IIT (GL index) over the years had an impact on slower impact of the rise in prices as it showed a negative CGAR of 10 percentages in the first phase and in the second phase it marginally increased further by 2.1 percentages.

Carboxylic acid with additional oxygen function

Carboxylic acid with additional oxygen function belonged to sub-segment of bulk drug an intermediary and is the third product in the category of "Import dominance of China*"* will be analysed future. Total import of carboxylic acid increased at an E-GR of 24.3 percentages from US$ 3 million in 1996 to US$ 38 million by 2009. Chinese imports increased at an E-GR of 51 percentages from US$ 0.5 in 1996 which increased to 34 million by 2009, while the RoW imports increased at an E-GR of 8.9 percentages from 3 million in 1996 to 5 million in 2009, see Figure 35.

Figure 29: HS- 291890 - Carboxylic acids with additional oxygen function





Source: COMTRADE, WITS online database

The RoW can be seen to be putting up a strong fight up until 2005, but after that it just lost it to the Chinese firms exporting the carboxylic acids. By 2010, India's imports of the carboxylic acid from China were close to 98.3 percent. In the carboxylic acids, it is interesting to note that the Chinese increases in imports happened at the cost of RoW imports which competed up to 2005.

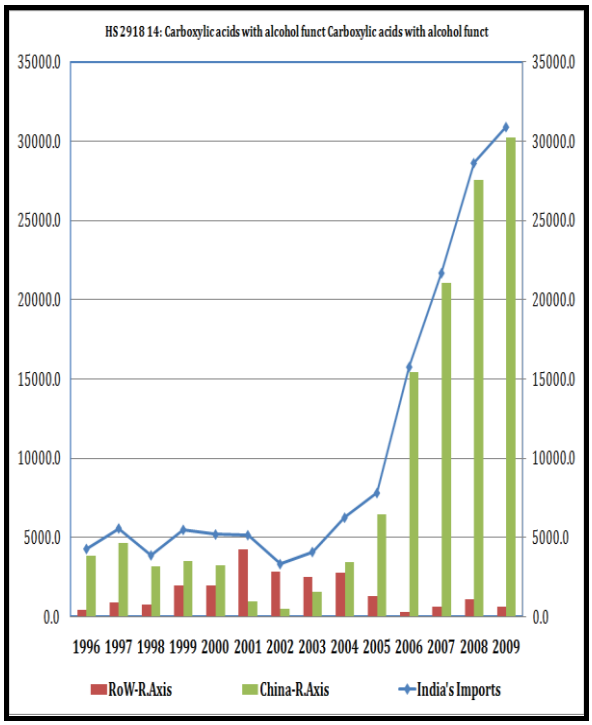
Of the total export of Chapter 29 the carboxylic acid had a share of 0.5 percentage of global trade (Annexure 4). Therefore, carboxylic acid was not an important product among the bulk drugs and intermediaries in the global scenario. The carboxylic acids with additional oxygen function had an average G-L Index of 0.25 during the study period between 1996 and 2009. However, it had marginally slipped from the average GL index of 0.27 in the first phase to 0.23 in the second phase. It can be clearly observed from this that not much of intra-industry trade was happening in the carboxylic acids.

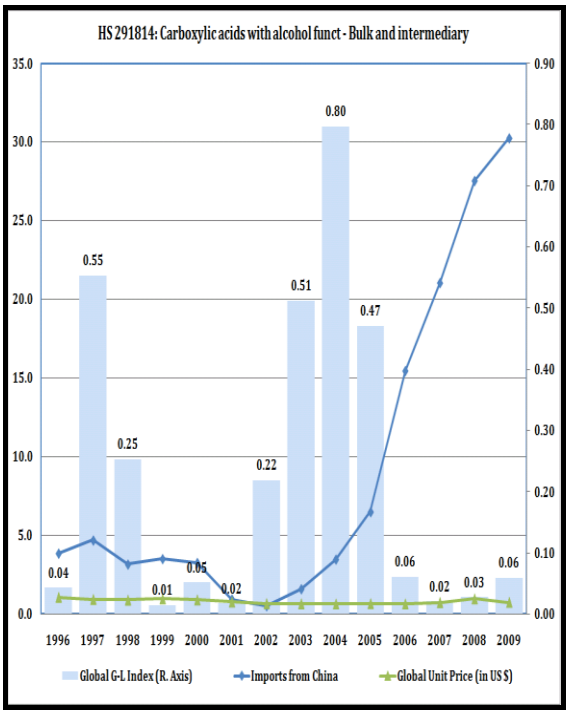
The global price is detailed in the part II of Figure 35 with the green line graphs. The line graph shows here explains trend in global prices of carboxylic acids during the period of 1996 to 2009. The average global unit price of carboxylic acids was US$ 10.5. The global unit price of carboxylic acids was US$ 5 in 1996 it constantly increased over the years to US$ 15.3 per unit in 2009. The relatively low IIT (GL index), and the rising unit prices of carboxylic acids at CGAR of 123 percentages in the first phase and in the second phase it further suggested a positive increased further by 29 percentages. This was the only product in which a domestic oriented product showed a remarkable in prices.

Citric Acids

The fourth product in category of "*Import dominance of China",* the Citric acids also belonged to sub-segment of bulk drug an intermediary and will be analysed future. The total import of citric acids increased at an E-GR of 17 percentages from 4 million US$ during 1996 to 30.9 million US$ in the year 2009.

Figure 30: HS – 291814- Citric Acids





Source: COMTRADE, WITS online database

Chinese imports increased at an E-GR of 20 percentages from US$ 3.8 in 1996 to 30.2 million in 2009, while the RoW imports increased with an negative E-GR of 2.2 percentages only to grow marginally from 0.4 million in 1996 to 0.6 million in 2009, see Figure 36. The RoW can be seen strongly fighting from the beginning of the study 1996, the scenario changed around in 2005 when the Chinese exports in Citric Acids almost completely dominated. By 2010, India's import of citric acids from China was close to 96.3 percent. In the case of citric acid, it is interesting to note that the Chinese imports to India was an happening from the beginning of study period in this paper (1996) and it continued with vigour all through the later years.

Of the total export of Chapter 29 the citric acids had a share of 0.2 percentage of global trade (Annexure 4). Therefore, carboxylic acid was not an important product among the bulk drugs and intermediaries in the global scenario. The Citric acids had an average G-L Index of 0.22 during the paper study period (1996-2009). However, it had marginally gained from the average GL index of 0.16 in the first phase to 0.27 in the second phase. This was due the peaks observed in the beginning of the second. Therefore, since the GL Index suggested virtually no trade in this product, the Paper concludes it was used for domestic market in all probabilities.

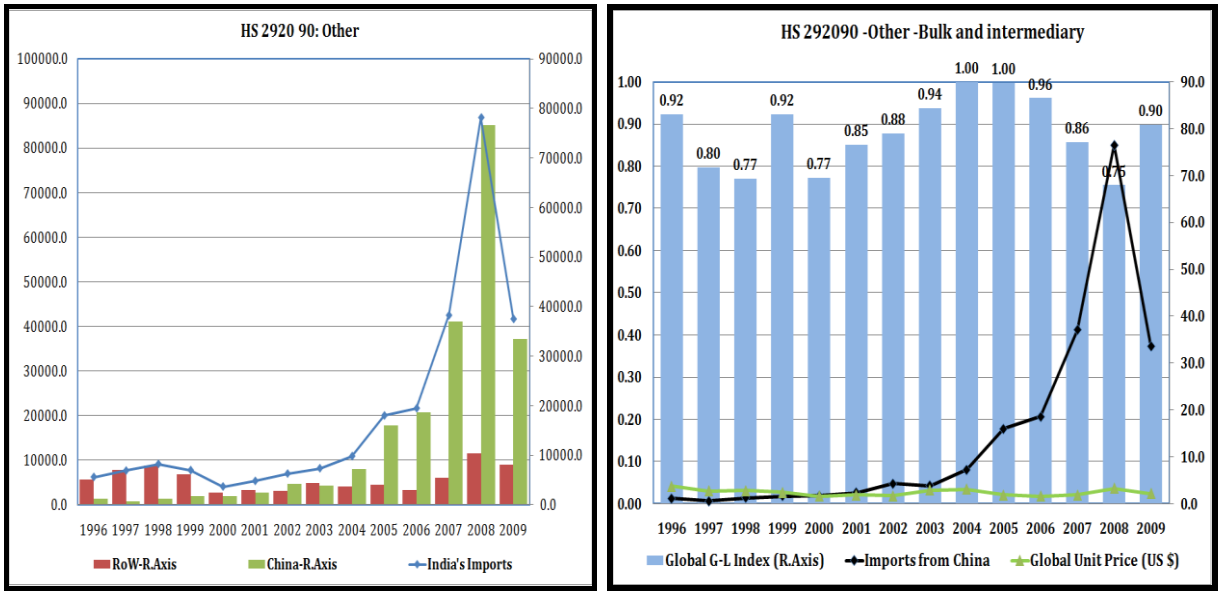
The global price is detailed in the part II of Figure 36 with the green line graphs. The line graph shows here explains trend in global prices of citric acids during the period of 1996 to 2009. The average global unit price of carboxylic acids was US$ 10.5. The average global unit price of citric acids was US$ 0.8 per unit. The unit price of citric acid was US$ 1.1per unit in 1996 it constantly decreased over the years to US$ 0.8 per unit in 2009. The relatively

low IIT (GL index), and the trend in the unit price of citric acids was at an negative CGAR of 36.2 percentages in the first phase and in the second phase suggested a marginal positive increased further by 11.7 percentages. This product did not deviate for the general trend observed among the selected 20 products.

Esters of Other Inorganic Acids and Their Salts

Ester of other inorganic acids and their salts was the fifth product in category of "Import dominance of China". The total import of esters increased at an E-GR of 20 percentages from US$ 6 million during 1996 to US$ 41 million in 2009. The Chinese imports increased at an E-GR of 42.1 percentages from US$ 1.1 million in 1996 to 33.5 million by 2009, while the RoW imports increased at an E-GR of 1.2 percentages from US$ 5.1 million in 1996 to 8.1 million in 2009, see Figure 37. The RoW exports to India can be seen to be putting up a strong fight from the beginning up to the 2003. However, the scenario changed with the entry of Chinese firms with the exports in esters they almost dominated the scenes. By 2010, India's import share of esters from the China was close to 70 percentages. In the case of Esters it is interesting to note that the Chinese increases in imports has not happened from the beginning of the study, this happened only from 2003 onwards and it continued with all the vigour till the last year

Figure 31: HS – 292090 - Esters of other inorganic acids



Source: COMTRADE, WITS online database

Of the total export of Chapter 29 the esters of other inorganic acids had a share of 0.3 percentage of global trade (Annexure 4). Therefore, ester of other inorganic acids was not an important product among the bulk drugs and intermediaries in the global scenario. The esters of other inorganic acids had an average G-L Index of 0.84 during the study period between 1996 and 2009. This suggested a very high intra industry trade happening in the Esters of other inorganic acids. However, the index marginally gained from the average GL index of 0.84 in the first phase to 0.91 in the second phase (2002-2009). The global price is detailed in

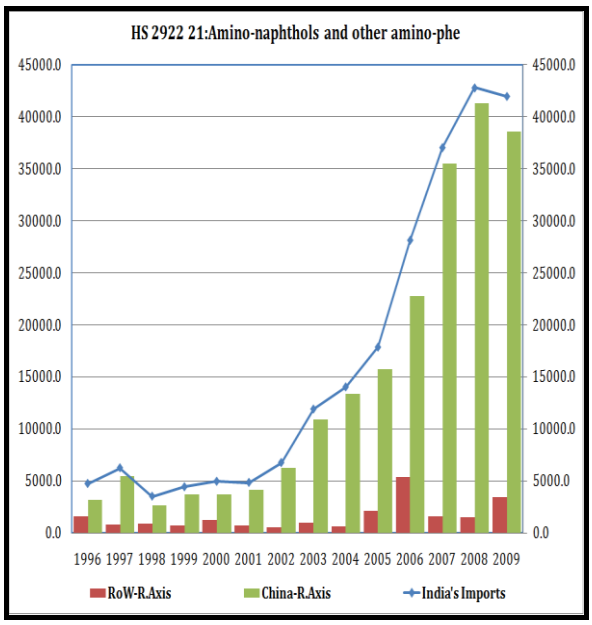
the part II of Figure 37 with the green line graphs. The line graph shows here explains trend in global prices of esters during the period of 1996 to 2009. The average global unit price of the product esters of other inorganic acids was US$ 10.5. The average price of esters of other inorganic acids and their salts was US$ 2.4 per unit. The global unit price of esters of other inorganic acids and their salts was US$ 3.7 per unit in 1996 it constantly decreased over the years to US$ 2.2 per unit in 2009. The products esters of other inorganic acids was not following the trends observed in other 20 products with regard to the movement in prices and GL index values.

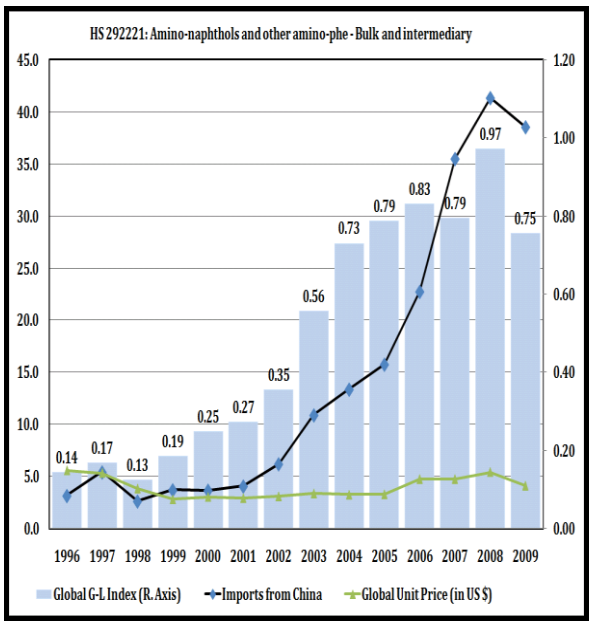
The CAGR of carboxylic acids showed a negative growth in the first phase of 13.3 percentages and in the second phase it was a nominal positive growth of .0.9 percentages. This clearly indicated that prices in the esters of other inorganic acids product did not show any trend of rising prices.

Amino Hydroxy Naphthalene Sulphonic Acids

Amino hydroxy naphthalene sulphonic acids and their salts was the sixth in category of "Import dominance of China". The total imports of amino hydroxy naphthalene sulphonic acids increased at an E-GR of 23 percentages from US$ 4.7 million during 1996 to US$ 41.9 million in 2009. The Chinese imports increased at an E-GR of 25.2 percentages from US$ 3.1 million in 1996 to 38.5 million in 2009, while the RoW imports increased at an E-GR of 9.2 percentages from 1.5 million in 1996 to 3.4 million in 2009, see Figure 38.

Figure 32: HS- 292221 - Amino hydroxy naphthalene sulphonic acids and their salts





Source: COMTRADE, WITS online database

However, the scenario has been one sided from the very beginning with the Chinese imports in Amino hydroxy naphthalene sulphonic acids to India dominating from 1996 to 2009 By 2010 the Chinese share in amino hydroxy naphthalene sulphonic acids was close to 90 percent. In the case of amino hydroxy naphthalene, it is interesting to note that the Chinese imports have always dominated the total imports of India (including from the RoW imports) from 1996 to 2009.

Of the total export of Chapter 29 the amino hydroxy naphthalene sulphonic acids had a share of 0.1 percentage of global trade (Annexure 4). Therefore, ester of other inorganic acids was not an important product among the bulk drugs and intermediaries in the global scenario. The Amino hydroxy naphthalene sulphonic acids had an average G-L Index of 0.49 during the study period between 1996 and 2009. However, the index shapely gained from the average GL index of 0.19 in the first phase to 0.72 in the second phase. While the year-to-year the light blue bar graphs (Part II of Figure 38) shows a gradual increase in competitiveness. Therefore, since the GL Index suggests an increasing intra-industry trade (IIT) activities in the product called amino hydroxy naphthalene sulphonic acids and their salts, the IIT activities is seen to increase towards the second phase particularly.

The global price is detailed in the part II of Figure 38 with the green line graphs. The line graph shows here explains trend in global unit prices of amino hydroxy naphthalene sulphonic acids during the period of 1996 to 2009. The average global unit price of amino hydroxy naphthalene sulphonic acids was US$ 4. The prices of amino hydroxy naphthalene sulphonic acids was US$ 5.6 per unit in 1996 it constantly decreased to US$ 2.8 per unit in 1999 thereafter it stated an increasing trend to reach US$ 5.4 per unit in 2008. The increasing IIT (GL index) and the stable unit prices of amino hydroxy naphthalene sulphonic acids with a negative CGAR of 9.3 percentages in the first phase and in the second phase it increased by 85.2 percentages to compensate for the drop in prices. **The price trends does coincide with the common pattern which can be observed across the 20 products selected for this Paper.**

Annexure 2: Table of the complete list of Pharmaceutical lines.

Commodity Code	6 digit	DOP/IDMA	Categorisation	Commodity Name
15050010	150500	DOP Imp.	Bulk and intermediary	Wool alcohol (incl lanolin alcohol)
15200000	152000	DOP Imp.	Bulk and intermediary	Glycerol, crude; glycerol waters & lyes
17014003	170140	Exp . IDMA 2004	Bulk and intermediary	--
17021100	170211	Imp. Original IDMA 2002	Bulk and intermediary	*Lacts & lacts syrp contng 99% or mre lactscalctd on the dry matter
17021110	170211	DOP Imp.	Bulk and intermediary	Lacts & lacts syrp contng 99% or mre lactsin solid frm
17021190	170211	DOP Imp.	Bulk and intermediary	Lacts & lacts syrp contng 99%or mre lacts othr than solid form
17021900	170219	Imp. Original IDMA 2002	Bulk and intermediary	*Lactose and lactose syrup
17021910	170219	DOP Imp.	Bulk and intermediary	Lacts & lactssyrp in solid form cntng<99% lacts
17021990	170219	DOP Imp.	Bulk and intermediary	Lacts &lacts syrp othr thn solid form contng <99% lacts
17023001	170230	Imp. Original IDMA 2002	Bulk and intermediary	*Glucose liquid
17023002	170230	Imp. Original IDMA 2002	Bulk and intermediary	*Glucose solid
17023003	170230	Imp. Original IDMA 2002	Bulk and intermediary	*Dextrose
17023010	170230	DOP Imp.	Bulk and intermediary	Glucose liquid
17023020	170230	DOP Imp.	Bulk and intermediary	Glucose solid
17023031	170230	DOP Imp.	Bulk and intermediary	Dextrose,solid
17023039	170230	DOP Imp.	Bulk and intermediary	Dextrose other than solid
17024001	170240	Imp. Original IDMA 2002	Bulk and intermediary	*Glucose liquid
17024002	170240	Imp. Original IDMA 2002	Bulk and intermediary	*Glucose solid
17024003	170240	Imp. Original IDMA 2002	Bulk and intermediary	*Dextrose
17024010	170240	DOP Imp.	Bulk and intermediary	Glucose liquid
17024020	170240	DOP Imp.	Bulk and intermediary	Glucose solid
17024031	170240	DOP Exp.	Bulk and intermediary	Dextrose solid
17024039	170240	DOP Imp.	Bulk and intermediary	Dextrose other than solid
17025000	170250	DOP Imp.	Bulk and intermediary	Chemically pure fructose in solid form
17026000	170260	Imp. Original IDMA 2002	Bulk and intermediary	*Other fractures & fractures syrup not contaning flavorrng or coloring matrial contating>50% fractures in dry st
17026010	170260	DOP Imp.	Bulk and intermediary	Other frcts &frcts syrup,solid
17026090	170260	DOP Imp.	Bulk and intermediary	Other frcts & frcts syrup other than solid
19121901	191219	Imp. Original IDMA 2004	Bulk and intermediary	--
23152903	231529	Imp. Original IDMA 2004	Bulk and intermediary	--
26362914	263629	Imp. Original IDMA 2002	Bulk and intermediary	--
27076000	270760	Imp. Original IDMA 2004	Bulk and intermediary	Phenols
28011000	280110	Exp . IDMA 2004	Bulk and intermediary	Cholorine
28012000	280120	Imp. Original IDMA 2004	Bulk and intermediary	Iodine
28013000	280130	Exp . IDMA 2004	Bulk and intermediary	Fluorine
28013001	280130	Imp. Original IDMA 2004	Bulk and intermediary	Bromine
28013002	280130	Imp. Original IDMA 2004	Bulk and intermediary	Other
28020010	280200	Added by the Author	Bulk and intermediary	Submited sulphur
28020020	280200	Added by the Author	Bulk and intermediary	Precipitated sulphur
28020030	280200	Added by the Author	Bulk and intermediary	Collocidal sulphur
28041000	280410	Added by the Author	Bulk and intermediary	Hydrogen
28042100	280421	Added by the Author	Bulk and intermediary	Argon
28042910	280429	Added by the Author	Bulk and intermediary	Helium
28042990	280429	Added by the Author	Bulk and intermediary	Other
28043000	280430	Added by the Author	Bulk and intermediary	Nitrogen
28044010	280440	Added by the Author	Bulk and intermediary	Medicinal grade
28044090	280440	Added by the Author	Bulk and intermediary	Other
28045010	280450	Added by the Author	Bulk and intermediary	Boron
28045020	280450	Added by the Author	Bulk and intermediary	Tellurium
28046100	280461	Added by the Author	Bulk and intermediary	Containing by weight not less than 99% of silicon
28046900	280469	Added by the Author	Bulk and intermediary	Other
28047010	280470	Added by the Author	Bulk and intermediary	Phosphorus, black
28047020	280470	Added by the Author	Bulk and intermediary	Phosphorus, red
28047030	280470	Added by the Author	Bulk and intermediary	Phosphorus, white or yellow
28048000	280480	Added by the Author	Bulk and intermediary	Arsernic
28049000	280490	Added by the Author	Bulk and intermediary	Selenium
28051100	280511	Added by the Author	Bulk and intermediary	Sodium
28051100	280511	Exp . IDMA 2004	Bulk and intermediary	Sodium
28051200	280512	Added by the Author	Bulk and intermediary	Calcium
28051900	280519	Added by the Author	Bulk and intermediary	Other
28051901	280519	Exp . IDMA 2004	Bulk and intermediary	*Potassium
28052100	280521	Exp . IDMA 2004	Bulk and intermediary	*Calcium
28053000	280530	Added by the Author	Bulk and intermediary	Rare-earth metals, scandium and yttrium, whether or not intermixed or interalloyed
28054000	280540	Added by the Author	Bulk and intermediary	Mercury
28080010	280800	Added by the Author	Bulk and intermediary	Nitric acid
28080020	280800	Added by the Author	Bulk and intermediary	Sulphonitric acids
28100010	281000	Added by the Author	Bulk and intermediary	Oxides of borron
28100020	281000	Added by the Author	Bulk and intermediary	Boric acids
28161010	281610	Added by the Author	Bulk and intermediary	Hydroxide of magnesium
28161020	281610	Added by the Author	Bulk and intermediary	Peroxide of magnesium
28164000	281640	Added by the Author	Bulk and intermediary	Oxides, hydroxides and peroxides, of strontium or barium
28170010	281700	Added by the Author	Bulk and intermediary	Zinc oxide
28170020	281700	Added by the Author	Bulk and intermediary	Zinc peroxide
28181000	281810	Added by the Author	Bulk and intermediary	Artificial corundum, whether or not chemically defined
28182010	281820	Added by the Author	Bulk and intermediary	Alumina, calcined
28182090	281820	Added by the Author	Bulk and intermediary	Other
28183000	281830	Added by the Author	Bulk and intermediary	Aluminium hydroxide
28191000	281910	Added by the Author	Bulk and intermediary	Chromium trioxide
28199000	281990	Added by the Author	Bulk and intermediary	Other
28201000	282010	Added by the Author	Bulk and intermediary	Manganese dioxide
28209000	282090	Added by the Author	Bulk and intermediary	Other
28211010	282110	Added by the Author	Bulk and intermediary	Iron oxides
28211020	282110	Added by the Author	Bulk and intermediary	Iron hydroxides

28212000	282120	Added by the Author	Bulk and intermediary	Earth colours
28220010	282200	Added by the Author	Bulk and intermediary	Cobalt oxides
28220020	282200	Added by the Author	Bulk and intermediary	Cobalt hydroxides
28220030	282200	Added by the Author	Bulk and intermediary	Commercial cobalt oxides
28230010	282300	Added by the Author	Bulk and intermediary	Titanium dioxide
28230090	282300	Added by the Author	Bulk and intermediary	Other
28241010	282410	Added by the Author	Bulk and intermediary	Litharge
28241020	282410	Added by the Author	Bulk and intermediary	Massicot
28249000	282490	Added by the Author	Bulk and intermediary	Other
28251010	282510	Added by the Author	Bulk and intermediary	Hydrazine anhydrous
28251020	282510	Added by the Author	Bulk and intermediary	Hydrazine hydrate
28251030	282510	Added by the Author	Bulk and intermediary	Hydrazine sulphate
28251040	282510	Added by the Author	Bulk and intermediary	Hydroxylamine sulphate
28251090	282510	Added by the Author	Bulk and intermediary	Other
28252000	282520	Added by the Author	Bulk and intermediary	Lithium oxide and hydroxide
28253010	282530	Added by the Author	Bulk and intermediary	Vanadium pentoxide flakes
28253090	282530	Added by the Author	Bulk and intermediary	Other
28254000	282540	Added by the Author	Bulk and intermediary	Nickel oxides and hydroxides
28255000	282550	Added by the Author	Bulk and intermediary	Copper oxides and hydroxides
28256010	282560	Added by the Author	Bulk and intermediary	Germanium oxides
28256020	282560	Added by the Author	Bulk and intermediary	Zirconium dioxide
28257010	282570	Added by the Author	Bulk and intermediary	Molybdenum trioxide
28257020	282570	Added by the Author	Bulk and intermediary	Molybdic acid
28257090	282570	Added by the Author	Bulk and intermediary	Other
28258000	282580	Added by the Author	Bulk and intermediary	Antimony oxides
28259010	282590	Added by the Author	Bulk and intermediary	Tin oxide
28259020	282590	Added by the Author	Bulk and intermediary	Cadmium oxide
28259030	282590	Added by the Author	Bulk and intermediary	Mercury oxides (mercuric oxide)
28259040	282590	Added by the Author	Bulk and intermediary	Calcium hydroxide
28259050	282590	Added by the Author	Bulk and intermediary	Ammonium hydroxide
28259090	282590	Added by the Author	Bulk and intermediary	Other
28261200	282612	Added by the Author	Bulk and intermediary	Fluorides: Of aluminium
28261910	282619	Added by the Author	Bulk and intermediary	Magnesium fluoride
28261990	282619	Added by the Author	Bulk and intermediary	Other
28263000	282630	Added by the Author	Bulk and intermediary	Sodium hexafluoroaluminate (synthetic cryolite)
28269000	282690	Added by the Author	Bulk and intermediary	Other
28271000	282710	Added by the Author	Bulk and intermediary	Ammonium chloride
28272000	282720	Added by the Author	Bulk and intermediary	Calcium chloride
28273100	282731	Added by the Author	Bulk and intermediary	Other chlorides: Of magnesium
28273200	282732	Added by the Author	Bulk and intermediary	Other chlorides: Of aluminium
28273500	282735	Added by the Author	Bulk and intermediary	Other chlorides: Of nickel
28273910	282739	Added by the Author	Bulk and intermediary	Mercuric chloride
28273920	282739	Added by the Author	Bulk and intermediary	Mercurous chloride
28273930	282739	Added by the Author	Bulk and intermediary	Strontium chloride
28273940	282739	Added by the Author	Bulk and intermediary	Cuprous chloride
28273990	282739	Added by the Author	Bulk and intermediary	Other chlorides
28274110	282741	Added by the Author	Bulk and intermediary	Copper oxychloride
28274190	282741	Added by the Author	Bulk and intermediary	Other
28274900	282749	Added by the Author	Bulk and intermediary	Other
28275110	282751	Added by the Author	Bulk and intermediary	Bromides of sodium
28275120	282751	Added by the Author	Bulk and intermediary	Bromides of potassium
28275910	282759	Added by the Author	Bulk and intermediary	Magnesium bromide
28275990	282759	Added by the Author	Bulk and intermediary	Other
28276010	282760	Added by the Author	Bulk and intermediary	Potassium iodide
28276020	282760	Added by the Author	Bulk and intermediary	Sodium iodide
28276090	282760	Added by the Author	Bulk and intermediary	Other
28301000	283010	Added by the Author	Bulk and intermediary	Sodium sulphides
28309010	283090	Added by the Author	Bulk and intermediary	Sulphides
28309020	283090	Added by the Author	Bulk and intermediary	Polysulphides
28311010	283110	Added by the Author	Bulk and intermediary	Sodium dithionites (sodium hydrosulfite)
28311020	283110	Added by the Author	Bulk and intermediary	Sodium sulphoxylates (including sodium formaldehyde sulphoxylate)
28319010	283190	Added by the Author	Bulk and intermediary	Dithionites
28319020	283190	Added by the Author	Bulk and intermediary	Sulphoxylates
28321010	283210	Added by the Author	Bulk and intermediary	Sodium bi-sulphite
28321020	283210	Added by the Author	Bulk and intermediary	Sodium hydrosulphites
28321090	283210	Added by the Author	Bulk and intermediary	Other
28322010	283220	Added by the Author	Bulk and intermediary	Potassium metabisulphite
28322020	283220	Added by the Author	Bulk and intermediary	Magnesium sulphite
28322090	283220	Added by the Author	Bulk and intermediary	Other
28323010	283230	Added by the Author	Bulk and intermediary	Sodium thiosulphate (hypo)
28323020	283230	Added by the Author	Bulk and intermediary	Magnesium thiosulphate
28323090	283230	Added by the Author	Bulk and intermediary	Other
28331100	283311	Added by the Author	Bulk and intermediary	Sodium sulphates: Disodium sulphate
28331910	283319	Added by the Author	Bulk and intermediary	Sodium hydrogen sulphate (acid sulphate)
28331920	283319	Added by the Author	Bulk and intermediary	Sodium pyrosulphate
28331990	283319	Added by the Author	Bulk and intermediary	Other
28332100	283321	Added by the Author	Bulk and intermediary	Other sulphates: Of magnesium
28332210	283322	Added by the Author	Bulk and intermediary	Aluminium sulphate (iron free)
28332290	283322	Added by the Author	Bulk and intermediary	Other
28332400	283324	Added by the Author	Bulk and intermediary	Of nickel
28332500	283325	Added by the Author	Bulk and intermediary	Of copper
28332700	283327	Added by the Author	Bulk and intermediary	Of barium
28332910	283329	Added by the Author	Bulk and intermediary	Ferrous sulphate
28332920	283329	Added by the Author	Bulk and intermediary	Mercuric sulphate
28332930	283329	Added by the Author	Bulk and intermediary	Quinidine sulphate
28332940	283329	Added by the Author	Bulk and intermediary	Manganese sulphate
28332950	283329	Added by the Author	Bulk and intermediary	Strontium sulphate
28332990	283329	Added by the Author	Bulk and intermediary	Other
28333010	283330	Added by the Author	Bulk and intermediary	Ammonium alum

28333020	283330	Added by the Author	Bulk and intermediary	Ferric ammonium alum
28333030	283330	Added by the Author	Bulk and intermediary	Potash alum
28333090	283330	Added by the Author	Bulk and intermediary	Other
28334000	283340	Added by the Author	Bulk and intermediary	Peroxosulphates (persulphates)
28362010	283620	Added by the Author	Bulk and intermediary	Disodium carbonate, dense
28362020	283620	Added by the Author	Bulk and intermediary	Disodium carbonate, light
28362090	283620	Added by the Author	Bulk and intermediary	Other
28363000	283630	Added by the Author	Bulk and intermediary	Sodium hydrogen carbonate (sodium bicarbonate)
28364000	283640	Added by the Author	Bulk and intermediary	Potassium carbonates
28365000	283650	Added by the Author	Bulk and intermediary	Calcium carbonate
28366000	283660	Added by the Author	Bulk and intermediary	Barium carbonate
28369100	283691	Added by the Author	Bulk and intermediary	Other: Lithium carbonates
28369200	283692	Added by the Author	Bulk and intermediary	Other: Strontium carbonate
28369910	283699	Added by the Author	Bulk and intermediary	Percarbonates
28369920	283699	Added by the Author	Bulk and intermediary	Magnesium carbonate
28369930	283699	Added by the Author	Bulk and intermediary	Aluminium bicarbonate
28369940	283699	Added by the Author	Bulk and intermediary	Potassium bicarbonate
28369990	283699	Added by the Author	Bulk and intermediary	Other
28413000	284130	Added by the Author	Bulk and intermediary	Sodium dichromate
28415010	284150	Added by the Author	Bulk and intermediary	Sodium chromates
28415090	284150	Added by the Author	Bulk and intermediary	Other
28416100	284161	Added by the Author	Bulk and intermediary	Manganites, manganates and permanganates: Potassium permanganate
28416900	284169	Added by the Author	Bulk and intermediary	Manganites, manganates and permanganates: Other
28417010	284170	Added by the Author	Bulk and intermediary	Aluminium molybdate
28417020	284170	Added by the Author	Bulk and intermediary	Sodium molybdate
28417090	284170	Added by the Author	Bulk and intermediary	Other
28418010	284180	Added by the Author	Bulk and intermediary	Sodium tungstate
28418020	284180	Added by the Author	Bulk and intermediary	Magnesium tungstate
28418090	284180	Added by the Author	Bulk and intermediary	Other
28419000	284190	Added by the Author	Bulk and intermediary	Other
28421000	284210	Added by the Author	Bulk and intermediary	Double or complex silicates, including aluminosilicates,whether or not chemically defined
28429010	284290	Added by the Author	Bulk and intermediary	Arsenites and arsenates
28429020	284290	Added by the Author	Bulk and intermediary	Bichromates and dichromates
28429090	284290	Added by the Author	Bulk and intermediary	Other
28431010	284310	Added by the Author	Bulk and intermediary	Of gold
28431020	284310	Added by the Author	Bulk and intermediary	Of silver
28431090	284310	Added by the Author	Bulk and intermediary	Other
28432100	284321	Added by the Author	Bulk and intermediary	Silver compounds: Silver nitrate
28432900	284329	Added by the Author	Bulk and intermediary	Silver compounds: Other
28433000	284330	Added by the Author	Bulk and intermediary	Gold compounds
28439011	284390	Added by the Author	Bulk and intermediary	Other compounds: Sodium aurous thiosulphate
28439012	284390	Added by the Author	Bulk and intermediary	Other compounds: Noble metallutions of platinum, rhodium and palladinium
28439019	284390	Added by the Author	Bulk and intermediary	Other compounds: Other
28439020	284390	Added by the Author	Bulk and intermediary	Amalgams
28480010	284800	Added by the Author	Bulk and intermediary	Of copper(phosphor copper), containing more than 15% by weight of phosphorus
28480020	284800	Added by the Author	Bulk and intermediary	Of Zinc
28480090	284800	Added by the Author	Bulk and intermediary	Other
28491000	284910	Added by the Author	Bulk and intermediary	Of calcium
28492010	284920	Added by the Author	Bulk and intermediary	Carborandum
28492090	284920	Added by the Author	Bulk and intermediary	Other
28499010	284990	Added by the Author	Bulk and intermediary	Boron carbide
28499020	284990	Added by the Author	Bulk and intermediary	Tungsten carbide
28499090	284990	Added by the Author	Bulk and intermediary	Other
28500010	285000	Added by the Author	Bulk and intermediary	Hydrides
28500020	285000	Added by the Author	Bulk and intermediary	Nitrides
28500030	285000	Added by the Author	Bulk and intermediary	Azides
28500041	285000	Added by the Author	Bulk and intermediary	Silicides: Of calcium
28500049	285000	Added by the Author	Bulk and intermediary	Silicides: Other
28500050	285000	Added by the Author	Bulk and intermediary	Borides
28530010	285300	Added by the Author	Bulk and intermediary	Distilled or conductivity water and water of similar purity
28530010	285300	Added by the Author	Bulk and intermediary	Distilled or conductivity water and water of similar purity
28530020	285300	Added by the Author	Bulk and intermediary	Liquid air (whether or not any fraction of rare gases has been removed
28530020	285300	Added by the Author	Bulk and intermediary	Liquid air (whether or not any fraction of rare gases has been removed
28530030	285300	Added by the Author	Bulk and intermediary	Compressed air
28530030	285300	Added by the Author	Bulk and intermediary	Compressed air
28530040	285300	Added by the Author	Bulk and intermediary	Amalgams, other than of precious metals
28530040	285300	Added by the Author	Bulk and intermediary	Amalgams, other than of precious metals
28530091	285300	Added by the Author	Bulk and intermediary	Other: Cyanogen chloride
28530091	285300	Added by the Author	Bulk and intermediary	Other: Cyanogen chloride
28530099	285300	Added by the Author	Bulk and intermediary	Other
28530099	285300	Added by the Author	Bulk and intermediary	Other
29012100	290121	Imp. Original IDMA 2004	Bulk and intermediary	Ethylene
29012200	290122	Imp. Original IDMA 2004	Bulk and intermediary	Propene (Propylene)
29012300	290123	Imp. Original IDMA 2004	Bulk and intermediary	Butene (butylene) and isomers thereof
29012401	290124	Imp. Original IDMA 2004	Bulk and intermediary	*Unstrd butadienes
29012402	290124	Imp. Original IDMA 2004	Bulk and intermediary	*Unstrd methylbutadienes
29012900	290129	Imp. Original IDMA 2004	Bulk and intermediary	*Other unsaturated acyclic hydrocarbons
29021100	290211	Imp. Original IDMA 2004	Bulk and intermediary	Cyclothexane
29022000	290220	Imp. Original IDMA 2004	Bulk and intermediary	Benzene
29023000	290230	Imp. Original IDMA 2004	Bulk and intermediary	Toluene
29024100	290241	Imp. Original IDMA 2004	Bulk and intermediary	o-Xylene
29024200	290242	Imp. Original IDMA 2004	Bulk and intermediary	m-Xylene
29024300	290243	Imp. Original IDMA 2004	Bulk and intermediary	p-Xylene
29024400	290244	Imp. Original IDMA 2004	Bulk and intermediary	Mixed xylene isomers
29025000	290250	Imp. Original IDMA 2004	Bulk and intermediary	Styrene
29026000	290260	Imp. Original IDMA 2004	Bulk and intermediary	Ethylbenzene
29026006	290260	Imp. Original IDMA 2004	Bulk and intermediary	--
29027000	290270	Imp. Original IDMA 2004	Bulk and intermediary	Cumene

29029001	290290	Imp. Original IDMA 2004	Bulk and intermediary	*Dipentene pure
29029002	290290	Imp. Original IDMA 2004	Bulk and intermediary	*Diphenyl methane
29029003	290290	Imp. Original IDMA 2004	Bulk and intermediary	*Dodecycl benzenes (excl mxd alkylarenes)
29029004	290290	Imp. Original IDMA 2004	Bulk and intermediary	*Napthalene chmcly/comrclly pure
29029005	290290	Imp. Original IDMA 2004	Bulk and intermediary	*Is0butyl benzene
29029006	290290	IDMA 2004	Bulk and intermediary	Allybenzene
29031101	290311	IDMA 2004	Bulk and intermediary	*Methyl chloride
29031102	290311	IDMA 2004	Bulk and intermediary	*Ethyl chloride
29031200	290312	Imp. Original IDMA 2004	Bulk and intermediary	Dichioromethane (methylene chloride)
29031300	290313	DOP Imp.	Bulk and intermediary	Chloroform (trichloromethane)
29031301	290313	Imp. Original IDMA 2002	Bulk and intermediary	*1-1-1 trichl0r0ethane (methyl chl0r0f0rm)0z0ne depleting
29031302	290313	Imp. Original IDMA 2002	Bulk and intermediary	*1-1-2 trichl0r0ethane (chl0r0f0rm f0r anaesthettc use)
29031400	290314	Imp. Original IDMA 2004	Bulk and intermediary	Carbon tetrachloride
29031500	290315	Imp. Original IDMA 2004	Bulk and intermediary	Ethylene dichioride (ISO) (1.2-dichloroethane)
29031600	290316	Imp. Original IDMA 2004	Bulk and intermediary	*12-dichloropropane(propylene dichloride) and dichlorobutanes,saturated
29032100	290321	Imp. Original IDMA 2004	Bulk and intermediary	Vinly chloride (chloroethylene)
29032200	290322	Imp. Original IDMA 2004	Bulk and intermediary	Trichioroethylene
29032300	290323	Imp. Original IDMA 2004	Bulk and intermediary	Tetrachloroethylene (perchioroethylene)
29032900	290329	Imp. Original IDMA 2004	Bulk and intermediary	Other
29033001	290330	Imp. Original IDMA 2004	Bulk and intermediary	*Fluorinated hydrocarbons other than pfib 1,1,3,3,3-(pentafluoro-2-trifluoromethyl) -1-propene
29033002	290330	Imp. Original IDMA 2004	Bulk and intermediary	*Brominated hydrocarbons
29033003	290330	Imp. Original IDMA 2004	Bulk and intermediary	*Iodinated hydrocarbons
29033004	290330	Imp. Original IDMA 2004	Bulk and intermediary	*Pfib:1,1,3,3,3-penta fluoro-2(trifluoro- methyl)-1-propene
29034100	290341	Imp. Original IDMA 2004	Bulk and intermediary	Trichlorofluoromethane
29034200	290342	Imp. Original IDMA 2004	Bulk and intermediary	Dichiorodifluoroethanes
29034300	290343	Imp. Original IDMA 2004	Bulk and intermediary	Trichlorotrifluoromethanes
29034400	290344	Imp. Original IDMA 2004	Bulk and intermediary	*Dichloro tetra fluoro ethane and chloro penta fluoro ethane
29034500	290345	Imp. Original IDMA 2004	Bulk and intermediary	*Other derivatives perhalogenated only with fluorine & chlorine
29034600	290346	Imp. Original IDMA 2004	Bulk and intermediary	*Bromo chloro difluoro methane, bromo tri fluoro methane & dibromotetra fluoroethane
29034700	290347	Imp. Original IDMA 2004	Bulk and intermediary	Other perthalogenated derivatives
29035100	290351	Imp. Original IDMA 2004	Bulk and intermediary	1,2,3,4,5,6- Hexachloro-cyclothexane (HCH(ISO)), including lindane (ISO, INN)
29035900	290359	Imp. Original IDMA 2004	Bulk and intermediary	Other
29036101	290361	Imp. Original IDMA 2004	Bulk and intermediary	*Chlorobenzene (mono chloro)
29036102	290361	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho-dichlorobenzene
29036103	290361	Imp. Original IDMA 2004	Bulk and intermediary	*Para-dichlorobenzene
29036104	290361	Imp. Original IDMA 2004	Bulk and intermediary	*Chloro-fluoro benzene
29036901	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Benzal chloride (benzyl dichloride)
29036902	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Benzo trichloride
29036903	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Benzyl chloride
29036904	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Para chloro tolune (4-chloro-mthyl benzne)
29036905	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Napthalene chlorinated
29036906	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Chloro fluoro aniline
29036909	290369	Imp. Original IDMA 2004	Bulk and intermediary	*Halgntd drvtvs of armtc hydrocrbn,nes
29041001	290410	Imp. Original IDMA 2004	Bulk and intermediary	*Benzene sulphonic acid
29041002	290410	Imp. Original IDMA 2004	Bulk and intermediary	*1:5 napthln disulphnc acid(armsstrng acid)
29041004	290410	Imp. Original IDMA 2004	Bulk and intermediary	*Vinyl sulphone
29041009	290410	Imp. Original IDMA 2004	Bulk and intermediary	*Othr drvtv cntng only sulpho group, their salts and ethyl esters
29042001	290420	Imp. Original IDMA 2004	Bulk and intermediary	*2:4 meta dinitrobenzene
29042002	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Dinitrotoluene
29042003	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Nitrobenzene
29042004	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Meta nitrotoluene
29042005	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho nitrotoluene
29042006	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Para nitrotoluene
29042007	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Nitroethane
29042009	290420	Imp. Original IDMA 2004	Bulk and intermediary	*Othr drvtvs cntng only nitro/nitroso grps
29049001	290490	Imp. Original IDMA 2004	Bulk and intermediary	*2:5 dichloronitrobenzene
29049002	290490	Imp. Original IDMA 2004	Bulk and intermediary	*Dinitrochlorobenzene
29049003	290490	Imp. Original IDMA 2004	Bulk and intermediary	*Meta nitrochlorobenzene
29049004	290490	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho nitrochlorobenzene
29049005	290490	Imp. Original IDMA 2004	Bulk and intermediary	*Para nitrochlorobenzene
29049008	290490	Imp. Original IDMA 2004	Bulk and intermediary	*Trichloro nitro-methane (chloropicrin)
29051100	290511	Imp. Original IDMA 2004	Bulk and intermediary	Methanol (methyl alcohol)
29051201	290512	Imp. Original IDMA 2004	Bulk and intermediary	*Propyl and isopropyl alcohol (propanols)
29051202	290512	Imp. Original IDMA 2004	Bulk and intermediary	*Propanol(normal propyl alcohol),saturated
29051300	290513	Imp. Original IDMA 2004	Bulk and intermediary	Butan-1-oi(n-butyl alchol)
29051401	290514	Imp. Original IDMA 2002	Bulk and intermediary	*Ethambutol, ethambutol hcl
29051402	290514	Imp. Original IDMA 2002	Bulk and intermediary	*Salbutamol sulphate
29051403	290514	Imp. Original IDMA 2002	Bulk and intermediary	*Amino butanol
29051404	290514	Imp. Original IDMA 2004	Bulk and intermediary	*Pinacolyl alcohol 3,3-dimethyl butan-2-ol
29051410	290514	DOP Imp.	Bulk and intermediary	Ethambutol, ethambutol hcl
29051420	290514	DOP Imp.	Bulk and intermediary	Salbutamol sulphate
29051500	290515	Imp. Original IDMA 2004	Bulk and intermediary	Saturtd pentanol(amyl alchl) & smrs therof
29051700	290517	Imp. Original IDMA 2004	Bulk and intermediary	Dodecan-1-oi(lauryl alchol), hexadecan-1-oi (stearyl alcohol)
29051902	290519	Imp. Original IDMA 2004	Bulk and intermediary	*2-ethyl hexanol
29052201	290522	Imp. Original IDMA 2004	Bulk and intermediary	*Citranellol
29052202	290522	Imp. Original IDMA 2004	Bulk and intermediary	*Geraniol
29052203	290522	Imp. Original IDMA 2004	Bulk and intermediary	*Linalool
29052204	290522	Imp. Original IDMA 2004	Bulk and intermediary	*Rhodinol
29052900	290529	Imp. Original IDMA 2004	Bulk and intermediary	other
29053100	290531	Imp. Original IDMA 2004	Bulk and intermediary	Ethylene glycol (ethanedioi)
29053200	290532	Imp. Original IDMA 2004	Bulk and intermediary	Propylene glycol (propane-1,2-diol)
29053901	290539	Imp. Original IDMA 2004	Bulk and intermediary	*1,4/1,3/2,3 butylene glycol(butanediol)
29054100	290541	Imp. Original IDMA 2004	Bulk and intermediary	2-Ethyl-2-(hydroxymethyl) propane 1,3-diol (trimethyloiropane)
29054201	290542	Imp. Original IDMA 2004	Bulk and intermediary	*Dipenta erythritol
29054210	290542	DOP Imp.	Bulk and intermediary	Dipenta erythritol
29054290	290542	DOP Imp.	Bulk and intermediary	Other pentaerythritol
29054300	290543	DOP Imp.	Bulk and intermediary	Mannitol

29054400	290544	DOP Imp.	Bulk and intermediary	D-glucitol (sorbitol)
29054501	290545	Imp. Original IDMA 2004	Bulk and intermediary	*Glycerin refined & chemically pure
29054509	290545	Imp. Original IDMA 2004	Bulk and intermediary	*Glycerol nes
29054900	290549	DOP Imp.	Bulk and intermediary	Other polyhydric alcohols
29055000	290550	Imp. Original IDMA 2004	Bulk and intermediary	*Halgntd,slphntd nitrtd/nitrstd derivatives of acyclic alcohols
29061100	290611	Imp. Original IDMA 2002	Bulk and intermediary	Menthol
29061200	290612	Imp. Original IDMA 2004	Bulk and intermediary	Cyclohexanol, methylcyclohexanois and dimethylcyclohexanois
29061301	290613	Imp. Original IDMA 2004	Bulk and intermediary	*Cholesterol
29061309	290613	Imp. Original IDMA 2004	Bulk and intermediary	*Other sterols & inositols
29061400	290614	Imp. Original IDMA 2004	Bulk and intermediary	Terpineols
29061901	290619	Imp. Original IDMA 2004	Bulk and intermediary	*Berneol
29061909	290619	Imp. Original IDMA 2004	Bulk and intermediary	*Cyclanic,cyclenic/cyclotrpenic alchls nes
29062100	290621	Imp. Original IDMA 2004	Bulk and intermediary	Benzyl alcohol
29062901	290629	Imp. Original IDMA 2004	Bulk and intermediary	*Chinnamic alcohol
29062902	290629	Imp. Original IDMA 2004	Bulk and intermediary	*Phenylethyl alcohol
29071101	290711	Imp. Original IDMA 2004	Bulk and intermediary	*Commercial carbolic acid (phenol)
29071102	290711	Imp. Original IDMA 2004	Bulk and intermediary	*Pure carbolic acid (phenol)
29071201	290712	Imp. Original IDMA 2004	Bulk and intermediary	*Para cresol
29071202	290712	Imp. Original IDMA 2004	Bulk and intermediary	*Commercial cresylic acid
29071203	290712	Imp. Original IDMA 2004	Bulk and intermediary	*Pure cresylic acid
29071204	290712	Imp. Original IDMA 2004	Bulk and intermediary	*Alkyl phenols
29071209	290712	Imp. Original IDMA 2004	Bulk and intermediary	*Other cresols and their salts
29071300	290713	Imp. Original IDMA 2004	Bulk and intermediary	Octylphenol, nonnylphenol and their isomers, salts thereof
29071400	290714	Imp. Original IDMA 2004	Bulk and intermediary	Xylenols and their salts
29071501	290715	Imp. Original IDMA 2004	Bulk and intermediary	*Alpha naphthol
29071502	290715	Imp. Original IDMA 2004	Bulk and intermediary	*Beta naphthol
29071901	290719	Imp. Original IDMA 2004	Bulk and intermediary	*Phenyl phenols (ortho and para)
29071902	290719	Imp. Original IDMA 2004	Bulk and intermediary	*Thymol
29071903	290719	Imp. Original IDMA 2004	Bulk and intermediary	*Para tartiary butyl phenol
29072100	290721	Imp. Original IDMA 2004	Bulk and intermediary	Resorcinol and its salfs
29072200	290722	Imp. Original IDMA 2004	Bulk and intermediary	Hydroquinone (quinol) and its salts
29072300	290723	Imp. Original IDMA 2004	Bulk and intermediary	4,4-isoprophylidenediphenol (bis-phenol A, diphenylolpropane) and its salts
29072901	290729	Imp. Original IDMA 2004	Bulk and intermediary	*1:5 dihydroxy napthalene
29073000	290730	Imp. Original IDMA 2004	Bulk and intermediary	*Phenol-alcohols
29081000	290810	Imp. Original IDMA 2004	Bulk and intermediary	Drivs cntng onlyhalogen substituents and their salts
29082002	290820	Imp. Original IDMA 2004	Bulk and intermediary	*G.acid salts
29082003	290820	Imp. Original IDMA 2004	Bulk and intermediary	*Naphthol sulphonic acids n.e.s.
29082004	290820	Imp. Original IDMA 2004	Bulk and intermediary	*Beta,naphthol sulphonic acid
29082005	290820	Imp. Original IDMA 2004	Bulk and intermediary	*Nevile-wnthr acid(1-nphthl 4 sulphnc acid)
29082006	290820	Imp. Original IDMA 2004	Bulk and intermediary	*R.acid (2-nphthl 3,6-dislphnc) and its disodium salt (r salt)
29089001	290890	Imp. Original IDMA 2004	Bulk and intermediary	*Para nitrophenol
29089003	290890	Imp. Original IDMA 2004	Bulk and intermediary	*Chromotropic acid
29091100	290911	DOP Imp.	Bulk and intermediary	Diethyl ether
29091900	290919	Imp. Original IDMA 2004	Bulk and intermediary	Other
29092000	290920	Imp. Original IDMA 2004	Bulk and intermediary	Cyclanic, cyclenic or cyclothpernic ethers and their halogenated, sulphonated, nitrated or nitrosated derivatives
29093001	290930	Imp. Original IDMA 2004	Bulk and intermediary	*Anisole and their derivatives n.e.s.
29093002	290930	Imp. Original IDMA 2004	Bulk and intermediary	*4-chloro-2-nitro anisole
29093003	290930	Imp. Original IDMA 2004	Bulk and intermediary	*Diphenyl oxide
29093004	290930	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho nitro anisole
29094100	290941	Imp. Original IDMA 2004	Bulk and intermediary	2.2-Oxydiethanol (diethylene glycol, digol)
29094300	290943	Imp. Original IDMA 2004	Bulk and intermediary	Monobutyl ethers or ethylene glycol or of diethylene glycol
29094400	290944	Imp. Original IDMA 2004	Bulk and intermediary	Other monoalkylethers of ethylene glycol or of diethylene glycol
29094901	290949	Imp. Original IDMA 2004	Bulk and intermediary	*Guaiac0 ethers
29095001	290950	Imp. Original IDMA 2004	Bulk and intermediary	*Isoeugenol
29095002	290950	Imp. Original IDMA 2004	Bulk and intermediary	*Potassium guaiacol sulphonate
29096000	290960	Imp. Original IDMA 2004	Bulk and intermediary	Alcohol peroxides, ether proxides and their halogen-
29102000	291020	Imp. Original IDMA 2004	Bulk and intermediary	Methyloxirane (proplyene oxide)
29103000	291030	Imp. Original IDMA 2004	Bulk and intermediary	1-chioro-2,3-expoxypropane (epichiorohydrin)
29110001	291100	Imp. Original IDMA 2004	Bulk and intermediary	*Acetals and hemiacetals
29110002	291100	Imp. Original IDMA 2004	Bulk and intermediary	*Derivatives of acetals and hemiacetals
29121100	291211	Imp. Original IDMA 2004	Bulk and intermediary	Methanal (formaldehyde)
29121200	291212	Imp. Original IDMA 2004	Bulk and intermediary	Ethanal (acetaldehyde)
29121300	291213	Imp. Original IDMA 2004	Bulk and intermediary	Butanol (butyraldehyde,normal isomer)
29121901	291219	IDMA 2004	Bulk and intermediary	crotonaldehyde
29121903	291219	Imp. Original IDMA 2004	Bulk and intermediary	*Glyoxal
29122100	291221	Imp. Original IDMA 2004	Bulk and intermediary	Benzaldehyde
29122901	291229	Imp. Original IDMA 2004	Bulk and intermediary	*Cinnamic aldehyde
29122902	291229	Imp. Original IDMA 2004	Bulk and intermediary	*Phenyl acetaldehyde
29123000	291230	Imp. Original IDMA 2004	Bulk and intermediary	Aldehyde alcohols
29124100	291241	Imp. Original IDMA 2004	Bulk and intermediary	Vanillin (4-hydroxy-3-methoxybenzalehyde)
29124200	291242	Imp. Original IDMA 2004	Bulk and intermediary	Ethylvanillin (3-ethoxy-4hydroxy-benzaidehyde)
29124901	291249	Imp. Original IDMA 2004	Bulk and intermediary	*Anisic aldehyde
29124902	291249	Imp. Original IDMA 2004	Bulk and intermediary	*Heliotropine (piperonyl aldehyde)
29124904	291249	Imp. Original IDMA 2004	Bulk and intermediary	*3,4,5-trimethoxy-benzaldehyede
29124930	291249	DOP Exp.	Bulk and intermediary	Thiacetazone
29124940	291249	DOP Imp.	Bulk and intermediary	3,4,5-trimethoxy-benzaldehyede
29125001	291250	Imp. Original IDMA 2004	Bulk and intermediary	*Heptene
29126000	291260	Imp. Original IDMA 2004	Bulk and intermediary	Parafomaldehyde
29130001	291300	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho-chloro-benzaldehyde
29130009	291300	Imp. Original IDMA 2004	Bulk and intermediary	*Drvtvs of aldhyds aldhyd alchls, aldhyd-ethrs,aldhyd-phnls&othr single or complex oxygen-function aldayds
29141100	291411	Imp. Original IDMA 2004	Bulk and intermediary	Acetone
29141200	291412	Imp. Original IDMA 2004	Bulk and intermediary	Butanone (methyl ethyl ketone)
29141300	291413	Imp. Original IDMA 2004	Bulk and intermediary	4-methylpentan-2-one (methyl isobutyl ketone)
29141901	291419	Imp. Original IDMA 2004	Bulk and intermediary	*Is0ph0r0n
29142101	291421	Exp . IDMA 2004	Bulk and intermediary	*Natural camphor
29142102	291421	Exp . IDMA 2004	Bulk and intermediary	*Synthetic camphor
29142200	291422	Imp. Original IDMA 2004	Bulk and intermediary	Cyclothexanone and methyl-cyclohexanones

29142301	291423	Imp. Original IDMA 2002	Bulk and intermediary	*Beta-ionone
29142302	291423	Imp. Original IDMA 2004	Bulk and intermediary	*Pseud0 i0n0ne
29142901	291429	Imp. Original IDMA 2004	Bulk and intermediary	*L-caravone
29143100	291431	Imp. Original IDMA 2004	Bulk and intermediary	Phenylacetone
29143901	291439	Imp. Original IDMA 2004	Bulk and intermediary	*Acetone phenone
29143902	291439	Imp. Original IDMA 2004	Bulk and intermediary	*Bezanthrone
29143903	291439	Imp. Original IDMA 2004	Bulk and intermediary	*BENZOPHENONE(e.g. MICHLAR'S KETONE ETC)
29143904	291439	Imp. Original IDMA 2004	Bulk and intermediary	*Dibenzanthrone (violanthrone)
29144203	291442	Exp . IDMA 2004	Bulk and intermediary	--
29146100	291461	Imp. Original IDMA 2004	Bulk and intermediary	Anthraquinone
29146901	291469	Imp. Original IDMA 2004	Bulk and intermediary	*1:4 dihydroxy anthraquinone (quinizarin)
29146902	291469	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl anthraquinone
29147001	291470	Imp. Original IDMA 2004	Bulk and intermediary	*1-chloro anthra quinone
29147009	291470	Imp. Original IDMA 2004	Bulk and intermediary	*Othr halgntd slphntd nitrtd/nitrstd drvtvs
29151100	291511	Imp. Original IDMA 2004	Bulk and intermediary	Formic acid
29151201	291512	Imp. Original IDMA 2004	Bulk and intermediary	*Sodium formate
29151202	291512	Exp . IDMA 2004	Bulk and intermediary	*Ammonium formate
29151300	291513	Imp. Original IDMA 2004	Bulk and intermediary	Esters of formic acid:
29152100	291521	Imp. Original IDMA 2004	Bulk and intermediary	Acetic acid
29152200	291522	Imp. Original IDMA 2004	Bulk and intermediary	Sodium acetate
29152300	291523	Imp. Original IDMA 2004	Bulk and intermediary	Cobalt acetates
29152400	291524	Exp . IDMA 2004	Bulk and intermediary	Acetic anhydride
29152901	291529	Imp. Original IDMA 2004	Bulk and intermediary	*Calcium acetate
29152902	291529	Exp . IDMA 2004	Bulk and intermediary	*Magnesium acetate
29152903	291529	Exp . IDMA 2004	Bulk and intermediary	*Manganese acetate
29152909	291529	Imp. Original IDMA 2004	Bulk and intermediary	*Other acetic acid & its salts,nes
29153100	291531	Imp. Original IDMA 2004	Bulk and intermediary	Ethyl acetate
29153200	291532	Imp. Original IDMA 2004	Bulk and intermediary	Vinyl acetate
29153300	291533	Imp. Original IDMA 2004	Bulk and intermediary	n-Butylacetate
29153400	291534	Imp. Original IDMA 2004	Bulk and intermediary	Isobutyl acetate
29153500	291535	Exp . IDMA 2004	Bulk and intermediary	2-ethoxyethyl acetate
29153901	291539	Imp. Original IDMA 2004	Bulk and intermediary	*Benzyl acetate
29153902	291539	Imp. Original IDMA 2004	Bulk and intermediary	*Bomyl acetate
29153903	291539	Imp. Original IDMA 2004	Bulk and intermediary	*4inalyl acetate
29153904	291539	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl acetate
29153905	291539	Exp . IDMA 2004	Bulk and intermediary	*Phenyl propyl acetate
29153906	291539	Exp . IDMA 2004	Bulk and intermediary	*Terpinyl acetate
29153909	291539	Imp. Original IDMA 2004	Bulk and intermediary	*Esters of acetic acid & drvtvs n.e.s.
29154001	291540	Imp. Original IDMA 2004	Bulk and intermediary	*Monochloroacetic acid,thr salts & esters
29154002	291540	Imp. Original IDMA 2004	Bulk and intermediary	*Trichloro acetic acid,their salts & esters
29154003	291540	Imp. Original IDMA 2004	Bulk and intermediary	*Dichloroacetic acid,their salts & esters
29155000	291550	Imp. Original IDMA 2004	Bulk and intermediary	Propionic acid, its salts and esters
29156001	291560	Imp. Original IDMA 2004	Bulk and intermediary	*Butyric acids, its salts and esters
29156002	291560	Imp. Original IDMA 2004	Bulk and intermediary	*Valeric acids, its salts and esters
29157001	291570	Imp. Original IDMA 2004	Bulk and intermediary	*Glycerol monostearate
29157002	291570	Imp. Original IDMA 2004	Bulk and intermediary	*Palmitic acid
29157003	291570	Imp. Original IDMA 2004	Bulk and intermediary	*Stearic acid
29157004	291570	Imp. Original IDMA 2004	Bulk and intermediary	*Hco fatty acid(incl 12-hydroxy stearc acd)
29157005	291570	Imp. Original IDMA 2004	Bulk and intermediary	*D.c.0. Fatty acid
29159001	291590	Imp. Original IDMA 2004	Bulk and intermediary	*Acetyl chl0ride
29159002	291590	Imp. Original IDMA 2004	Bulk and intermediary	*Octoic acid (caprylic acid)
29159003	291590	Imp. Original IDMA 2004	Bulk and intermediary	*Hexoic acid (caproic acid)
29161100	291611	Imp. Original IDMA 2004	Bulk and intermediary	Acrylic acid and its salts
29161201	291612	Imp. Original IDMA 2004	Bulk and intermediary	*Butyl acrylate
29161301	291613	Imp. Original IDMA 2004	Bulk and intermediary	*Methacrylic acid monomer
29161302	291613	Imp. Original IDMA 2004	Bulk and intermediary	*Salts of methacrylic acid
29161400	291614	Imp. Original IDMA 2004	Bulk and intermediary	Esters of methacrylic acid
29161501	291615	Imp. Original IDMA 2004	Bulk and intermediary	*Oleic acid
29161901	291619	Imp. Original IDMA 2002	Bulk and intermediary	*Undecylanic acid
29161902	291619	Imp. Original IDMA 2004	Bulk and intermediary	*Bismuth cmpnds of unsatrtd acylc monoacids
29161904	291619	Imp. Original IDMA 2004	Bulk and intermediary	*Sodium cmpnds of unsatrtd acylc monoacds
29161906	291619	Imp. Original IDMA 2004	Bulk and intermediary	*Sorbic acid
29161910	291619	DOP Imp.	Bulk and intermediary	Undecylanic acid
29161920	291619	DOP Imp.	Bulk and intermediary	Bismuth cmpnds of unsatrtd acylc monoacids
29161930	291619	DOP Imp.	Bulk and intermediary	Potassium cmpnds of unsatrtds acylc mondacds
29161940	291619	DOP Imp.	Bulk and intermediary	Sodium cmpnds of unsatrtd acylc monoacds
29162000	291620	Imp. Original IDMA 2004	Bulk and intermediary	Cyclanic, cyclenic or cycloterpenic monocaboxylic acids, their anhydrides, halides, peroxides, peroxyacids and the derivatives
29163101	291631	Imp. Original IDMA 2002	Bulk and intermediary	*Benzoic acid
29163102	291631	Imp. Original IDMA 2002	Bulk and intermediary	*Benzyl benzoate
29163103	291631	Imp. Original IDMA 2002	Bulk and intermediary	*Methyl benzoate
29163104	291631	Imp. Original IDMA 2002	Bulk and intermediary	*Sodium benzoate
29163105	291631	Imp. Original IDMA 2002	Bulk and intermediary	*Benzocaine (ethylpara-amino benzoate)
29163106	291631	Imp. Original IDMA 2004	Bulk and intermediary	*Orthochloro benzoic acid
29163109	291631	Imp. Original IDMA 2004	Bulk and intermediary	*Other salts and esters of benzoic acid
29163110	291631	DOP Imp.	Bulk and intermediary	Benzoic acid
29163120	291631	DOP Imp.	Bulk and intermediary	Benzyl benzoate
29163130	291631	DOP Imp.	Bulk and intermediary	Methyl benzoate
29163140	291631	DOP Imp.	Bulk and intermediary	Sodium benzoate
29163150	291631	DOP Imp.	Bulk and intermediary	Benzocaine (ethylpara-amino benzoate)
29163160	291631	DOP Imp.	Bulk and intermediary	Orthochloro benzoic acid
29163190	291631	DOP Imp.	Bulk and intermediary	Other salts and esters of benzoic acid
29163200	291632	Imp. Original IDMA 2004	Bulk and intermediary	Benzoyl peroxide and benzoyl chloride
29163400	291634	Imp. Original IDMA 2004	Bulk and intermediary	Phenylacetic acid and its salts
29163500	291635	Imp. Original IDMA 2004	Bulk and intermediary	Esters of phenylacetic acid
29163901	291639	Imp. Original IDMA 2004	Bulk and intermediary	*Cinnamic acid
29163903	291639	Imp. Original IDMA 2004	Bulk and intermediary	*Potassium compounds of aromatic monoacids
29163905	291639	Imp. Original IDMA 2004	Bulk and intermediary	*Esters of aromatic monoacids nes
29163910	291639	DOP Imp.	Bulk and intermediary	Cinnamic acid

29163920	291639	DOP Imp.	Bulk and intermediary	Bismuth compounds of aromatic monoacids
29163930	291639	DOP Imp.	Bulk and intermediary	Potassium compounds of aromatic monoacids
29163940	291639	DOP Imp.	Bulk and intermediary	Sodium compounds of aromatic monoacids
29163950	291639	DOP Imp.	Bulk and intermediary	Esters of aromatic monoacids nes
29163990	291639	DOP Imp.	Bulk and intermediary	Other unstrd acyclic monocrboxylc acds, cyclic monocrboxylc acds, thr anhydrds, hlds,peroxides & peroxyacds; thr hlgntd,s
29171101	291711	Imp. Original IDMA 2004	Bulk and intermediary	*Oxalic acid
29171102	291711	Exp . IDMA 2004	Bulk and intermediary	*Calcium oxalate
29171104	291711	Imp. Original IDMA 2002	Bulk and intermediary	*Diethyl oxalate
29171109	291711	Imp. Original IDMA 2004	Bulk and intermediary	*Other salts and esters of oxalic acid
29171200	291712	Imp. Original IDMA 2004	Bulk and intermediary	Adipic acid, its salts and esters
29171300	291713	Imp. Original IDMA 2004	Bulk and intermediary	Azeiaic acid, sebacic acid, their salts and esters
29171400	291714	Imp. Original IDMA 2004	Bulk and intermediary	Maleic anhydride
29171901	291719	Imp. Original IDMA 2004	Bulk and intermediary	*Maleic acid
29171902	291719	Imp. Original IDMA 2004	Bulk and intermediary	*Malonic acid
29171903	291719	Imp. Original IDMA 2004	Bulk and intermediary	*Succinic acid
29171904	291719	Imp. Original IDMA 2002	Bulk and intermediary	*Ferrous fumerate
29171905	291719	Imp. Original IDMA 2004	Bulk and intermediary	*Fumbric acid
29171906	291719	Imp. Original IDMA 2004	Bulk and intermediary	*Itac0nic acid
29171907	291719	Imp. Original IDMA 2004	Bulk and intermediary	*Eth0xy methylene mal0nate,diethyl mal0nate
29172000	291720	Imp. Original IDMA 2004	Bulk and intermediary	Cyclanic, cyclenic or cycloterpenic or cycloterpenic, polycaroxylic acids, their anhydrides, halides, peroxides, peroxyacids and their derivatives
29173100	291731	Imp. Original IDMA 2004	Bulk and intermediary	Dibutyl orthophthalates
29173200	291732	Imp. Original IDMA 2004	Bulk and intermediary	Dioctyl orthophthalates
29173300	291733	Imp. Original IDMA 2004	Bulk and intermediary	Dinonyl or didecyl orthophthalates
29173400	291734	Imp. Original IDMA 2004	Bulk and intermediary	Other esters of orthophthallic acid
29173500	291735	Imp. Original IDMA 2004	Bulk and intermediary	Phthalic anhydride
29173600	291736	Imp. Original IDMA 2004	Bulk and intermediary	Terephthalic acid and its salts
29173700	291737	Imp. Original IDMA 2004	Bulk and intermediary	Dimethyl terephthalate
29173901	291739	Imp. Original IDMA 2004	Bulk and intermediary	*Dibutyl phthalate
29173902	291739	Imp. Original IDMA 2004	Bulk and intermediary	*Dioctl phthalate
29173903	291739	Imp. Original IDMA 2004	Bulk and intermediary	*Phthalic acid
29173904	291739	Imp. Original IDMA 2004	Bulk and intermediary	*Dimethyl phthalate
29181101	291811	Imp. Original IDMA 2002	Bulk and intermediary	*Lactic acid
29181102	291811	Imp. Original IDMA 2002	Bulk and intermediary	*Calcium lactate
29181109	291811	Imp. Original IDMA 2004	Bulk and intermediary	*Other salts and esters of lactic acid
29181110	291811	DOP Imp.	Bulk and intermediary	Lactic acid
29181120	291811	DOP Imp.	Bulk and intermediary	Calcium lactate
29181200	291812	Imp. Original IDMA 2004	Bulk and intermediary	Tartaric acid
29181301	291813	Imp. Original IDMA 2004	Bulk and intermediary	*Potassium bitartrate
29181302	291813	Imp. Original IDMA 2004	Bulk and intermediary	*Metroprolol tartrate
29181309	291813	Imp. Original IDMA 2004	Bulk and intermediary	*Other salts and esters of tartaric acid
29181320	291813	DOP Imp.	Bulk and intermediary	Metroprolol tartrate
29181400	291814	DOP Imp.	Bulk and intermediary	Citric acid
29181501	291815	Imp. Original IDMA 2002	Bulk and intermediary	*Potassium citrate
29181502	291815	Imp. Original IDMA 2002	Bulk and intermediary	*Sodium citrate
29181504	291815	Exp . IDMA 2004	Bulk and intermediary	*Disodium hidrogen cirtate
29181505	291815	Imp. Original IDMA 2002	Bulk and intermediary	*Ferric ammonium citrate
29181509	291815	Imp. Original IDMA 2004	Bulk and intermediary	*Other salts and esters of citric acid
29181510	291815	DOP Imp.	Bulk and intermediary	Potassium citrate
29181520	291815	DOP Imp.	Bulk and intermediary	Sodium citrate
29181530	291815	DOP Imp.	Bulk and intermediary	Bismuth cirtrate
29181540	291815	DOP Imp.	Bulk and intermediary	Disodium hidrogen cirtate
29181550	291815	DOP Imp.	Bulk and intermediary	Ferric ammonium citrate
29181590	291815	DOP Imp.	Bulk and intermediary	Other salts and esters of citric acid
29181601	291816	Imp. Original IDMA 2002	Bulk and intermediary	*Calcium gluconate
29181602	291816	Imp. Original IDMA 2002	Bulk and intermediary	*Ferrous gluconate
29181609	291816	Imp. Original IDMA 2004	Bulk and intermediary	*Other gluconic acid its salts and esters
29181610	291816	DOP Imp.	Bulk and intermediary	Calcium gluconate
29181620	291816	DOP Imp.	Bulk and intermediary	Ferrous gluconate
29181700	291817	Imp. Original IDMA 2004	Bulk and intermediary	*Phenylglycolic acid (mandelic acid) its salts and esters
29181901	291819	Imp. Original IDMA 2004	Bulk and intermediary	*2,2-diphenyl-2-hydroxy acetic acid
29182101	291821	Imp. Original IDMA 2002	Bulk and intermediary	*Salicylic acid
29182102	291821	Imp. Original IDMA 2002	Bulk and intermediary	*Sodium salicylate
29182103	291821	Exp . IDMA 2004	Bulk and intermediary	--
29182110	291821	DOP Imp.	Bulk and intermediary	Salicylic acid
29182120	291821	DOP Imp.	Bulk and intermediary	Sodium salicylate
29182190	291821	DOP Imp.	Bulk and intermediary	Other salicylic acid and its salts
29182200	291822	Imp. Original IDMA 2002	Bulk and intermediary	O-Acetylsalicylic acid, its salts and esters
29182301	291823	Imp. Original IDMA 2002	Bulk and intermediary	*Methyl salicylate
29182302	291823	Imp. Original IDMA 2002	Bulk and intermediary	*Amino salicylate
29182303	291823	Imp. Original IDMA 2002	Bulk and intermediary	*Salicylamide
29182310	291823	DOP Imp.	Bulk and intermediary	Methyl salicylate
29182320	291823	DOP Imp.	Bulk and intermediary	Amino salicylate
29182330	291823	DOP Imp.	Bulk and intermediary	Salicylamide
29182390	291823	DOP Imp.	Bulk and intermediary	Other esters of salicylic acid & thr salts
29182901	291829	Imp. Original IDMA 2004	Bulk and intermediary	*Galic acid
29182902	291829	Imp. Original IDMA 2004	Bulk and intermediary	*Beta hydroxy naphthoic acid
29182903	291829	Imp. Original IDMA 2004	Bulk and intermediary	*Propyl gallate
29183001	291830	Imp. Original IDMA 2004	Bulk and intermediary	*Levulinic acid
29183003	291830	Imp. Original IDMA 2002	Bulk and intermediary	*Nalidixic acid
29183004	291830	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl acet0 acetate
29183010	291830	DOP Imp.	Bulk and intermediary	Levulinic acid
29183020	291830	DOP Imp.	Bulk and intermediary	Ethyl aceto acetate(acetoacetic ester)
29183022	291830	Imp. Original IDMA 2004	Bulk and intermediary	--
29183030	291830	DOP Imp.	Bulk and intermediary	Nalidixic acid
29183040	291830	DOP Imp.	Bulk and intermediary	Methyl acet0 acetate
29183090	291830	DOP Imp.	Bulk and intermediary	Other crbxylc acids with a ldhyd/ketone fn but without othet oxygen fn. etc.

29189000	291890	Imp. Original IDMA 2004	Bulk and intermediary	Othr crboxylc acds wth addtnl oxygn fnctn thr anhydrds halides peroxides & peroxy acids thr halgntd slphntd nitrtd drvts
29190001	291900	Imp. Original IDMA 2002	Bulk and intermediary	*Calcium glycerophosphate
29190002	291900	Imp. Original IDMA 2004	Bulk and intermediary	*Glycerophosphate acid
29190003	291900	Imp. Original IDMA 2002	Bulk and intermediary	*Sodium glycerophosphate
29190004	291900	Imp. Original IDMA 2004	Bulk and intermediary	*Tricresyl phosphate
29190005	291900	Imp. Original IDMA 2004	Bulk and intermediary	*N,n dialkyl (me,et,n-pr or i-pr phospho- ramidic dihalides)
29199010	291990	DOP Imp.	Bulk and intermediary	Glycerophosphate acid
29199020	291990	DOP Imp.	Bulk and intermediary	Calcium glycerophosphate
29199040	291990	DOP Imp.	Bulk and intermediary	Sodium glycerophosphate
29200001	292000	Imp. Original IDMA 2004	Bulk and intermediary	--
29201001	292010	Imp. Original IDMA 2004	Bulk and intermediary	*Amiton:0,0-diethyl s-2-(diethylamino) ethyl | phosphorothiolate &corrspndng alkylated/protonated salts
29209002	292090	Imp. Original IDMA 2004	Bulk and intermediary	*Dimethyl sulphate
29209004	292090	Imp. Original IDMA 2004	Bulk and intermediary	*Di-methyl methyl phosphonate
29209005	292090	Imp. Original IDMA 2004	Bulk and intermediary	*Di-methyl phosphite
29209008	292090	Imp. Original IDMA 2004	Bulk and intermediary	*Tri-ethyl phosphite
29211102	292111	Imp. Original IDMA 2004	Bulk and intermediary	*N-methyl formamide
29211109	292111	Imp. Original IDMA 2004	Bulk and intermediary	*Formamide,n.e.s.
29211200	292112	Imp. Original IDMA 2004	Bulk and intermediary	Diethylamine and its salts
29211901	292119	Imp. Original IDMA 2004	Bulk and intermediary	*N,n-dialkyl(me,et,n-pr or i-pr) amino ethyl-2-chlorides & corrspndng protonated salts thereof
29211902	292119	Imp. Original IDMA 2004	Bulk and intermediary	*Mono-ethylamine
29212100	292121	Imp. Original IDMA 2004	Bulk and intermediary	Ethylenediamine and its salts
29212200	292122	Imp. Original IDMA 2004	Bulk and intermediary	Hexamethylenediamine and its salts
29212902	292129	Imp. Original IDMA 2004	Bulk and intermediary	*Trimethylene triniframine
29213001	292130	Imp. Original IDMA 2004	Bulk and intermediary	*Cyclohexylamine
29214101	292141	Imp. Original IDMA 2004	Bulk and intermediary	*Aniline
29214102	292141	Exp . IDMA 2004	Bulk and intermediary	*Aniline hydrochloride
29214109	292141	Imp. Original IDMA 2004	Bulk and intermediary	*Othr aniline salts
29214201	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Para chloroaniline
29214202	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho chloro paranitroaniline
29214203	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Dichloroaniline
29214204	292142	Imp. Original IDMA 2004	Bulk and intermediary	*2:6-dichloro paranitroaniline
29214205	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Diethylaniline
29214206	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Dimethyl aniline
29214207	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Ethyl aniline
29214211	292142	Imp. Original IDMA 2004	Bulk and intermediary	Para chloroaniline
29214212	292142	Imp. Original IDMA 2004	Bulk and intermediary	Ortho chloro paranitroaniline
29214215	292142	Imp. Original IDMA 2004	Bulk and intermediary	2-4-5-trichloroanline
29214217	292142	Imp. Original IDMA 2002	Bulk and intermediary	*Methyl dopa(l-alpha methyl-3, 4-dihydroxyphenylalanine)
29214218	292142	Imp. Original IDMA 2004	Bulk and intermediary	*Carbidopa
29214221	292142	Exp . IDMA 2004	Bulk and intermediary	Benzyl ethyl aniline
29214236	292142	DOP Imp.	Bulk and intermediary	Methyl dopa(l-alpha methyl-3, 4-dihydroxyphenylalanine)
29214301	292143	Imp. Original IDMA 2004	Bulk and intermediary	*Diethyl toluidine
29214302	292143	Exp . IDMA 2004	Bulk and intermediary	*Dimethyl toluidne
29214303	292143	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho toluidine
29214304	292143	Imp. Original IDMA 2004	Bulk and intermediary	*Meta toluidine
29214305	292143	Imp. Original IDMA 2004	Bulk and intermediary	*Para toluidne
29214306	292143	Exp . IDMA 2004	Bulk and intermediary	*2-chloro-5-toluidine-4-sulphonic acid
29214307	292143	Exp . IDMA 2004	Bulk and intermediary	*2-chloro-4-toluidn-5-slphnc acid(sod slt)
29214308	292143	Imp. Original IDMA 2004	Bulk and intermediary	*4-toluidine-3-sulphonic acid
29214309	292143	Imp. Original IDMA 2004	Bulk and intermediary	*Othr toluidines & thr drvtvs slts thereof
29214401	292144	Imp. Original IDMA 2004	Bulk and intermediary	*Diphenylamine (e.g. 16-dpa)
29214409	292144	Imp. Original IDMA 2004	Bulk and intermediary	*Othr diphnylamine & its drvtvs;slts throf
29214501	292145	Imp. Original IDMA 2004	Bulk and intermediary	*Alpha naphthylamine
29214502	292145	Exp . IDMA 2004	Bulk and intermediary	*Phenyl alpha naphthylamine
29214503	292145	Imp. Original IDMA 2004	Bulk and intermediary	*Phenyl beta naphthylamine
29214506	292145	Imp. Original IDMA 2004	Bulk and intermediary	*Cleve's acid(1 naphthylamn-6-slphnc acid)
29214511	292145	Imp. Original IDMA 2004	Bulk and intermediary	Alpha naphthylamine
29214512	292145	Imp. Original IDMA 2004	Bulk and intermediary	Phenyl alpha naphthylamine
29214514	292145	IDMA 2004	Bulk and intermediary	sodium naphthionate
29214515	292145	Imp. Original IDMA 2004	Bulk and intermediary	Aminolineli-R-acid
29214516	292145	Imp. Original IDMA 2004	Bulk and intermediary	Sodium naphthionate
29214517	292145	Imp. Original IDMA 2004	Bulk and intermediary	*Tobias acid(2-naphthylamine-1-slphnc acd)
29214519	292145	Imp. Original IDMA 2004	Bulk and intermediary	*Othr 1-npthylamn 2-npthylamn and their drvtvs and slts threof
29214901	292149	Imp. Original IDMA 2004	Bulk and intermediary	*Benzyl ethyl aniline
29214903	292149	Imp. Original IDMA 2004	Bulk and intermediary	*2-5-xylidine
29214904	292149	Imp. Original IDMA 2004	Bulk and intermediary	*Xylidine (mixed)
29215101	292151	Imp. Original IDMA 2004	Bulk and intermediary	*M-phenylenediamine (m-diaminobenzene)
29215102	292151	Imp. Original IDMA 2004	Bulk and intermediary	*Para-amino acetanilide
29215103	292151	Imp. Original IDMA 2004	Bulk and intermediary	*Meta toluylene diamine
29215109	292151	Imp. Original IDMA 2004	Bulk and intermediary	*Othr o-m-p-phnylenediamine diaminotoluene and their drvtvs salts thereof
29215901	292159	Imp. Original IDMA 2004	Bulk and intermediary	*Benzidine
29221200	292212	Imp. Original IDMA 2004	Bulk and intermediary	Diethanolamine and its salts
29221301	292213	Imp. Original IDMA 2004	Bulk and intermediary	*Triethanolamine
29221302	292213	Imp. Original IDMA 2004	Bulk and intermediary	*Salts of triethanolamine
29221901	292219	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl di-ethanolamine
29221902	292219	Imp. Original IDMA 2004	Bulk and intermediary	*Ethyl di-ethanolamine
29222101	292221	Imp. Original IDMA 2004	Bulk and intermediary	*Amino-g-acid
29222102	292221	Imp. Original IDMA 2004	Bulk and intermediary	*Amino-j-acid
29222103	292221	Imp. Original IDMA 2004	Bulk and intermediary	*1-amino-2-naphthol-4-sulphonic acid
29222104	292221	Imp. Original IDMA 2004	Bulk and intermediary	*Gamma acid
29222105	292221	Imp. Original IDMA 2004	Bulk and intermediary	*J acid (2-amino-5-napthol-7 slphnc acid)
29222106	292221	Imp. Original IDMA 2004	Bulk and intermediary	*H-acid
29222107	292221	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho phenyl sulphonyl h-acid
29222111	292221	Imp. Original IDMA 2004	Bulk and intermediary	*Chicago acid
29222201	292222	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho anisidines
29222202	292222	Imp. Original IDMA 2004	Bulk and intermediary	*Para anisidines

29222203	292222	Imp. Original IDMA 2004	Bulk and intermediary	*Ortho phenetidine(2-aminophenitole)
29222209	292222	Imp. Original IDMA 2004	Bulk and intermediary	*Othr anisidns diansdns phntdns & thr slts
29222901	292229	Imp. Original IDMA 2004	Bulk and intermediary	*2-amino 4-nitrophenol
29222902	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Meta aminophenol thn one kind of oxygen function ;salts
29222903	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Para aminophenol
29222904	292229	Imp. Original IDMA 2004	Bulk and intermediary	*2-amino-1-phenol-4-sulphonic acid
29222905	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Meta diethyl amino-phenol
29222908	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Phenyl gamma acid(phenyl 2--amino-8- naphthol-6-sulphonic acid)
29222911	292229	Imp. Original IDMA 2004	Bulk and intermediary	2-amino 4-nitrophenol
29222912	292229	Exp . IDMA 2004	Bulk and intermediary	Meta aminophenol
29222913	292229	Imp. Original IDMA 2004	Bulk and intermediary	Para aminophenol
29222914	292229	Imp. Original IDMA 2002	Bulk and intermediary	Meta diethyl amino-phenol
29222915	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Para cresidine
29222916	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Picramic acid (t-grade)
29222917	292229	Imp. Original IDMA 2004	Bulk and intermediary	*Meta-phenylene diamene-4-sulph0nic acid
29222933	292229	DOP Imp.	Bulk and intermediary	Para acetyl aminophenol(paracetamol)
29223001	292230	Imp. Original IDMA 2004	Bulk and intermediary	*2-acetylamino-3-chloro-anthraquinone
29223002	292230	Imp. Original IDMA 2004	Bulk and intermediary	*1-amino-anthraquinone
29223003	292230	Exp . IDMA 2004	Bulk and intermediary	*2-amino-anthraquinone
29223004	292230	Exp . IDMA 2004	Bulk and intermediary	*1:4 dimino anthraquinone
29224100	292241	DOP Imp.	Bulk and intermediary	Lysine and its esters salts thereof
29224201	292242	Imp. Original IDMA 2004	Bulk and intermediary	*M0n0s0dium glutamate (azinamat0)
29224209	292242	Imp. Original IDMA 2004	Bulk and intermediary	*Glutamic acid and 0ther salts
29224300	292243	DOP Imp.	Bulk and intermediary	Anthranilic acid and its salts
29224901	292249	Imp. Original IDMA 2004	Bulk and intermediary	*Amino acetic acid (glycine)
29224902	292249	Imp. Original IDMA 2004	Bulk and intermediary	*N-methyl taurine
29225002	292250	Imp. Original IDMA 2002	Bulk and intermediary	*Para-amino-salicylic acid
29225004	292250	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl anthranilate
29225005	292250	Imp. Original IDMA 2002	Bulk and intermediary	*Procaine hydrochloride
29225006	292250	Imp. Original IDMA 2004	Bulk and intermediary	*Amino anisic acid anilide
29225007	292250	Imp. Original IDMA 2002	Bulk and intermediary	*L-TYROSINE(p-HYDROXYPHENYLAMINE)
29225008	292250	Imp. Original IDMA 2002	Bulk and intermediary	*Frusemide
29225011	292250	Imp. Original IDMA 2002	Bulk and intermediary	Para-amino-salicylic acid
29225013	292250	DOP Imp.	Bulk and intermediary	Procaine hydrochloride
29225015	292250	DOP Imp.	Bulk and intermediary	L-tyrosine(p-hydroxyphenylamine)
29225021	292250	DOP Exp.	Bulk and intermediary	Frusemide
29225022	292250	DOP Imp.	Bulk and intermediary	Aminodial
29231000	292310	Imp. Original IDMA 2004	Bulk and intermediary	choline and lits salts
29232001	292320	Imp. Original IDMA 2004	Bulk and intermediary	*Lecithins (other than medicaments)
29239000	292390	Imp. Original IDMA 2004	Bulk and intermediary	Other
29241001	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Acetanilide
29241002	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Aceto acetanilide
29241004	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Aceto acetic para chloranilide
29241005	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Diethyl diphenyl urea
29241006	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Dimethyl diphenyl urea (zentralin)
29241007	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Tolbutamide
29241008	292410	Exp . IDMA 2004	Bulk and intermediary	*Chloropropamide
29241011	292410	Imp. Original IDMA 2004	Bulk and intermediary	*Parachloro benzene sulphonyl urea
29242901	292429	Imp. Original IDMA 2004	Bulk and intermediary	*Phenyl acetamide
29242902	292429	Imp. Original IDMA 2002	Bulk and intermediary	*Pyrazinamide(pyrazine carboxamide)
29242960	292429	DOP Imp.	Bulk and intermediary	Pyrazinamide(pyrazine carboxamide)
29251100	292511	DOP Imp.	Bulk and intermediary	Saccharin and its salts
29251900	292519	Imp. Original IDMA 2004	Bulk and intermediary	Othr imides & thr drvtvs slts thereof
29252001	292520	Imp. Original IDMA 2002	Bulk and intermediary	*Guanidine nitrate
29261000	292610	Imp. Original IDMA 2004	Bulk and intermediary	Acylonitnitrile
29262000	292620	Imp. Original IDMA 2004	Bulk and intermediary	1-Cyanoguanidine (dicyandiarmide)
29270001	292700	Imp. Original IDMA 2004	Bulk and intermediary	*Para amino-azo-benzene
29270009	292700	Imp. Original IDMA 2004	Bulk and intermediary	*Other diazo-azo-or azoxy-compounds
29276002	292760	Imp. Original IDMA 2002	Bulk and intermediary	--
29280001	292800	Imp. Original IDMA 2004	Bulk and intermediary	*Organic derivativee of hydrazine or of"hydrdxylamine-isoniazid"
29280009	292800	Imp. Original IDMA 2004	Bulk and intermediary	*Othr orgnc drvts of hydrazine/hydrxylmine
29291001	292910	Imp. Original IDMA 2004	Bulk and intermediary	*Phenyl isocyanate
29291002	292910	Imp. Original IDMA 2004	Bulk and intermediary	*Toluene diisocyanate
29291009	292910	Imp. Original IDMA 2004	Bulk and intermediary	*Isocyanats & diisocynts of hydrcrbn n.e.s.
29301000	293010	Imp. Original IDMA 2004	Bulk and intermediary	Dithiocarbonates(xanthates)
29302000	293020	Imp. Original IDMA 2004	Bulk and intermediary	Thiocarbamates and dithiocarbamates
29303000	293030	Imp. Original IDMA 2004	Bulk and intermediary	Thiuram mono-, di or tetrasulphides
29304000	293040	DOP Imp.	Bulk and intermediary	Methionine
29309001	293090	Imp. Original IDMA 2004	Bulk and intermediary	*Thiourea(sulphourea)
29309002	293090	Imp. Original IDMA 2002	Bulk and intermediary	*Calcium salts of methionine
29309004	293090	Imp. Original IDMA 2004	Bulk and intermediary	*Thio sulphonic acid
29309005	293090	Imp. Original IDMA 2002	Bulk and intermediary	*L-cystine (alpha-amino beta-thio propionicacid)-sulphur containing amino acid
29309007	293090	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphoxide
29309008	293090	Imp. Original IDMA 2002	Bulk and intermediary	*Mercaptan
29309011	293090	Imp. Original IDMA 2004	Bulk and intermediary	*Thiodiglycol:bis (2-hydroxyethyl)sulphide
29309020	293090	DOP Imp.	Bulk and intermediary	Calcium salts of methionine
29309030	293090	DOP Imp.	Bulk and intermediary	Thio sulphonic acid
29309040	293090	DOP Imp.	Bulk and intermediary	L-cystine (alpha-amino beta-thio propionicacid)-sulphur containing amino acid
29309050	293090	DOP Imp.	Bulk and intermediary	Sulphinic acid
29309060	293090	DOP Imp.	Bulk and intermediary	Sulphoxide
29309070	293090	DOP Imp.	Bulk and intermediary	Mercaptan
29321100	293211	DOP Imp.	Bulk and intermediary	Tetrahydrofuran
29321200	293212	Imp. Original IDMA 2004	Bulk and intermediary	2-Furaldehyde (furfuraldehyde)
29321300	293213	Imp. Original IDMA 2004	Bulk and intermediary	Furfurly alcohol and tetrahydrofurfuryl alcohol
29321901	293219	Imp. Original IDMA 2004	Bulk and intermediary	*Hydroxy-3-dibenzfuren carboxylic acid
29322100	293221	Imp. Original IDMA 2004	Bulk and intermediary	Coumarin, methylcoumarins and ethylcoumrins
29322901	293229	Imp. Original IDMA 2002	Bulk and intermediary	*Phenolphthalein
29322902	293229	Imp. Original IDMA 2004	Bulk and intermediary	*Spiranolactone
29322910	293229	DOP Imp.	Bulk and intermediary	Phenolphthalein

29322990	293229	DOP Imp.	Bulk and intermediary	Other lactones
29329100	293291	Imp. Original IDMA 2002	Bulk and intermediary	Isosafrole
29329300	293293	IDMA 2004	Bulk and intermediary	piperanol
29329400	293294	Imp. Original IDMA 2004	Bulk and intermediary	Safrole
29331100	293311	Imp. Original IDMA 2002	Bulk and intermediary	Phenazone (antipyrin) and its derivates
29331901	293319	Imp. Original IDMA 2004	Bulk and intermediary	*3-carboxy (para slphphnyl)-5 pyrazolone
29331902	293319	Imp. Original IDMA 2004	Bulk and intermediary	*1(2:5 dchlr-4-slphphnyl)-3-mthyl-5-pyrazln
29331903	293319	Exp . IDMA 2004	Bulk and intermediary	*3-mthyl-1(4-slpho-0-toluyl-5-pyrazoldne)
29331904	293319	Imp. Original IDMA 2002	Bulk and intermediary	*Phenyl-methyl pyrazolone
29331905	293319	Imp. Original IDMA 2004	Bulk and intermediary	*1-phnyl-5-pyrazln-3-crboxylc acd ethylestr
29331906	293319	Exp . IDMA 2004	Bulk and intermediary	*1-(m-sulphophenyl)-3-pyrazolone
29331907	293319	Imp. Original IDMA 2002	Bulk and intermediary	*Analgin
29331908	293319	Imp. Original IDMA 2002	Bulk and intermediary	*0xyphenbutazone
29331912	293319	Exp . IDMA 2004	Bulk and intermediary	*Naproxen
29331913	293319	Exp . IDMA 2004	Bulk and intermediary	*Nimesulide
29331914	293319	Exp . IDMA 2004	Bulk and intermediary	*Pentazocin
29331916	293319	Exp . IDMA 2004	Bulk and intermediary	*Allopurinol
29331970	293319	DOP Imp.	Bulk and intermediary	Analgin
29331980	293319	DOP Exp.	Bulk and intermediary	0xyphenbutazone
29332100	293321	Imp. Original IDMA 2002	Bulk and intermediary	Hydantion and its derivaties
29332901	293329	Imp. Original IDMA 2002	Bulk and intermediary	*Tinidazole
29332902	293329	Imp. Original IDMA 2002	Bulk and intermediary	*Metronidazole and its salts
29332903	293329	Imp. Original IDMA 2002	Bulk and intermediary	*Mebendazole
29332904	293329	Imp. Original IDMA 2002	Bulk and intermediary	*Dimetridazole
29332905	293329	Imp. Original IDMA 2002	Bulk and intermediary	*Albendaz0le
29332910	293329	DOP Imp.	Bulk and intermediary	Tinidazole
29332912	293329	Imp. Original IDMA 2004	Bulk and intermediary	*Astemizole
29332913	293329	Imp. Original IDMA 2004	Bulk and intermediary	*Fluconazole
29332915	293329	Exp . IDMA 2004	Bulk and intermediary	*Ketoconazole
29332916	293329	Exp . IDMA 2004	Bulk and intermediary	*Lansoprazole
29332917	293329	Exp . IDMA 2004	Bulk and intermediary	*Omeprazole
29332920	293329	DOP Imp.	Bulk and intermediary	Metronidazole metronidiazole benzoate
29332930	293329	DOP Imp.	Bulk and intermediary	Mebendazole
29332940	293329	DOP Imp.	Bulk and intermediary	Dimetridazole
29332950	293329	DOP Imp.	Bulk and intermediary	Albendaz0le
29332990	293329	DOP Imp.	Bulk and intermediary	Other compnds cntng an unfused imidazole ring (w/n hydrgntd) in structure
29333100	293331	Imp. Original IDMA 2002	Bulk and intermediary	Pyridine and its salts
29333200	293332	Imp. Original IDMA 2004	Bulk and intermediary	Piperidine and its salts
29333901	293339	Imp. Original IDMA 2004	Bulk and intermediary	*Amino pyridine
29333902	293339	Imp. Original IDMA 2002	Bulk and intermediary	*Alpha picoline(2-methyl pyridine)
29333903	293339	Imp. Original IDMA 2002	Bulk and intermediary	*Gamma picoline(4-methyl pyridine)
29333904	293339	Imp. Original IDMA 2002	Bulk and intermediary	*Chlorpheniramine maleate
29333905	293339	Imp. Original IDMA 2002	Bulk and intermediary	*Diphenoxylate hydrochloride
29333906	293339	Imp. Original IDMA 2002	Bulk and intermediary	*Beta pic0line (3-methyl pyridine)
29333907	293339	Imp. Original IDMA 2002	Bulk and intermediary	*M0rph0line
29333908	293339	Imp. Original IDMA 2002	Bulk and intermediary	*Lutidine
29333912	293339	DOP Imp.	Bulk and intermediary	Alpha picoline(2-methyl pyridine)
29333913	293339	DOP Imp.	Bulk and intermediary	Gamma picoline(4-methyl pyridine)
29333914	293339	DOP Imp.	Bulk and intermediary	Chlorpheniramine maleate
29333915	293339	DOP Imp.	Bulk and intermediary	Diphenoxylate hydrochloride
29333916	293339	DOP Imp.	Bulk and intermediary	Beta pic0line (3-methyl pyridine)
29333917	293339	DOP Imp.	Bulk and intermediary	M0rph0line
29333918	293339	DOP Imp.	Bulk and intermediary	Lutidine (dimethyle pyridine)
29334001	293340	Imp. Original IDMA 2002	Bulk and intermediary	*Quinoline
29334002	293340	Imp. Original IDMA 2002	Bulk and intermediary	*2:4 dihydroxy quinoline (2:4 dioxy-quinln)
29334003	293340	Imp. Original IDMA 2002	Bulk and intermediary	*4-hydroxy-n-methyl-2-quinoline
29334004	293340	Imp. Original IDMA 2002	Bulk and intermediary	*8-hydroxy quinoline and its salts
29334005	293340	Exp . IDMA 2004	Bulk and intermediary	*Amodiaquine hydrochloride
29334006	293340	Imp. Original IDMA 2002	Bulk and intermediary	*Iodohydroxy & di-iodohydroxy quinoline
29334007	293340	Imp. Original IDMA 2002	Bulk and intermediary	*Dichloro quinoline
29334011	293340	Imp. Original IDMA 2004	Bulk and intermediary	--
29334100	293341	DOP Imp.	Bulk and intermediary	Levorphanol (inn) and its salts
29334900	293349	DOP Imp.	Bulk and intermediary	Othe cmpnds cntng in structure a quinolineor isoquinoline ring system (w/n hydrgntd),not further fused
29335101	293351	Imp. Original IDMA 2002	Bulk and intermediary	*Barbituric acid
29335102	293351	Exp . IDMA 2004	Bulk and intermediary	*Phenobarbital
29335103	293351	Imp. Original IDMA 2002	Bulk and intermediary	*Phenobarbital sodium
29335109	293351	Imp. Original IDMA 2002	Bulk and intermediary	*Othr slts & drvtvs of barbituric acid
29335200	293352	DOP Imp.	Bulk and intermediary	Malonylurea (barbituric acid) & its sals
29335901	293359	Imp. Original IDMA 2002	Bulk and intermediary	*Aminophylline(cordophylin)
29335902	293359	Imp. Original IDMA 2002	Bulk and intermediary	*Trimethoprim
29335903	293359	Imp. Original IDMA 2004	Bulk and intermediary	*Diethyl carbanazine citrate
29335904	293359	Imp. Original IDMA 2002	Bulk and intermediary	*Carbazole
29335910	293359	DOP Imp.	Bulk and intermediary	Aminophylline(cordophylin)
29335920	293359	DOP Imp.	Bulk and intermediary	Trimethoprim
29335930	293359	DOP Imp.	Bulk and intermediary	Diethyl carbanazine citrate
29335940	293359	DOP Imp.	Bulk and intermediary	1 - amino-4methyl piperazine
29335990	293359	DOP Imp.	Bulk and intermediary	Other cmpnds cntng a pyrimidine ring (w/n hydrgntd) or piperazine ring in structure
29336100	293361	Imp. Original IDMA 2004	Bulk and intermediary	Melamine
29336901	293369	Imp. Original IDMA 2004	Bulk and intermediary	*Cyanuric acid & its salts
29337100	293371	Imp. Original IDMA 2004	Bulk and intermediary	6-Hexanelactarn (epsilon-caprolactam)
29337900	293379	Imp. Original IDMA 2004	Bulk and intermediary	Other lactams
29339001	293390	Imp. Original IDMA 2004	Bulk and intermediary	*Carbamazipine
29339002	293390	Imp. Original IDMA 2004	Bulk and intermediary	*1-phenyl-2-pr0pan0me
29341000	293410	Imp. Original IDMA 2004	Bulk and intermediary	Compounds containing an unfused thiazole ring (whether or not hydrogenated) in the structure
29342000	293420	Imp. Original IDMA 2004	Bulk and intermediary	Compounds containing in the structure a benzothiazole ring-system (whether or not hydrogenated) not further fused

29343000	293430	Imp. Original IDMA 2004	Bulk and intermediary	Compounds containgin in the structure a phenothiazine ring-system (whether or not hydrogennated) not further fused
29349001	293490	Imp. Original IDMA 2002	Bulk and intermediary	*Acriflavine bpc neutral
29349003	293490	Imp. Original IDMA 2002	Bulk and intermediary	*Indole
29349004	293490	Imp. Original IDMA 2004	Bulk and intermediary	*Dehydro thio para toluidine sulphonic acid
29349005	293490	Exp . IDMA 2004	Bulk and intermediary	*Nifurazole
29349006	293490	Imp. Original IDMA 2002	Bulk and intermediary	*Miconazole
29349007	293490	Imp. Original IDMA 2002	Bulk and intermediary	*Clortrimazole
29349008	293490	Imp. Original IDMA 2002	Bulk and intermediary	*Furaz0lidine
29349011	293490	Imp. Original IDMA 2002	Bulk and intermediary	*3,4, methylene di0xy phenyl-2-pr0pan0ne
29350001	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphamethoxazole
29350002	293500	Exp . IDMA 2004	Bulk and intermediary	*Sulphafurazole
29350003	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphadiazine
29350004	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphadimidine
29350005	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphacetamide
29350006	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphamethoxy pyridarine
29350007	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphamethiazole
29350008	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Sulphamoxole
29350011	293500	DOP Imp.	Bulk and intermediary	Sulphamethoxazole
29350012	293500	DOP Exp.	Bulk and intermediary	Sulphafurazole
29350013	293500	DOP Imp.	Bulk and intermediary	Sulphadiazine
29350014	293500	DOP Imp.	Bulk and intermediary	Sulphadimidine
29350015	293500	DOP Imp.	Bulk and intermediary	Sulphacetamide
29350019	293500	Imp. Original IDMA 2002	Bulk and intermediary	*Other sulphonamides
29350021	293500	DOP Imp.	Bulk and intermediary	Sulphamethoxy pyridarine
29350022	293500	DOP Imp.	Bulk and intermediary	Sulphamethiazole
29350023	293500	DOP Exp.	Bulk and intermediary	Sulphamoxole
29350024	293500	DOP Imp.	Bulk and intermediary	Sulfamide
29350090	293500	DOP Imp.	Bulk and intermediary	Other sulphonamides
29361000	293610	DOP Imp.	Bulk and intermediary	Unmixed provitamins (OLD 29361000)
29362100	293621	DOP Imp.	Bulk and intermediary	Vitamins a and their derivatives
29362200	293622	Imp. Original IDMA 2002	Bulk and intermediary	*Vitamins b1(thiamine/aneurin) & its drvtvs
29362210	293622	DOP Imp.	Bulk and intermediary	Vitamin b1i(thiamine, aneurine) & its salt
29362290	293622	DOP Imp.	Bulk and intermediary	Other vitamin b1i and its drivatives
29362300	293623	Imp. Original IDMA 2002	Bulk and intermediary	*Vitamins b2(riboflavin)& its drvtvs
29362310	293623	DOP Imp.	Bulk and intermediary	Vitamin b2 (riboflavin, lactoplavin) and its salts
29362390	293623	DOP Imp.	Bulk and intermediary	Other vitamin b2 and its derivatives
29362400	293624	DOP Imp.	Bulk and intermediary	D-or dl-pantothenic acid (vitamin b3 or vitamin b5) and its derivatives
29362500	293625	DOP Imp.	Bulk and intermediary	Vitamin b6 & its drvts
29362600	293626	Imp. Original IDMA 2002	Bulk and intermediary	*Vitamin b12(cyanocobalanim) & its drvtvs
29362610	293626	DOP Imp.	Bulk and intermediary	Vitamin b12 (cynocobalamin)
29362690	293626	DOP Imp.	Bulk and intermediary	Other vitamin b12 and its derivatives
29362700	293627	DOP Imp.	Bulk and intermediary	Vitamin c (ascorbic acid) & its drvtvs
29362800	293628	DOP Imp.	Bulk and intermediary	Vitamin e and its derivatives
29362901	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Cholines
29362902	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Folic acid
29362903	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Nctnc acid & nctnmd(niacinamide/niacine
29362904	293629	Exp . IDMA 2004	Bulk and intermediary	*Para amino benzoic acid (paba)
29362909	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Other vitamin b complex
29362910	293629	DOP Imp.	Bulk and intermediary	Folic acid (vitamin b9)
29362912	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Vitamin k (menaphthonum b.p.)
29362913	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Vitamin d
29362914	293629	Imp. Original IDMA 2004	Bulk and intermediary	*Vitamin h (bi0lin)
29362915	293629	Exp . IDMA 2004	Bulk and intermediary	*Atorvastatin
29362917	293629	Exp . IDMA 2004	Bulk and intermediary	*Lovastatin
29362918	293629	Exp . IDMA 2004	Bulk and intermediary	*Pravastatin & other statin
29362919	293629	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29362920	293629	DOP Imp.	Bulk and intermediary	Nctnc acid & nctnmd(niacinamide/niacine
29362930	293629	DOP Imp.	Bulk and intermediary	Vitamin k (menaphthonum b.p.)
29362940	293629	DOP Imp.	Bulk and intermediary	Vitamin d
29362950	293629	DOP Imp.	Bulk and intermediary	Vitamin h (bi0lin)
29362990	293629	DOP Imp.	Bulk and intermediary	Other vitamins and thr drvtvs
29369000	293690	DOP Imp.	Bulk and intermediary	Other, incl. natural concentrts
29371001	293710	Imp. Original IDMA 2002	Bulk and intermediary	*Oxytocin
29371002	293710	Imp. Original IDMA 2002	Bulk and intermediary	*Hormones of the pituitary gland n.e.s.
29371100	293711	DOP Imp.	Bulk and intermediary	Somatotropin, its drvtvs& strctl analogves
29371200	293712	DOP Imp.	Bulk and intermediary	Insulin and its salts
29371900	293719	DOP Imp.	Bulk and intermediary	Other polypeptide hormones thr dtvtvs & strctl anlges
29372100	293721	DOP Imp.	Bulk and intermediary	Cortisone,hydrocortisone,prednisone (dehy-drocortisone)and frednisolone and prdnsln(dehydrohydrocortisone)
29372101	293721	Imp. Original IDMA 2002	Bulk and intermediary	*Cortisone
29372102	293721	Imp. Original IDMA 2002	Bulk and intermediary	*Hydrocortisone its salts and derivatives
29372103	293721	Imp. Original IDMA 2002	Bulk and intermediary	*Prednisone(dehydro cortisone)
29372104	293721	Imp. Original IDMA 2002	Bulk and intermediary	*Prednisolone(dehydrohydro cortisone)
29372200	293722	DOP Imp.	Bulk and intermediary	Halgntd drvtvs of corti costeroidal
29372300	293723	DOP Imp.	Bulk and intermediary	Oestrogens and progestogens
29372900	293729	DOP Imp.	Bulk and intermediary	Othr steroidal hormons thr drvtvs and strctl anlges
29372901	293729	Imp. Original IDMA 2002	Bulk and intermediary	*Epinephrine (adrenaline) and salts
29372909	293729	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29373100	293731	DOP Imp.	Bulk and intermediary	Epinethrine
29373900	293739	DOP Imp.	Bulk and intermediary	Other catecholamine hormons thr drvtvs & strctl anlges
29374000	293740	DOP Imp.	Bulk and intermediary	Amino-acid derivatives
29375000	293750	DOP Imp.	Bulk and intermediary	Prostaglandins, tiromboxames& leukotrienesthr drvtvs & strclt anlges
29379000	293790	DOP Imp.	Bulk and intermediary	Other hormons, ntrl or rprdcd by synthsis used as hormons
29379102	293791	Imp. Original IDMA 2002	Bulk and intermediary	*Insulin reference standard
29379103	293791	Imp. Original IDMA 2002	Bulk and intermediary	*Insulin (human)
29379104	293791	Imp. Original IDMA 2004	Bulk and intermediary	*Insulin (bovine or pork)
29379109	293791	Imp. Original IDMA 2002	Bulk and intermediary	*Other insulin and its salts
29379201	293792	Imp. Original IDMA 2002	Bulk and intermediary	*Estradiol its salts and derivatives etc

29379202	293792	Imp. Original IDMA 2002	Bulk and intermediary	*Progesterone (lutestorone)
29379203	293792	Imp. Original IDMA 2002	Bulk and intermediary	*Estrogens n.e.s.
29379204	293792	Imp. Original IDMA 2002	Bulk and intermediary	*Ethisterone & its derivatives (danazol)
29379901	293799	Imp. Original IDMA 2002	Bulk and intermediary	*Methyl testosterone
29379902	293799	Imp. Original IDMA 2002	Bulk and intermediary	*Testosterone propionate
29379903	293799	Imp. Original IDMA 2002	Bulk and intermediary	*Dexamethasone
29379904	293799	Imp. Original IDMA 2002	Bulk and intermediary	*Betamethasone
29379905	293799	Exp . IDMA 2004	Bulk and intermediary	*Androgen
29379906	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Oxymetholone
29379909	293799	Imp. Original IDMA 2002	Bulk and intermediary	*Othrs
29379912	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Hydrocortisone sodium succinate
29379913	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl prednisolone acctale
29379915	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Beclomethasone diprop./salts
29379916	293799	Exp . IDMA 2004	Bulk and intermediary	*Clobetasole
29379918	293799	Exp . IDMA 2004	Bulk and intermediary	*Clostebol salts
29379923	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Flucortolone
29379925	293799	Exp . IDMA 2004	Bulk and intermediary	*Fluticosone prop./salts
29379926	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Hydroxy progesterone caproate etc,
29379927	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Levonorgesteroc
29379928	293799	Exp . IDMA 2004	Bulk and intermediary	*Medroxyprogesterone acetate.
29379933	293799	Exp . IDMA 2004	Bulk and intermediary	*Glibenclamide
29379934	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Gliclazide
29379935	293799	Exp . IDMA 2004	Bulk and intermediary	*Glipizide
29379936	293799	Exp . IDMA 2004	Bulk and intermediary	*Phenformin
29379937	293799	Exp . IDMA 2004	Bulk and intermediary	*Metformin
29379941	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Aspartame
29379942	293799	Exp . IDMA 2004	Bulk and intermediary	*Carbimazole
29379944	293799	Exp . IDMA 2004	Bulk and intermediary	*Clomiphene
29379953	293799	Exp . IDMA 2004	Bulk and intermediary	*Methyl predisolone sodium succinate
29379954	293799	Imp. Original IDMA 2004	Bulk and intermediary	*Norethisterone
29379957	293799	Exp . IDMA 2004	Bulk and intermediary	*Methenedionone
29379958	293799	Exp . IDMA 2004	Bulk and intermediary	*Methoxsalen
29381000	293810	DOP Imp.	Bulk and intermediary	Rutoside (rutin) and its derivatives
29381001	293810	Imp. Original IDMA 2002	Bulk and intermediary	*Vitamin p
29381009	293810	Imp. Original IDMA 2002	Bulk and intermediary	*Othr rutoside (rutin) and its drvtvs
29389001	293890	Imp. Original IDMA 2002	Bulk and intermediary	*Digoxin
29389002	293890	Imp. Original IDMA 2002	Bulk and intermediary	*Glycsds of dgtls nes (degitalin digitoxin)
29389003	293890	Exp . IDMA 2004	Bulk and intermediary	*Dextromethorphan
29389009	293890	Imp. Original IDMA 2002	Bulk and intermediary	*Othrs
29389010	293890	DOP Imp.	Bulk and intermediary	Digoxin
29389020	293890	DOP Imp.	Bulk and intermediary	Digitalis glycosides
29389090	293890	DOP Imp.	Bulk and intermediary	Other glycosides ntrl/rprdcd by synthsis &thr slts ethrs drvtvs
29391001	293910	Imp. Original IDMA 2002	Bulk and intermediary	*Papaverine their salts and derivatives
29391002	293910	Imp. Original IDMA 2002	Bulk and intermediary	*N0scapine (narc0tine) & their derivativ
29391003	293910	Imp. Original IDMA 2002	Bulk and intermediary	*M0rphine
29391009	293910	Imp. Original IDMA 2002	Bulk and intermediary	*Othr alklds of opium and thr drvtvs and salts thereof
29391100	293911	DOP Imp.	Bulk and intermediary	Concentrates of poppy straw cmpnds of morphin, codeine, codone, the baine, salts thereof
29392010	293920	DOP Imp.	Bulk and intermediary	Quinine alkaloids
29392020	293920	DOP Imp.	Bulk and intermediary	Quinine hydrochloride
29392030	293920	DOP Imp.	Bulk and intermediary	Quinine sulphate
29392040	293920	DOP Imp.	Bulk and intermediary	Chl0r0quine ph0sphate
29392050	293920	DOP Exp.	Bulk and intermediary	Benzene acetic acid, alphahydroxy-alpha- phenyl, 1-azabicyclo (2.2.2) oct-3-yl ester
29392090	293920	DOP Imp.	Bulk and intermediary	Salts and othr drvtvs of quinine nes
29392101	293921	Imp. Original IDMA 2002	Bulk and intermediary	*Quinine alkaloids
29392102	293921	Imp. Original IDMA 2002	Bulk and intermediary	*Quinine hydrochloride
29392103	293921	Imp. Original IDMA 2002	Bulk and intermediary	*Quinine sulphate
29392104	293921	Imp. Original IDMA 2002	Bulk and intermediary	*Chl0r0quine ph0sphate
29392109	293921	Imp. Original IDMA 2002	Bulk and intermediary	*Salts and othr drvtvs of quinine nes
29392900	293929	Imp. Original IDMA 2002	Bulk and intermediary	Othr alklds of cinchona & thr drvtvs and slts thereof
29392990	293929	DOP Imp.	Bulk and intermediary	Other (OLD 29392990)
29393000	293930	DOP Imp.	Bulk and intermediary	Caffeine and its salts
29394101	293941	Imp. Original IDMA 2004	Bulk and intermediary	*Ephedrine alkaloids
29394102	293941	Exp . IDMA 2004	Bulk and intermediary	*Ephedrine hydrochloride
29394109	293941	Exp . IDMA 2004	Bulk and intermediary	*Other ephedrine & its salts
29394110	293941	DOP Exp.	Bulk and intermediary	Ephedrine alkaloids
29394120	293941	DOP Imp.	Bulk and intermediary	Ephedrine hydrochloride
29394190	293941	DOP Imp.	Bulk and intermediary	Other ephedrine & its salts
29394200	293942	Exp . IDMA 2004	Bulk and intermediary	Pseudoephedrine (INN) and its salts
29394901	293949	Exp . IDMA 2004	Bulk and intermediary	*Norephedrine
29395000	293950	Imp. Original IDMA 2002	Bulk and intermediary	*Theophylline and aminophylline (theophylline-ethylenediamine) and their derivatives salts thereof
29395100	293951	DOP Exp.	Bulk and intermediary	Fenetylline (inn) and its salts
29395900	293959	DOP Imp.	Bulk and intermediary	Other theophylline and aminophylline thr drvtvs, salts
29396101	293961	Imp. Original IDMA 2002	Bulk and intermediary	*Ergometrine
29396102	293961	Imp. Original IDMA 2004	Bulk and intermediary	*Methyl errgometrine
29396109	293961	Imp. Original IDMA 2002	Bulk and intermediary	*Other
29396110	293961	DOP Imp.	Bulk and intermediary	Ergometrine
29396190	293961	DOP Imp.	Bulk and intermediary	Other ergometrine salts
29396201	293962	Imp. Original IDMA 2002	Bulk and intermediary	*Ergotamine tartarate
29396209	293962	Imp. Original IDMA 2002	Bulk and intermediary	*Other
29396210	293962	DOP Imp.	Bulk and intermediary	Ergotamine tartarate
29396290	293962	DOP Imp.	Bulk and intermediary	Other ergotamine salts
29396900	293969	DOP Imp.	Bulk and intermediary	Other alkaloids of rye ergot & drvtvs
29397001	293970	Imp. Original IDMA 2004	Bulk and intermediary	*Nicotine alkaloids
29397002	293970	Imp. Original IDMA 2004	Bulk and intermediary	*Nicotine sulphate
29397009	293970	Imp. Original IDMA 2004	Bulk and intermediary	*Salts and derivatives of nicotine
29399001	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Atropine sulphate
29399002	293990	Exp . IDMA 2004	Bulk and intermediary	*Berberine hydrochloride

29399003	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Cocoine hydrochloride
29399004	293990	Exp . IDMA 2004	Bulk and intermediary	*Codime phosphate
29399005	293990	Exp . IDMA 2004	Bulk and intermediary	*Emetine alkaloids
29399006	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Salts and other drvtvs of emitine
29399007	293990	Exp . IDMA 2004	Bulk and intermediary	*Rouwolfia alkaloids
29399008	293990	Exp . IDMA 2004	Bulk and intermediary	*Strychnine alkaloids
29399011	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Slts, othr drvtvs of nx-vmc alklds brucine
29399012	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Theophylline theobromine alkaloids, their salts & othr derivatves
29399013	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Colchicine
29399014	293990	Exp . IDMA 2004	Bulk and intermediary	*Vinca rosea alkaloidsvincritine, vinbla sline, vincisterine
29399015	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Bromohexin & its drvtv (vasak alkaloid)
29399016	293990	Exp . IDMA 2004	Bulk and intermediary	*Solanesol crude
29399018	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Pilocarpine
29399019	293990	Imp. Original IDMA 2002	Bulk and intermediary	*Othr veg alklds thr drvtvs slts thereof
29399022	293990	Exp . IDMA 2004	Bulk and intermediary	*Bisacodyl
29399023	293990	Exp . IDMA 2004	Bulk and intermediary	*Isosorbide mono/di nitrate
29399024	293990	Exp . IDMA 2004	Bulk and intermediary	*Metoclopramide
29399100	293991	DOP Imp.	Bulk and intermediary	Cocaine, ecgomine etc salts estrs & drvtvsthereof
29399900	293999	DOP Imp.	Bulk and intermediary	Other veg alkaloids ntrl or rprdcd by synthis, thr salts , estrs ethers& othe drvtvs
29400000	294000	DOP Imp.	Bulk and intermediary	Sugrs chmcly pure othr thn sucrose lactosemaltose etc sugr ethrs & sugrestrs & thr slts besides hdg no. 2937 2938 or 2
29400001	294000	Imp. Original IDMA 2002	Bulk and intermediary	*Dextrose
29400009	294000	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29411001	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Penicilline and its salts (e.g.procaine penicillin, penicilline g-p0tassium)
29411002	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Ampicilline & its salts
29411003	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Amoxycilline & its salts
29411004	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Cloxacilline & its salts
29411005	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Penicilline
29411006	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Penicillin procaine !g!
29411007	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Penicillin !g! Potassium
29411008	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Penicillin !g!sodium
29411009	294110	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29411010	294110	DOP Imp.	Bulk and intermediary	Penicillins and its salts
29411011	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Penicillin v-potassium
29411013	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Piperacillin
29411014	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Benzathin pen g.
29411016	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Flucloxacillin
29411018	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Oxacillin
29411019	294110	Imp. Original IDMA 2002	Bulk and intermediary	--
29411020	294110	DOP Imp.	Bulk and intermediary	Ampicilline & its salts
29411021	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Griseofulvin
29411022	294110	Imp. Original IDMA 2004	Bulk and intermediary	*Tolnaflate
29411030	294110	DOP Imp.	Bulk and intermediary	Amoxycilline & its salts
29411040	294110	DOP Imp.	Bulk and intermediary	Cloxacilline & its salts
29411050	294110	DOP Imp.	Bulk and intermediary	6 - apa
29411090	294110	DOP Imp.	Bulk and intermediary	Other penicillins & thr drvtvs wth a pentcillianic acid strctr slts thereof
29412000	294120	Imp. Original IDMA 2002	Bulk and intermediary	*Streptomycins & thr drvtvs slts thereof
29412010	294120	DOP Imp.	Bulk and intermediary	Streptomycins
29412090	294120	DOP Imp.	Bulk and intermediary	Other streptomycine & drvtvs, salts
29413001	294130	Imp. Original IDMA 2002	Bulk and intermediary	*Doxycylime & its salts
29413002	294130	Imp. Original IDMA 2002	Bulk and intermediary	*Tetracycline &its salts
29413003	294130	Imp. Original IDMA 2002	Bulk and intermediary	*Oxytetracycline & its salts
29413004	294130	Exp . IDMA 2004	Bulk and intermediary	*Minocycline & its salts
29413009	294130	Imp. Original IDMA 2002	Bulk and intermediary	*Other derivatives of tetracycline and salts thereof
29413010	294130	DOP Imp.	Bulk and intermediary	Doxycylime & its salts
29413020	294130	DOP Imp.	Bulk and intermediary	Tetracycline/oxytetra - cycline & hr salts
29413090	294130	DOP Imp.	Bulk and intermediary	Other tetracyclines & thr drvtvs slts
29414000	294140	DOP Imp.	Bulk and intermediary	Chloramphenicol & its drvtvs slts thereof
29415000	294150	DOP Imp.	Bulk and intermediary	Erthromycin & its drvtvs slts thereof
29415001	294150	Imp. Original IDMA 2002	Bulk and intermediary	*Erythromycin and its salts
29415002	294150	Imp. Original IDMA 2002	Bulk and intermediary	*Roxythromycin and its salts
29415003	294150	Imp. Original IDMA 2002	Bulk and intermediary	*Azithromycin and its salts
29415004	294150	Imp. Original IDMA 2002	Bulk and intermediary	*Clarithromycin
29415009	294150	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29419001	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Rifampicin & its salts
29419002	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Cephalexin & its salts
29419003	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Ciprofloxacine & its salts
29419004	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Gentamycin & its salts
29419005	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Neomycin
29419006	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Cefazolin and its salts
29419007	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Cefuroxime and its salts
29419008	294190	Exp . IDMA 2004	Bulk and intermediary	*Cefaclor and its salts
29419009	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29419011	294190	DOP Imp.	Bulk and intermediary	Rifampicin
29419012	294190	DOP Imp.	Bulk and intermediary	3 formyl rifa s v (rifa int)
29419013	294190	DOP Imp.	Bulk and intermediary	Rifa or rifa s sodium (rifaint)
29419014	294190	DOP Imp.	Bulk and intermediary	1 - amino -4 - methyl piperazine (rifaint)
29419015	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Cefixime and its salts
29419016	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Ceftizoxime and its salts
29419017	294190	Exp . IDMA 2004	Bulk and intermediary	*Cephradine and its salts
29419018	294190	Imp. Original IDMA 2004	Bulk and intermediary	*Kanamycin and its salts
29419019	294190	DOP Imp.	Bulk and intermediary	Other rifampicin and its salts
29419020	294190	DOP Imp.	Bulk and intermediary	Cephalexin and its salts
29419021	294190	Imp. Original IDMA 2004	Bulk and intermediary	*Tobramycin and its salts
29419022	294190	Exp . IDMA 2004	Bulk and intermediary	*Sisomycin
29419024	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Amikacin and its salts
29419025	294190	Imp. Original IDMA 2004	Bulk and intermediary	*Natamycin and its salts
29419026	294190	Imp. Original IDMA 2004	Bulk and intermediary	*Polymixin b and its salts
29419027	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Bacitracin zinc & its salts

29419028	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Vancomycin and its salts
29419030	294190	DOP Imp.	Bulk and intermediary	Ciprofloxacine and its salts
29419031	294190	Imp. Original IDMA 2004	Bulk and intermediary	*Framycetin and its salts
29419033	294190	Exp . IDMA 2004	Bulk and intermediary	*Doxorubicin
29419034	294190	Exp . IDMA 2004	Bulk and intermediary	*Fluxetine
29419039	294190	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29419040	294190	DOP Imp.	Bulk and intermediary	Gentamycin and its salts
29419050	294190	DOP Imp.	Bulk and intermediary	Nemoycin
29419060	294190	DOP Imp.	Bulk and intermediary	Norfloxacin and its salts
29419090	294190	DOP Imp.	Bulk and intermediary	Other
29420001	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Norfloxacin & its salts
29420002	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Cefadroxil & its salts
29420003	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Ibuprofane
29420004	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Diazepam
29420005	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Nifedipine
29420006	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Ranitidine
29420007	294200	Imp. Original IDMA 2004	Bulk and intermediary	*Danes salt of d (-) phenyl glycine
29420008	294200	Imp. Original IDMA 2002	Bulk and intermediary	*D(-) para hydroxy dane's salts
29420011	294200	DOP Imp.	Bulk and intermediary	Cefadroxil
29420012	294200	DOP Imp.	Bulk and intermediary	Ibuprofane
29420013	294200	DOP Imp.	Bulk and intermediary	Nifedipine
29420014	294200	DOP Imp.	Bulk and intermediary	Ranitidine
29420015	294200	DOP Imp.	Bulk and intermediary	Danes salt of d (-) phenyl glycine
29420016	294200	DOP Imp.	Bulk and intermediary	D(-) para hydroxy dane's salts
29420017	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Cysteanune hcl
29420018	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Atenolol, propronalol
29420021	294200	DOP Imp.	Bulk and intermediary	Timolol maleate
29420022	294200	DOP Imp.	Bulk and intermediary	Terbutoline sulphate
29420023	294200	DOP Imp.	Bulk and intermediary	D(-) phenyl glycin chloride hcl (dpgch)
29420024	294200	DOP Imp.	Bulk and intermediary	Imipramine hcl
29420025	294200	DOP Imp.	Bulk and intermediary	Amitryptyline hcl
29420026	294200	DOP Imp.	Bulk and intermediary	Cysteanune hcl
29420027	294200	DOP Imp.	Bulk and intermediary	Atenolol, propronalol
29420028	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Acyclovir
29420029	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Others
29420031	294200	DOP Imp.	Bulk and intermediary	Diloxanide furoate
29420032	294200	DOP Imp.	Bulk and intermediary	Cimetidine
29420033	294200	DOP Imp.	Bulk and intermediary	Oxyclozanide
29420034	294200	DOP Imp.	Bulk and intermediary	Famotidine
29420035	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Acetazolamide
29420036	294200	Imp. Original IDMA 2002	Bulk and intermediary	*Betaxolol
29420041	294200	Exp . IDMA 2004	Bulk and intermediary	*Amlodipin
29420042	294200	Exp . IDMA 2004	Bulk and intermediary	*Ambroxol
29420043	294200	Exp . IDMA 2004	Bulk and intermediary	*Acebutolol
29420044	294200	Exp . IDMA 2004	Bulk and intermediary	*Alprazolam
29420045	294200	Exp . IDMA 2004	Bulk and intermediary	*Bisoprolol
29420046	294200	Exp . IDMA 2004	Bulk and intermediary	*Captopril
29420047	294200	Imp. Original IDMA 2004	Bulk and intermediary	*Chlororomazine
29420048	294200	Exp . IDMA 2004	Bulk and intermediary	*Cinnarazine
29420051	294200	Imp. Original IDMA 2004	Bulk and intermediary	*Cyclosporin
29420052	294200	Exp . IDMA 2004	Bulk and intermediary	*Cetrizine
29420053	294200	Exp . IDMA 2004	Bulk and intermediary	*Celecoxib
29420054	294200	Exp . IDMA 2004	Bulk and intermediary	*Diclofenac salts
29420055	294200	Exp . IDMA 2004	Bulk and intermediary	*Diltizem
29420056	294200	Exp . IDMA 2004	Bulk and intermediary	*Enalaprin maleate
29420057	294200	Imp. Original IDMA 2004	Bulk and intermediary	*5-flurouracil
29420058	294200	Exp . IDMA 2004	Bulk and intermediary	*Felodipine
29420061	294200	Exp . IDMA 2004	Bulk and intermediary	*Flurbiprofen
29420064	294200	Exp . IDMA 2004	Bulk and intermediary	*Isoxsuprine
29420065	294200	Exp . IDMA 2004	Bulk and intermediary	*Ketoprofen
29420066	294200	Imp. Original IDMA 2004	Bulk and intermediary	*Lisinopril
29420067	294200	Exp . IDMA 2004	Bulk and intermediary	*Loratidine
29420068	294200	Exp . IDMA 2004	Bulk and intermediary	*Refecoxib
29420071	294200	Exp . IDMA 2004	Bulk and intermediary	*Selegiline
29420072	294200	Exp . IDMA 2004	Bulk and intermediary	*Tamoxifen
29420073	294200	Exp . IDMA 2004	Bulk and intermediary	*Triprolidine
29420074	294200	Exp . IDMA 2004	Bulk and intermediary	*Terfenadine
29420090	294200	DOP Imp.	Bulk and intermediary	Other diloxanide furoate, cimetidine, famotidine nes
30011010	300110	DOP Imp.	Formulation	Pancreatin & dried powder of pancreas (OLD 30011010)
30011091	300110	DOP Imp.	Formulation	Other glands & other organs powdered (OLD 30011091)
30011099	300110	DOP Imp.	Formulation	Glands & other organs dried w/n powdered, nes (OLD 30011099)
30012010	300120	DOP Imp.	Formulation	Liquid extracts of liver
30012020	300120	DOP Imp.	Formulation	Liver extracts dry
30012030	300120	DOP Imp.	Formulation	Snake venom
30012090	300120	DOP Imp.	Formulation	Othr extracts of glands or othr organs or of their secretions
30019010	300190	DOP Imp.	Formulation	Othr substnce preprd for thruptic /prophylactic use of of human origin
30019091	300190	DOP Imp.	Formulation	Heparin and its salts
30019099	300190	DOP Imp.	Formulation	Other heparin salts; other human/anml substns for thruptc/prophylctc uses, nes
30021011	300210	DOP Imp.	Formulation	Diptheria antisera
30021012	300210	DOP Imp.	Formulation	Tetanus antisera
30021013	300210	DOP Imp.	Formulation	Rabies antisera
30021014	300210	DOP Imp.	Formulation	Snake venom antisera
30021019	300210	DOP Imp.	Formulation	Other antisera
30021020	300210	DOP Imp.	Formulation	Hemoglobin blood globulins&serum globulins
30021091	300210	DOP Imp.	Formulation	Othr blood fraction;modified imunlogical products of human origin
30021099	300210	DOP Imp.	Formulation	Othr blood fraction;modified imunlogical products n.e.s.
30022011	300220	DOP Imp.	Formulation	Vaccines for cholera and typhoid
30022012	300220	DOP Imp.	Formulation	Vaccines for hepatitis
30022013	300220	DOP Imp.	Formulation	Vccns for tetanus

30022014	300220	DOP Imp.	Formulation	Vaccines for polio
30022015	300220	DOP Imp.	Formulation	Vaccines for tuberculins(b.c.g.)
30022016	300220	DOP Imp.	Formulation	Anti rabies vaccine
30022017	300220	DOP Imp.	Formulation	Vaccine for japanese encephalitis
30022018	300220	DOP Imp.	Formulation	Vaccines for whooping cough (pertusis)
30022019	300220	DOP Imp.	Formulation	Other single vaccine
30022021	300220	DOP Imp.	Formulation	Mixed vaccines for dpt-triple anti gen
30022022	300220	DOP Imp.	Formulation	Mixed vaccines for diphtheria and tetanus
30022023	300220	DOP Imp.	Formulation	Mixed vaccines for m.m.r.
30022024	300220	DOP Imp.	Formulation	Mixed vaccines fr t.a.b. or t.a.b.c.
30022029	300220	DOP Imp.	Formulation	Other mixed vaccine
30023000	300230	DOP Imp.	Formulation	Vaccines for veterinary madicine
30029010	300290	DOP Imp.	Formulation	Human blood
30029020	300290	DOP Imp.	Formulation	Animal blood prepared for therapeutic, prophylactic or diagnostic uses
30029030	300290	DOP Imp.	Formulation	Cultures of micro-organisms (excl yeast)
30029040	300290	DOP Imp.	Formulation	Toxins
30029090	300290	DOP Imp.	Formulation	Othr cultures of microorganisms etc
30031000	300310	DOP Imp.	Formulation	Mdcmnts cntng pnclns/thr drvtvs with a/pnclnc acd strctre,strptmcns/thr drvts
30032000	300320	DOP Imp.	Formulation	Medicaments cont. other anti-biotics
30033100	300331	DOP Imp.	Formulation	Medicaments containing insulin
30033900	300339	DOP Imp.	Formulation	Other medicaments containing hormones or other product of hdng 2937 excl antibiotic
30034000	300340	DOP Imp.	Formulation	Mdcmnts cont. alklds/thr drvtvs but not/ hormns/othr prdtcs of hdng no. 29.37/antbt
30039011	300390	DOP Imp.	Formulation	Medicants of ayurvedic system
30039012	300390	DOP Imp.	Formulation	Medicants of unani system
30039013	300390	DOP Imp.	Formulation	Medicants of siddha system
30039014	300390	DOP Imp.	Formulation	Medicants of homoeopathic system
30039015	300390	DOP Imp.	Formulation	Medicants of bio-chemic system
30039022	300390	DOP Exp.	Formulation	Mlk of magnesia
30039031	300390	DOP Imp.	Formulation	Bovine albumin and drugs of animal origin
30039032	300390	DOP Exp.	Formulation	Merbromin n.f.12(mercurochrome)
30039033	300390	DOP Imp.	Formulation	Calcium sennoside
30039034	300390	DOP Imp.	Formulation	Anaesthetic agents used in human or veterinary medicine or surgery
30039035	300390	DOP Imp.	Formulation	Aluminium hydroxide gel
30039090	300390	DOP Imp.	Formulation	Other medicaments not put up in measured doses or in packing
30041010	300410	DOP Imp.	Formulation	Penicillin in capsules, injections etc.
30041020	300410	DOP Imp.	Formulation	Ampicilline in capsules, injections etc.
30041030	300410	DOP Imp.	Formulation	Amoxycyllin in capsules, injections etc.
30041040	300410	DOP Imp.	Formulation	Becampicillin
30041050	300410	DOP Imp.	Formulation	Cloxacillin in capsules, injections etc.
30041060	300410	DOP Exp.	Formulation	Amclos in capsules injections etc.
30041070	300410	DOP Imp.	Formulation	Strptmycn & its slts in cpsls injctns etc
30041090	300410	DOP Imp.	Formulation	Other mdcmnts cntng pencllns/drvtvs throf with a pencllnc acid strctr/strptmycns or their dervativs put up for retale sale
30042011	300420	DOP Imp.	Formulation	Cefazolin
30042012	300420	DOP Imp.	Formulation	Cephalexin - formulations thereof, in capsules etc.
30042013	300420	DOP Imp.	Formulation	Ciprofloxacine- in capsul,tblts form etc
30042014	300420	DOP Imp.	Formulation	Cefoxitin
30042019	300420	DOP Imp.	Formulation	Other cephalosporins & their derivatives
30042020	300420	DOP Imp.	Formulation	Sulfonamides and cotrimoxazole
30042031	300420	DOP Imp.	Formulation	Norfloxacin
30042032	300420	DOP Exp.	Formulation	Nalidixic acid
30042033	300420	DOP Imp.	Formulation	Ciprofloxacin (fluoroquinolones)
30042034	300420	DOP Imp.	Formulation	Ofloxacin
30042039	300420	DOP Imp.	Formulation	Other fluoroquinolones
30042041	300420	DOP Imp.	Formulation	Chlortetracycline
30042042	300420	DOP Imp.	Formulation	Oxytetracycline
30042049	300420	DOP Imp.	Formulation	Other tetracycline
30042050	300420	DOP Imp.	Formulation	Chlormphenicol capsules, injections etc.
30042061	300420	DOP Imp.	Formulation	Erythromycin in capsules,injections, ointments etc.
30042062	300420	DOP Imp.	Formulation	Roxithromycin
30042063	300420	DOP Imp.	Formulation	Clarithromycin
30042064	300420	DOP Imp.	Formulation	Azithromycin
30042069	300420	DOP Imp.	Formulation	Other macrolide
30042070	300420	DOP Imp.	Formulation	Cefadroxil
30042091	300420	DOP Imp.	Formulation	Isoniazid
30042092	300420	DOP Imp.	Formulation	Rifampicin
30042093	300420	DOP Exp.	Formulation	Pyrazinamide
30042094	300420	DOP Imp.	Formulation	Ethambutol
30042095	300420	DOP Imp.	Formulation	Clindamycin
30042096	300420	DOP Imp.	Formulation	Vancomycin
30042097	300420	DOP Imp.	Formulation	Polymyxin b and colistin
30042099	300420	DOP Imp.	Formulation	Othr medicament containing othr antibioticand put up for retail sale
30043110	300431	DOP Imp.	Formulation	Insulin injection
30043190	300431	DOP Imp.	Formulation	Other medicaments containing insulin
30043200	300432	DOP Imp.	Formulation	Medicaments containing corticosteroid hormones, their dervative&structural analg
30043911	300439	DOP Imp.	Formulation	Pituitary hormones
30043912	300439	DOP Imp.	Formulation	Prednisolone
30043913	300439	DOP Imp.	Formulation	Dexamethasone
30043914	300439	DOP Imp.	Formulation	Danazol
30043919	300439	DOP Imp.	Formulation	Other progestogen and oestogen group
30043921	300439	DOP Imp.	Formulation	Gonadotrophins
30043922	300439	DOP Imp.	Formulation	Luteinising hormone
30043990	300439	DOP Imp.	Formulation	Other gonadotrophins & luteinising hormone
30044010	300440	DOP Imp.	Formulation	Formulations of atropin sulphate,atropin methonitrate etc.in tablets,eye drops, ointmens etc.
30044020	300440	DOP Exp.	Formulation	Formulations of caffein & its salts
30044030	300440	DOP Exp.	Formulation	Formulations of ephedrine & pseudoephedrine in tablets, expectorant prepn.

30044040	300440	DOP Imp.	Formulation	Formulations of ergotpreparata, ergotamine & methyl ergometrine in tablets,injections etc.(e.g.methyl ergomet
30044050	300440	DOP Imp.	Formulation	Formulations of papaverine hydrochloride
30044060	300440	DOP Imp.	Formulation	Formulations of bromohexin with dextromethorphan, phenyl propanalomine, dyphenhydramine in expectorant prepn.
30044070	300440	DOP Exp.	Formulation	Theophylline, amino phylline & etophyllineformulations like tablets,syrup etc.
30044090	300440	DOP Imp.	Formulation	Frmltns of othr vgtbl alklds & its drvtvs
30045010	300450	DOP Imp.	Formulation	Heamatinics and erythropoietin
30045020	300450	DOP Imp.	Formulation	Mineral & parenteral nutritional spplmnts/contng calsium slts wth vtmn in tablts etc
30045031	300450	DOP Imp.	Formulation	Tablets,capsules,syrup etc of vitamin a incld) except salves oinimnts & vaccines
30045032	300450	DOP Imp.	Formulation	Preparation of vitamin b1& b2&salt thaerof
30045033	300450	DOP Exp.	Formulation	Preparation of vitamin b9
30045034	300450	DOP Imp.	Formulation	Preparation of vitamin b12
30045035	300450	DOP Imp.	Formulation	Vitamin "c" in tablets, syrup etc salves ointments & vaccines
30045036	300450	DOP Imp.	Formulation	Vitamin 'd' in tablets, capsules, syrup et
30045037	300450	DOP Imp.	Formulation	Vitamin e in caps.tabs,syrup etc
30045039	300450	DOP Imp.	Formulation	Other amino acid/ protein prepn. with / without vitamins,spirulina & the like.
30045090	300450	DOP Imp.	Formulation	Others put up for retail sale
30049011	300490	DOP Imp.	Formulation	Medicaments of ayurvedic system
30049012	300490	DOP Imp.	Formulation	Medicaments of unani system
30049013	300490	DOP Exp.	Formulation	Medicaments of siddha system
30049014	300490	DOP Imp.	Formulation	Homeopathic medicine
30049015	300490	DOP Imp.	Formulation	Medicaments of bio-chemic system
30049021	300490	DOP Imp.	Formulation	Anthelmintics and preparations thereof
30049022	300490	DOP Imp.	Formulation	Metronidazole-formulations single and in combination with furazolidone & diloxanide furoate.
30049023	300490	DOP Exp.	Formulation	Tinidazole - formulations including combination formulations with diloxa nide furoate/furazolidone/antibacterials
30049024	300490	DOP Imp.	Formulation	Secnidazole
30049025	300490	DOP Imp.	Formulation	Diluxamide furoate
30049026	300490	DOP Exp.	Formulation	Sodium stibogluconate
30049027	300490	DOP Imp.	Formulation	Pentamidine
30049029	300490	DOP Imp.	Formulation	Other anthelmintics drugs;antiamoebic and other antiprotozoal/antifungal drugs
30049031	300490	DOP Imp.	Formulation	Promethazine, chlorpheniramine, astemizole and ceteirizine
30049032	300490	DOP Imp.	Formulation	Sodium bicarbonat, magnsm hydroxid, magnsmcarbonat,magnsium trisilicat, aluminium hydroxide gel,magaldarate & co
30049033	300490	DOP Imp.	Formulation	Cimetidine, rantidine, nizatidine and r roxatidine
30049034	300490	DOP Imp.	Formulation	Omeprazole and lansoprazole
30049035	300490	DOP Imp.	Formulation	Dicyclomine, metoclopramide and dexame thasone and ondansetron
30049036	300490	DOP Exp.	Formulation	Chenodiol and ursodiol
30049039	300490	DOP Imp.	Formulation	Other antinistaninics ,antacids,antiulcer,antiemitics & other gastointestinal drugs
30049041	300490	DOP Imp.	Formulation	Cyclophosphamide
30049042	300490	DOP Imp.	Formulation	Methotrexate, 5-fluorouracil(5-fu) and ftorafur
30049043	300490	DOP Exp.	Formulation	Bincristine and vinblastine
30049044	300490	DOP Imp.	Formulation	Paclitaxel and docetaxel
30049045	300490	DOP Imp.	Formulation	Etoposide
30049046	300490	DOP Imp.	Formulation	Actinomycin d dactinomycin and doxorubicin
30049047	300490	DOP Imp.	Formulation	L-asparaginase, cisplatin and carboplatin
30049048	300490	DOP Imp.	Formulation	Tamoxifen
30049049	300490	DOP Imp.	Formulation	Other anticancer drugs
30049051	300490	DOP Imp.	Formulation	Isoniazid
30049052	300490	DOP Imp.	Formulation	Rifampicin
30049053	300490	DOP Exp.	Formulation	Pyrazinamide and ethambutol
30049054	300490	DOP Imp.	Formulation	Streptomycin
30049055	300490	DOP Imp.	Formulation	Dapsone (dds), acedapsone (dadds), solopsone and clofazimine
30049056	300490	DOP Imp.	Formulation	Chloroquine, amodiaquine, mefloquine, quinine, chloroguamide, pyrimethamine
30049057	300490	DOP Imp.	Formulation	Other antitubercular drugs
30049058	300490	DOP Imp.	Formulation	Other antileprotic drugs
30049059	300490	DOP Imp.	Formulation	Other antimalarial drugs
30049061	300490	DOP Imp.	Formulation	Analgin with or without other compounds such as paracetamol
30049062	300490	DOP Imp.	Formulation	Acetyl salicylic acid (aspirin) and formulations thereof
30049063	300490	DOP Imp.	Formulation	Ibuprofen with or without paracetamol or other compounds
30049064	300490	DOP Exp.	Formulation	Oxyphen butazone, phenyl butazone and formulations thereof
30049065	300490	DOP Imp.	Formulation	Indomethacin
30049066	300490	DOP Imp.	Formulation	Mephenamic acid, dactofenac sodium, piroxicam, tenoxicam and meloxicam
30049067	300490	DOP Imp.	Formulation	Ketorolac, nimesulide, nabumetone and nefopam
30049069	300490	DOP Imp.	Formulation	Other nonsteroidal antiinflamatory, analgestics and antipyratic drugs
30049071	300490	DOP Imp.	Formulation	Captopril, enalapril, lisinopril, perindopril and ramipril
30049072	300490	DOP Imp.	Formulation	Verapamil, nifedipine, amlodipine and lacidipine
30049073	300490	DOP Imp.	Formulation	Losartan
30049074	300490	DOP Imp.	Formulation	Propranolol, metoprolol, atenolol and labetalol
30049075	300490	DOP Imp.	Formulation	Prazosin, terazosin, phentolamine and phenoxybenzamine
30049076	300490	DOP Imp.	Formulation	Clonidine, methyldopa
30049077	300490	DOP Imp.	Formulation	Hydralazine, minoxidil and diazoxide
30049079	300490	DOP Imp.	Formulation	Other antihypertensive drugs
30049081	300490	DOP Imp.	Formulation	Phenobarbitone,mephobarbitone,primidone, phenytoin,carbamazpin,ethosucimid, valporicacid ,diazepa,lamotrigin,gabapenti
30049082	300490	DOP Imp.	Formulation	Other antiepileptic drugs
30049083	300490	DOP Imp.	Formulation	Sulpha drugs not elsewhere specified
30049084	300490	DOP Imp.	Formulation	Preparations of enzymes
30049085	300490	DOP Imp.	Formulation	Veterinary medicinal preparations n.e.s.
30049086	300490	DOP Imp.	Formulation	Oral rehydration salts
30049087	300490	DOP Imp.	Formulation	Antibacterial formulations, n.e.s.
30049088	300490	DOP Imp.	Formulation	Sedatives
30049089	300490	DOP Imp.	Formulation	Tranquilizers
30049091	300490	DOP Imp.	Formulation	Salbutamol, terbutaline, ephedrine, salmeterol and methyl xanthimes
30049092	300490	DOP Imp.	Formulation	Plasma expanders
30049093	300490	DOP Imp.	Formulation	Chloropheniramine maleate, with or withoutother compounds (excl. steriods& alkaloids)
30049094	300490	DOP Imp.	Formulation	Theophylline, aminophylline and other broncho dilators

30049095	300490	DOP Imp.	Formulation	Carcino-chemotherapeutic drugs n.e.s.
30049096	300490	DOP Imp.	Formulation	Ketamine
30049099	300490	DOP Imp.	Formulation	Other medcne put up for retail sale n.e.s
30051010	300510	DOP Imp.	Formulation	Adhesive gauze bandage
30051020	300510	DOP Imp.	Formulation	Adhesive tape (medicinal)
30051090	300510	DOP Imp.	Formulation	Other adhesive drssngs & othr artcls having an adhesive layer
30059010	300590	DOP Imp.	Formulation	Cotton wool medicated
30059020	300590	DOP Imp.	Formulation	Poultice of kaolin
30059030	300590	DOP Imp.	Formulation	Medicated lint
30059040	300590	DOP Imp.	Formulation	Bandages without adhesive layer
30059050	300590	DOP Imp.	Formulation	Burn therapy dressing soaked in protectivegel
30059060	300590	DOP Imp.	Formulation	Micro pores surgical tapes
30059070	300590	DOP Imp.	Formulation	Corn removers and callous removers
30059090	300590	DOP Imp.	Formulation	Other dressing articles n.e.s.
30061010	300610	DOP Imp.	Formulation	Sterile surgcl catgut,smlr mtrls & strle tissue adhsvs for surgical wound closure
30061020	300610	DOP Imp.	Formulation	Sterile laminaria & laminaria tents.& strile absrbble surgcl/dental haemostatics
30062000	300620	DOP Imp.	Formulation	Blood-grouping reagents
30063000	300630	DOP Imp.	Formulation	Opacifying prpns fr x-ray exams; diagnosticreagnts dsgnd to be admnstrd to patient be administered to the patient
30064000	300640	DOP Imp.	Formulation	Dental cements and othr dental fillings bone reconstruction cements
30065000	300650	DOP Imp.	Formulation	First-aid boxes and kits
30066010	300660	DOP Imp.	Formulation	Contraceptive based on hormones
30066020	300660	DOP Imp.	Formulation	Contrceptiv base on othr prod.of hdng 2937
30066030	300660	DOP Imp.	Formulation	Contraceptive based on spermicides
30067000	300670	DOP Imp.	Formulation	Gel prep to be used in human or veterinarymedicine as a lubricant for parts of bodyfor surgi oper/phys exam bet
30068000	300680	DOP Imp.	Formulation	Waste pharmaceuticals (OLD 30068000)
30069100	300691	DOP Imp.	Formulation	Appliances identifiable for ostomy use
30069200	300692	DOP Imp.	Formulation	Waste pharmaceuticals
35079003	350790	Imp. Original IDMA 2002	Bulk and intermediary	*Papain,pure (pharmacutical grade)
35079010	350790	DOP Imp.	Formulation	Industrial enzymes(textile assistant)
35079040	350790	DOP Imp.	Formulation	Pectin esterases pure
35079061	350790	DOP Imp.	Formulation	Strept0kinase
35079062	350790	DOP Imp.	Formulation	Amylases enzymes
35079071	350790	DOP Imp.	Formulation	Papain,pure (pharmacutical grade)
35079079	350790	DOP Imp.	Formulation	Other enzymes of pharmaceutical use
38220011	382200	DOP Imp.	Formulation	Pregnancy confirmation kit
38220012	382200	DOP Imp.	Formulation	Reagents for diagnosing aids
38220019	382200	DOP Imp.	Formulation	Other for medical diagnosis
38220090	382200	DOP Imp.	Formulation	Othrs dignostc/lab-reagent on a bckng & prprd diagnstic reagents wh/not on backing,excl pregnancy reagents/aids reage
56011000	560110	DOP Imp.	Formulation	Sntry towls & tampons napkns & napkn linrsfor babies & smlr sntry artcls of wadding
56012110	560121	DOP Imp.	Formulation	Absorbent cotton wool
96020003	960200	Imp. Original IDMA 2002	Bulk and intermediary	*Gelatin capsules,empty
96020030	960200	DOP Imp.	Formulation	Gelatin capsules,empty

Annexure 3: List of Top Twenty Identified Products

Product Code	Product Description
281820	Aluminium oxide other than artificial corundum
290230	Toluene
290243	P-xylene
290250	Styrene
290315	1,2 dichloromethane (cethylne dichloride)
290321	Vinyl chloride (chloroethylene),unstrtd
290511	Saturated methanol (methyl alcohol)
290531	Ethylene glycol (ethanediol)
290711	Phenol (hydroxybenzene) and its salts
291521	Acetic acid
291590	Other saturated acylc,mnocrboxylc acids & thr anhydrds,halds,peroxds,peroxy acids & thr halgntd slphntd nitrtd & nitrstd drvtvs
291612	Esters of acrylic acid
291736	Terephthalic acid and its salts
292610	Acrylonitrile
292910	Isocyanates
294110	Penicillins & their derivatives with a penicillanic acid structure salts thereof
294150	Erthromycin & its derivatives salts thereof
294190	Other antibiotics
294200	Other organic compounds
300490	Other medicine put up for retail sale

Annexure 4: Global Market Size of the Twenty Selected Products

HS code	Description	Global exports (Values, in billions USD) -1996-2009 (f.o.b.) – Avg.	% Share to Ch 29 (exports)	Global imports (Values, in billions USD) -1996-2009 (c.i.f.) – Avg.	% Share to Ch 29 (imports)
293390	heterocyclic comp's wt. nitrogen hetero-atoms	204.5	6.4	247.9	7.1
293490	Nucleic acids and their salts	186.9	5.8	201.5	5.8
293339	Compounds containing an unfused pyr	96.7	3.0	102.6	3.0
294190	Antibiotics excl. Penicillins. & their derivatives	89.2	2.8	93.5	2.7
293359	Compounds containing a pyrimidine r	76.0	2.4	95.8	2.8
293090	Organo-sulphur compounds	57.6	1.8	59.7	1.7
293100	Other organo-inorganic compounds.	57.1	1.8	62.9	1.8
292429	Cyclic amides (including cyclic car	50.1	1.6	54.8	1.6
293799	Other hormones and their derivative	46.2	1.4	54.0	1.6
292250	Amino-alcohol-phenols, amino-acid-p	36.6	1.1	36.1	1.0
292690	Nitrile-function compounds	22.2	0.7	22.1	0.6
294110	Penicillins and their derivatives w	20.9	0.7	22.0	0.6
294200	Other organic compounds.	22.2	0.7	11.6	0.3
291890	Carboxylic acids wh. Add. Oxy. function	14.5	0.5	18.6	0.5
294150	Erythromycin and its derivatives; s	16.3	0.5	14.8	0.4
292090	Esters of other inorganic acids	11.0	0.3	11.4	0.3
290219	Cyclanes, cyclenes and cycloterpene	6.5	0.2	5.5	0.2
291814	Citric Acids	7.6	0.2	11.6	0.3
292221	Amino hydroxy naphthalene sulphonic. acids	1.9	0.1	1.5	0.0
292229	Amino-naphthols and other amino-phe	4.7	0.1	4.8	0.1
Sub-total of 20 products/Share in Ch.29		**1028.7**	**32.0**	**1132.7**	**32.4**
Chapter 29 Total		**3,211.3**	**100.0**	**3469.3**	**100.0**

Source: COMTRADE WITS online database.