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PRESS RELEASE

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THE POLYURETHANE INDUSTRY IN CHINA 2005

A new, single-volume study which updates and expands upon the information included in IAL Consultants' previous Chinese study in 2002 has recently been published. The information contained within this report is based upon an extensive programme of interviews throughout the industry. The report contains both PU products production and raw materials consumption figures for the year 2004 and forecasts to 2009

Chinese production of polyurethane has grown from 7,000 tonnes in 1982 to almost 2.68 million tonnes in 2004, representing nearly 25% of global production. By 2009 this figures is forecast to be just under four million tonnes.

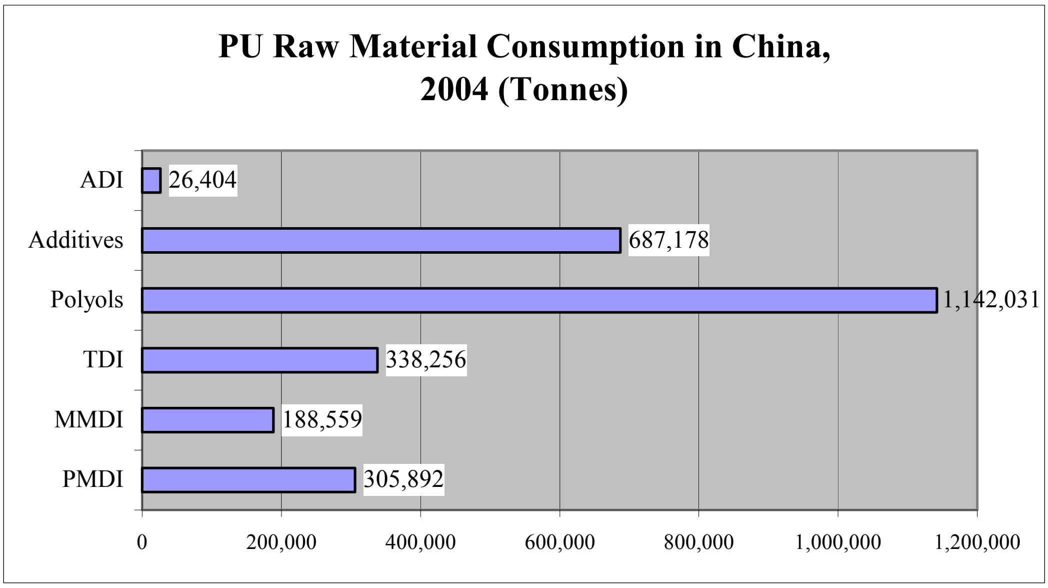
Of the six regions considered, the polyurethane industries are strongest in Southern Middle, Eastern and Northern China, reflecting the patterns of international and local industrial development. Production in each of the six regions is as follows:

Regional Polyurethane Production and Growth in China, 2004-9 (Tonnes and %)

Region	PU Production (Tonnes)	AAGR (%) 2004-9
Northern China	257,050	8.1
Northeastern China	87,840	5.8
Eastern China	1,336,670	8.0
Southern Middle China	909,890	8.0
Southwest China	66,960	4.1
Northwest China	29,910	3.3
Total	**2,688,320**	**7.8**

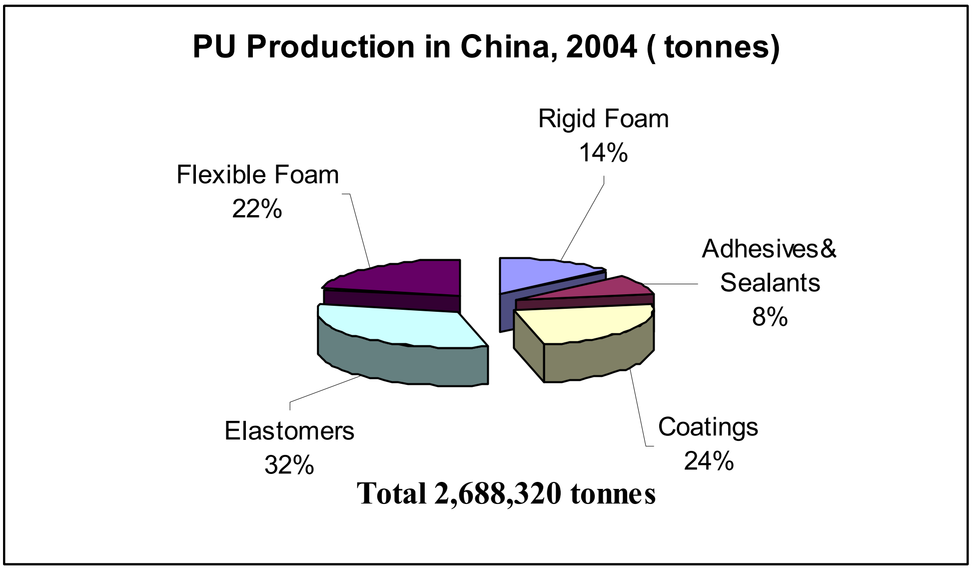
Source: IAL Consultants

The demand for raw materials is broken down as follows:



Source: IAL Consultants

The total production of polyurethane can be broken down by major product type as follows:



Source: IAL Consultants

Despite double digit growth rates being reported by many producers and raw materials suppliers, several factors may come into effect that with reduce growth to a more conservative annual rate of 7-8%. During 2004-2009 growth in polyurethane production may be restricted due to a number of factors:

Lack of raw materials: MDI, aniline, polyols, PO

The current global supply/demand situation for MDI is more or less in balance. However, industry estimates suggest that if demand continues to grow at the current rate, one new 240,000 tpa plant will be needed every year. New MDI capacity is not expected to come onstream in China until end of 2005 at the earliest, from Yantai Wanhua's new plant. Additional capacity announced in Europe and the USA is not expected to ease the supply situation here. Shell's new PO capacity should be onstream by end of 2005 but if global demand continues to grow at its current rate a new PO plant will be needed within five years. Some investment in TDI is expected by Chinese manufacturers alongside BASF's new plant in Caojing. Recent announcements by BMS to build up to 350,000tpa of MDI capacity by 2009 will significantly change the market dynamics.

Rising fuel prices and limited availability of power supplies in some areas

Many manufacturers are experiencing production difficulties due to power shortages, this is expected to continue as the Chinese government struggles to generate sufficient power to meet surging demand. Until sufficient power can be supplied, many manufacturers will continue to operate at low rates of efficiency.

Improvements in efficiency

The highly fragmented structure of the Chinese polyurethane industry makes for a largely inefficient industry. Lack of power, technical knowledge, latest equipment, and high wastage levels all lead to an inefficient production base. In the coming years, the effect of consolidation, improved technical knowledge and increased scale of production capacities, along with the use of bulk material supplies, continuous production processes and more efficient logistics, is expected to slow the growth in demand for key raw materials by several percentage points.

Competition from other materials

Many shoe sole manufacturers are switching production to synthetic leather resin as it uses less MMDI per tonne of resin. The main producers of shoe sole resin are expected to produce less resin than in 2003 because of the high prices of MMDI and have reported losing some business to competitive materials such as TPR and EVA. The footwear industry is expected to return to PU once more "normal" market conditions return. The current shoe designs requiring lightweight, thin soles, has helped to maintain the position of PU as an important soling material.

PU shoe sole resin prices have risen from 13,000 RMB/t to 20,000 RMB/t between Jan-Sept 2004. Prices for EVA have risen from 8,000 to 17,000 during Jan-Sept 2004, whilst TPR prices have risen from 7,000 to 11,500 Jan-Sept 2004. Therefore some shoe sole companies have shifted to EVA and TPR however, EVA is harder to process than TPR.

Economic recession in export markets

Production is driven by the domestic demand for footwear as well as exports to the USA. Despite the economic downturn, footwear manufacturers are optimistic about the future due to the huge domestic market.

Chinese footwear production has grown continuously and now exceeds 6 billion pairs per year, accounting for 42.5% of the world's total. The annual average growth rate has been 2% per year, more than three times the global average.

China is the largest shoe producer in the world and nearly 60% of its output is exported. The Chinese footwear industry is therefore vulnerable to downturns in the global economy on the one hand and protective trade policies adopted by foreign countries on the other hand. The European Union implemented the Prior Import Licensing and Inspection Mechanism in early 2005, which will have a negative impact on Chinese shoe exports

However, many domestic drivers are expected to maintain the rising demand for polyurethane:

- Higher levels of disposable income and a better standard of living have combined to increase the demand for furniture and interior decoration in the wider sense. In the large cities, the consumption of medium to high-grade furniture or imported furniture has risen in tandem with the increasing population of middle-class inhabitants, who now account for 70% of the urban population.
- Greater market freedom and an increase in Chinese travel has sparked off a booming tourism industry over the last two years, with the majority of hotels refurbishing both décor and furniture throughout. Current estimates suggest that about 2,000 hotels with over 300,000 rooms still need to be renovated or refurbished. A total of RMB 10 billion will be spent on the hotel renovation and decoration, of which RMB 1 billion (10%) will be spent on furniture replacement.
- Growth in the service and real estate sectors has led to a boom in office construction. Thousands of office and public buildings are completed every year, generating a huge demand for office furniture; the modernisation of older offices also creates a substantial replacement furniture market, making medium-to-high grade office armchairs, sofas and other furniture popular. It is estimated that about 25% of furniture sales take the form of office furniture. Furniture sales for newly-built factories, office buildings, hotels, schools and stores total about RMB 30 billion annually.
- On the domestic front, a marriage boom has been apparent since 1998, there having been more than 20 million couples married since then. Consequently, about 10 million new family homes require furnishing.
- The rapid growth of the automotive industry - especially car production - has helped increase the production of polyurethane in 2004. The continuous reduction of car prices and availability of more car models produced locally

stimulated private purchases. Global OEM automotive manufacturers continue to invest in China.

- The Chinese refrigerator and freezer industry grew rapidly in 2004 with continued strong growth in demand in both domestic and export markets. Production of domestic fridge-freezers and commercial fridge-freezers (including commercial refrigerators, commercial freezers, and showcases) was 28 million units and 6.2 million units, up 31% and 22.4% over 2003 respectively.
- The production of polyurethane adhesives has been growing rapidly for the past few years with increasing demand from flexible packaging, footwear, automotives, general assembling, etc. Footwear is the largest market for polyurethane adhesives, followed by packaging and general assembly.
- The Chinese coating industry has experienced dramatic growth during 2003 and 2004 with the continuing boom in the construction and automotive industries. The output of the major coating manufacturers with annual turnover over RMB 5 million had reached 2.98 million tonnes in 2004, up 23.5% over 2003. Polyurethane coatings account for about 20% of the total production of coatings.

Flexible Foam Continues to Grow at Record Levels

Despite the shortage of raw materials, Chinese production of flexible polyurethane foam continued to grow in 2004 with strong demand from the furniture, bedding, automotive, health care, consumer goods and toy industries. Also production of viscoelastic foam increased rapidly in 2004 in response to growing export sales to Japan and the USA.

Chinese PU Flexible Slabstock Production, 2004-2009 (Tonnes)

Flexible Slabstock	2004	2009	Growth Rate p.a. (%)
Polyether	426,600	689,950	10.1
HR/CMHR	28,600	55,100	14.0
Viscoelastic	23,000	54,900	19.0
Polyester	6,500	22,300	28.0
Total	**484,700**	**822,250**	**11.1**

Source: IAL Consultants

Construction Drives the Production of Rigid Foam

Total Chinese production of rigid polyurethane foam in 2004 was estimated at 376,540 tonnes, of which the bulk is used for thermal insulation in the construction and refrigeration industries. Despite overcapacity and near market saturation in the domestic refrigeration markets of Eastern China, the demand for rigid polyurethane foam as a thermal insulation material continues to grow, as a result of construction techniques improving.

Total Production of Polyurethane Rigid Foam in China by Product Type, 2004 (Tonnes)

End-use Market	Total
Panels - continuous	40,600
Panels - discontinuous	4,950
Slabstock	9,390
Sprayed foam	65,720
Refrigeration - domestic	162,350
Refrigeration - commercial	17,820
Total Refrigeration	**180,170**
Aerosol gap filling (OCF)	31,590
Moulded rigid foam	4,010
Pipe-in-pipe insulation	11,880
Other - non specific	28,230
Total Rigid Foam	**376,540**

Source: IAL Consultants

Construction of new homes, public buildings, commercial developments, industrial developments, new roads and railways are the main market drivers behind the growth in the production of rigid foam. There is also a growing demand for polyurethane products in the renovation of old buildings.

Total Production of PU Rigid Foam in China by End-use Application, 2004 (Tonnes)

End-use Application	Production
Construction	168,140
Refrigeration	180,170
Other Applications	28,230
Total	**376,540**

Source: IAL Consultants

This single volume report comprises of more than 300 pages and more than 200 tables of data. The data includes raw material consumption by product type, by region and by major end use industry, supported with industry data on production volumes by major manufacturer. More than 35 Chinese producers are listed in the report, 150 flexible foamers, 200 rigid foamers, 50 adhesive & sealant manufacturers, 150 coating manufacturers and 110 manufacturers of elastomers.

Profiles of 10 leading flexible foamers are included, namely Sinomax, Luen Tai, Chiaofu, Inoac, Xinyuan, Xingyue, Chengdu Jinjiang, Yangquan Foam, Chengchan Xuyuang and TS Tech.

The report is available for € 5,950 (five-thousand, nine-hundred-and-fifty euros) from IAL Consultants.

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