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PRESS RELEASE

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POLYURETHANE CHEMICALS AND PRODUCTS IN ASIA PACIFIC (APAC) 2023

IAL Consultants is pleased to announce the recent publication of its report on the markets for Polyurethane Chemicals and Products in Asia Pacific.

This new study updates and expands upon the information included in our previous study published in 2022. The information contained within this report is based upon an extensive programme of interviews throughout the industry. The report contains both PU product production and raw material consumption figures, with 2022 as the base year and market forecasts provided to 2027.

The data is also available in a database format for subscribers, enabling the manipulation and output of data.

Summary

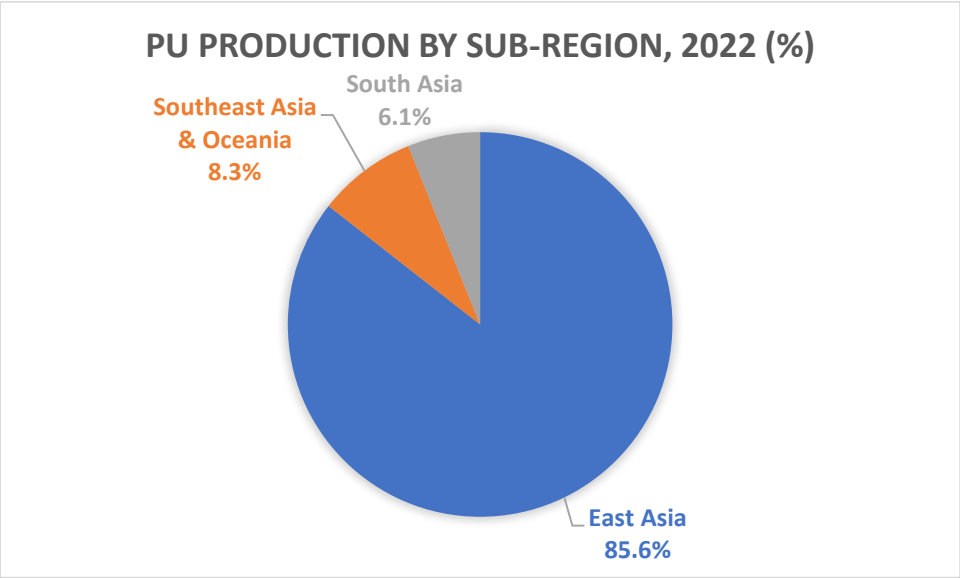
The total production of polyurethane products in the Asia-Pacific region was 12.7 million tonnes in 2022. The COVID-19 pandemic had meant that production declined by 2.8% in 2020, and while it was up by 1.8% in 2021 it actually showed a decline of 5.2% in 2022. This decrease was due to the poor performance of the Chinese PU industry – since China accounts for such a large share of polyurethane output in Asia, any decline there tends to be reflected across the overall market.

A CAGR of around 4% is expected over the next five years, with the fastest growth in India and Indonesia, and the slowest in mature markets such as Japan and Taiwan.

Elastomers represented the largest product group in 2022, accounting for 37% of the total APAC polyurethane output; this is due to the importance of the synthetic leather, footwear and spandex industries in the region. Elastomers were followed by flexible foam at 21% and rigid foam at 19%; the production of PU adhesives and sealants is relatively small, and the sector of PU binders is negligible. Coatings output is sizeable.

Due to the difficult situation in China, all segments saw a decline in output in 2022 with the exception of adhesives and sealants. Coatings, elastomers and rigid foam all registered a decrease above 5% for the year. China's dogged pursual of its zero-COVID policy, coupled with international trade disputes, strict environmental controls and curbs on the real estate sector, all served to dampen polyurethane production. In rigid foam construction applications, PU is often being substituted with alternates such as mineral wool board. In addition, the production of key items such as furniture and refrigerators declined in China in 2022.

Despite the problems in China, the country still represented over 75% of polyurethane output in 2022, although this figure has been falling slightly year on year. India, South Korea and Japan come in second, third and fourth, respectively, with India just surpassing South Korea's production quantity for the first time. As previously mentioned, there was a drop in output in China in 2022 (-8%) and also in Taiwan and Japan. Taiwan's fortunes are inextricably linked with those of China, and Japan is a mature market.



The APAC consumption of MDI and TDI was 2.98 million tonnes and 932,000 tonnes, respectively, in 2022. This represents an annual change of -3.1% for MMDI, -4.7% for PMDI, and -4.8% for TDI compared to 2021.

Flexible Foam

The APAC region produced 2.62 million tonnes of flexible polyurethane foam in 2022, representing a year-on-year decrease of 2.1% to bring production lower than pre-pandemic levels. This followed growth in production of 4.8% in 2021.

The largest producer is China, accounting for 60% of regional flexible foam output. India is the second largest producer, with 12%, and the remainder of the industry is quite fragmented. China, Japan, Taiwan and Sri Lanka were the only countries to exhibit negative growth in 2022, with the largest decline seen in Sri Lanka. There was notable growth in Australia and Indonesia.

The main product category is conventional polyether slabstock, which has a wide range of applications and is relatively easily produced. Viscoelastic foam, HR foam and automotive seating foam are some of the other important groups. Product category performances were varied in 2022, with foams used in mattresses performing badly, especially viscoelastic foam, and foams used in automotive applications generally growing well. The highest increase in production was seen in automotive seating foam with a 5.3% increase, which was mainly due to the recovery of the automotive sector after poor performances from 2018-2020 and a modest initial recovery in 2021. Automotive applications should

continue to bounce back in the next few years as long as previous problems, namely chip shortages and supply chain issues, do not reoccur.

East Asia, particularly China, is where the majority of Asian slabstock foam is produced, along with large-scale manufacturing of footwear, furniture, bedding and vehicle OEM. In terms of volume and market share, production in Southeast Asia and South Asia has increased quickly in recent years. This is a result of the ongoing shift of furniture, bedding and footwear production to this region, as well as increased political stability, quick economic growth, and rising domestic consumption in many nations.

Rigid Foam

Most demand for PU rigid foam comes from refrigeration applications in Asia-Pacific, although there is also demand from the construction industry. Promotion of energy saving and efficiency for buildings continues to be the major driver for rigid PU foam in the region.

The APAC region produced approximately 2.44 million tonnes of rigid polyurethane foam in 2022, representing a decline of 5.7% year-on-year; this was a steeper decline than in 2021, as the Chinese market continued to favour other insulation materials, and Japan and Taiwan also struggled. China's ongoing pursual of its zero-COVID policy led to repercussions for various industries and dampened domestic demand.

China is the largest rigid foam producer, accounting for 74% of regional output in 2022. South Korea and India are the second and third largest, respectively.

Rigid foam manufacture was largely positive in South and Southeast Asia, with notable gains in Indonesia, the Philippines, India, Bangladesh and Vietnam. Thailand saw a surprising decline in rigid foam output in 2022, which was caused by a drop in refrigeration foam production amid low GDP growth and high inflation. There has also been some relocation of refrigerator manufacturing to Vietnam in recent years.

Elastomers

Synthetic polyurethane elastomers can be found in a wide variety of industries, including footwear, textiles, automotive, building and mining, aerospace, electronics, medical devices, sporting goods, and numerous general industries, thanks to their high performance. The footwear and textile industries in Asia-Pacific are the principal consumers of PU elastomers.

The Asia-Pacific region produced 4.7 million tonnes of polyurethane elastomers in 2022, representing a decline of 6.9% compared to the previous year. This was due to China's poor performance because the country struggled with repeated lockdowns in 2022 as the government tried to control the COVID-19 pandemic, which dented Chinese output and dampened consumer confidence. Furthermore, export orders fell amid trade tensions and competition from Southeast Asia. Elastomers continue to represent by far the largest product category (36.7% market share) for PU in the region, thanks to the importance of the synthetic leather, spandex and footwear industries.

China accounts for 85.7% of regional PU elastomer output; much of the remaining production is shared between South Korea, Vietnam, India and Taiwan, with the rest of the APAC countries being very small. China, Taiwan and Thailand were the only countries that exhibited decreases in production in 2022. The highest growth rates wereseen in Bangladesh and Vietnam.

Within PU elastomers, the largest category is synthetic leather with a share of around 45%; most of this production takes place in China. Due to environmental pressures, the Chinese synthetic leather industry has been forced to improve its processes; this has led to some consolidation.

Coatings

In the Asia-Pacific region, polyurethane coatings are mainly used in wood structures, furniture, construction, appliances, and in marine and automotive applications, in accordance with the production volumes of the main end-use industries. The wood and furniture market accounts for nearly 40% of the whole polyurethane coatings production, followed by architectural and roof, tank and deck coatings.

In 2022, the region produced approximately 1.93 million tonnes of polyurethane coatings, representing a decrease of 8.6% compared to the prior year; a return to moderate growth is expected in 2023.

The biggest challenges for the production of polyurethane coatings in APAC in 2022 were the poor situation in China, with ongoing pandemic-induced lockdowns as part of the government's zero-COVID policy, soaring energy prices amid the Russia-Ukraine crisis, and rising inflation, which served to curb consumer demand.

East Asia remains the main producer and consumer of polyurethane coatings in Asia Pacific, with China accounting for the lion's share of production.

The market in South and Southeast Asia remains underdeveloped, owing to the popularity of more traditional, cheaper paints and coatings, such as alkyd, nitrocellulose, acrylics or epoxy-based products. The lack of domestic raw material production is another problem in already price sensitive regions. High raw material prices have intensified this issue further, and future growth rates will heavily depend on price developments in the upcoming years.

Adhesives & Sealants

The Asia-Pacific region produced ~992,000 tonnes of polyurethane adhesives and sealants in 2022, representing an increase of 3.2% compared to 2021. Adhesives and sealants remained relatively resilient during the COVID-19 pandemic; therefore, pre-pandemic production levels were surpassed by 2021. Adhesives accounted for 86% of production in 2022. It was the only product segment to show growth in 2022.

Footwear and flexible packaging adhesives remained the two largest end-use sectors in 2022, followed by construction adhesives. The highest growth was seen in footwear adhesives, owing to strong growth in Vietnam and China after lacklustre recoveries in 2021, with both countries now exceeding pre-pandemic levels. There were also robust

performances from automotive adhesives and transport sealants due to the second consecutive year of growth for the automotive industry after poor development since 2019. Construction adhesives and sealants were the only two categories that showed declines, which was due to the poor performance of the Chinese new build construction market.

East Asia, mostly China and Japan, produces the majority of PU adhesives and sealants. This has been made possible by the robust production infrastructure, advanced technology, and the existence of sizable end-use markets for products, such as footwear, flexible packaging, construction and automobiles. China is the world's largest manufacturer of footwear, and Japan is the second largest manufacturer of flexible packaging behind the US. PUDs (polyurethane dispersions), which are used in most applications, are becoming increasingly more popular than solvent-based PU adhesives as the demand for water-based technology rises.

Only small volumes of PU adhesives and sealants are produced in Southeast Asia and South Asia. Since the local economy and technology are underdeveloped, exports from East Asia, Europe and the US dominate these markets.

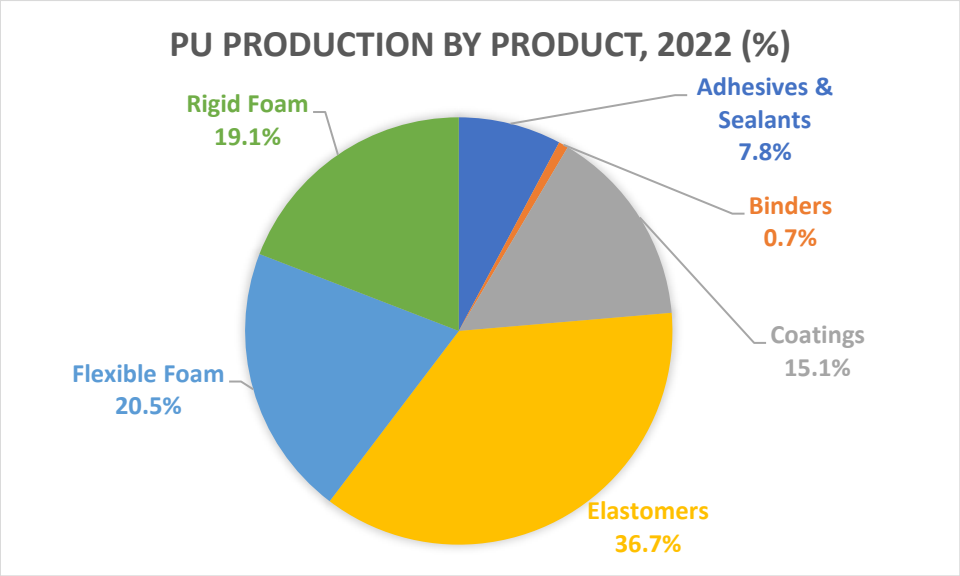
Binders

In Asia-Pacific, demand for polyurethane binders is still low compared to that of other PU-based products; these binders compete with less expensive furan and urea-formaldehyde binders and have a limited set of uses.

Total Asia-Pacific production of polyurethane binders was 94,000 tonnes in 2022, a decrease of 1.7% compared to the previous year. All countries exhibited growth in 2021 as the various industries recovered from the impact of the COVID-19 pandemic; however, the double-digit decline in China’s production significantly affected the overall performance of the region in 2022. The strongest development was seen in Taiwan, where production doubled due to explosive growth in rubber crumb binders. Forest product binders accounted for over 50% of production, with a further 30% in foundry core binders.

Due to the significant production of furniture and wood items (especially in China), cast metals, and the building of athletic tracks and sports fields, China, Japan and South Korea are three important markets for polyurethane binders. In contrast to most PU industries, Japan produces more PU binders than China.

The preference for competing materials, which also have the benefit of being less expensive, as well as the comparatively low demand from the end-use applications, have resulted in modest PU binder markets in South and Southeast Asia. Many of these countries' demand may very well be entirely met by imports. India and Malaysia produce small amounts, and Australia, Singapore, Taiwan and Thailand produce very little, too.



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The data in this eight-volume report include raw material consumption by product type, by region, by country and by major end-use industry. The Raw Materials volume contains comprehensive supply and demand data for all of the major polyurethane raw material types. The Major End-Use Markets volume contains an overview of the major markets for PU products and a summary of trends and drivers.

The report is available for the following prices:

	Price
Volume 1 - Raw Materials	**Only available with full report**
Volume 2 - Flexible Foam	**€5,100**
Volume 3 - Rigid Foam	**€5,100**
Volume 4 - Coatings	**€3,800**
Volume 5 - Adhesives & Sealants	**€2,700**
Volume 6 - Elastomers	**€3,800**
Volume 7 - Binders	**€1,500**
Volume 8 - Major End-Use Markets	**€5,100**
COMPLETE REPORT WITH DATABASE ACCESS (inc. Executive Summary)	**€17,500**

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