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PRESS RELEASE

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PU CHEMICALS AND PRODUCTS IN EUROPE, MIDDLE EAST & AFRICA (EMEA), 2004

IAL Consultants has recently published its sixth edition of its report on the markets for polyurethane chemicals and products in Europe, this time extending coverage to the Middle East and Africa.

This new study updates and expands upon the information included in our previous study in 2002. 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.

The report is presented in five volumes. The titles of all five volumes are:

Volume 1 - Raw Materials

Volume 2 - Foam Products
Section 1: Flexible Foam
Section 2: Rigid Foam

Volume 3 - Non-Foam Products
Section 1: Coatings
Section 2: Adhesives & Sealants
Section 3: Elastomers
Section 4: Binders

Volume 4 - End-use Markets

Volume 5 – Executive Summary

It should be noted that Volume 5, the Executive Summary, is only available to purchasers of the complete study.

Total production of polyurethane products is reported to have reached **4,522,945 tonnes** within the EMEA region during 2004. By 2009 this figures is forecast to be **5,488,411 tonnes.**

Of the three regions considered, the polyurethane industry remains the largest in Western Europe, but growth rates are strongest in the Middle East;

Total EMEA Production of All PU Products & Growth Rates by Region, 2004-2009 (Tonnes)

Country	2004 (Tonnes)	2009 (Tonnes)	2004-2009 (% Growth p.a.)
Western Europe	3,224,725	3,593,730	2.2
Eastern Europe	566,700	773,610	6.4
Middle East & Africa	731,520	1,121,070	8.9
Total Europe	**4,522,945**	**5,488,411**	**3.9**

Source: IAL Consultants

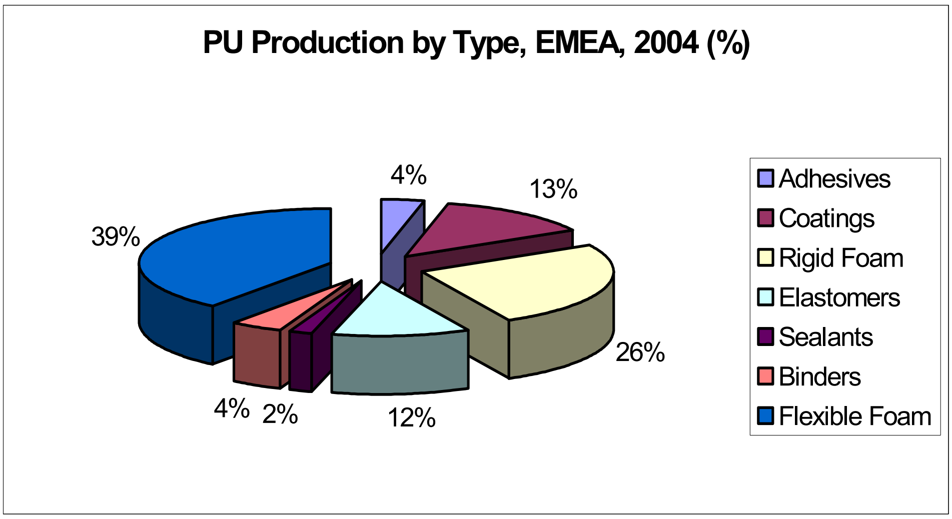
The demand for raw materials is broken down as follows:

EMEA Raw Material Consumption, by Product, 2004 (Tonnes)

Raw Material	Volume (Tonnes)
PMDI	1,020,190
MMDI	206,488
TDI	505,467
Specialty Isocyanates	62,718
Polyether Polyols	1,523,167
Graft Polyether Polyols	144,731
PTHF	32,412
Acrylic polyols	78,001
Polyester polyols	377,730
Additives inc water, solvents	572,041
Total	**4,522,945**

Source: IAL Consultants

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



Source: IAL Consultants

Raw Material Supply/Demand Balance

Supplies of MDI are expected to remain tight over the next five years, despite the recent increase in capacity. Demand is expected to rise due to continued growth from the global construction industry where polyurethane will continue to penetrate the insulation market; from increased production from the global appliance industry and from the continued substitution of TDI by MDI in automotive seating foams, 1-K coatings, rebond foam, and elastomers. In addition, improvements in living standards in Eastern Europe and Russia as well as explosive growth in demand for polyurethane products in the Middle East, will continue to drive demand.

Imports of MDI into Europe go mainly into Eastern Europe, especially the Russian Federation and CIS, this material is imported from plants in China and Korea. Import levels are expected to increase over the next few years as more production capacity comes on stream in China and supply remains tight in Europe, Middle East & Africa. Yantai Wanhua has already announced its intention to open a storage and distribution site in Northern Europe, from which it will supply PMDI.

Considerable volumes of MMDI continue to be exported to Asia for use in footwear systems, this is expected to continue due to the huge demand from the Chinese footwear industry, and the decline in demand from European shoe sole resin manufacturers. The decline in demand from the European footwear industry has led to a reduced price differential between MMDI and PMDI. The reduced price differential, combined with the shortage of PMDI is reported to have resulted in some product substitution for some periods during 2004.

Overall, demand for MDI is expected to grow by 3.2% per year averaged over the next 5 years.

Demand for TDI in EMEA region is expected to increase slightly over the next five years mainly due to increased production of flexible slabstock in Eastern Europe and the Middle East. Production of flexible slabstock is expected to grow in these regions as furniture manufacturers continue to relocate here in order to benefit from their growing domestic demand and the lower production costs.

Problems for producers currently include:

- How to recoup the price rises in toluene that have not been fully passed onto customers
- How to improve plant utilisation from 80-85% to nearer 90%
- How to supply the export markets in these countries, where material is largely supplied in drums. An estimated 30-40% of TDI is sold in drums.

The main factor influencing polyether polyol prices is the cost of its starting material, propylene oxide, and to a lesser extent propylene glycol, but ultimately the price of crude oil. Almost 70% of propylene oxide production is consumed by the manufacture of polyether polyols. The other main use for PO include the production of butanediol. The Lyondell share of the new PO plant in Rotterdam for start up in 2007 is to supply its butanediol plant at that site. Supply and availability of propylene oxide appears to be adequate in the short term with new capacity being brought on stream to meet future demand. In order to develop a profitable business in the

European polyols market, it is essential for producers to have a captive supply of PO. The new capacity that has come onstream has, in general, been accompanied by a similar increase in demand from downstream activities in the polyol and propylene glycol industries, so the overall supply and demand situation remains slightly in surplus, which will be exported, mainly in a derivative form.

Flexible Foam Continues to Grow

Total production of flexible polyurethane foam in 2004 was an estimated 1,782,100 tonnes, of which 1,397,200 tonnes was slabstock and 384,900 tonnes was moulded foam. The production of flexible slabstock remains dominated by polyether foams, standard, high resilience (HR) and combustion modified (CM) accounting for some 1,267,550 tonnes, whilst production of polyester slabstock amounted to 104,050 tonnes. The production of flexible foams uses more than of 86% of all TDI consumed in the region.

The product exhibiting the most growth in 2004 was viscoelastic foam, principally used by the bedding industry. Although total production is small at 25,500 tonnes, the industry forecasts this to be a high growth product in future years.

Overall, growth in the flexible foam market is forecast to remain positive at around 6.4% per year for slabstock, depending upon the demand for furniture and bedding, and 3.3% per year for the next 2-3 years for moulded foam products although much depends upon the volume of polyurethane foam consumed in the automotive sector. The effect of recent raw material price rises, increased market penetration by furniture imports from Asia and a general slowdown in demand from consumer markets in Western Europe, make future production volumes difficult to forecast.

Construction Industry Drives Demand for Rigid Foam

The total EMEA production of rigid polyurethane foam in 2004 is estimated to be 1,160,600 tonnes, of which the bulk is used for thermal insulation in the construction and refrigeration industries in the form of panel, boards and in-situ foam. Although the Western European market for domestic refrigerators and freezers is mature, demand for rigid foam continues to grow here as consumer preference for American style larder fridges grows. Production of refrigerators and freezers in Eastern Europe is growing as more global manufacturers establish plants in the region. The benefit of polyurethane insulation in HVAC installations has also spurred on demand in the Middle East. Across the region overall, the demand for rigid foam thermal insulation products is expected to continue to grow in response to environmental concerns over global warming and legislation regarding energy efficiency. Demand for rigid PU foam has increased by 8-10% in parts of the Middle East and Eastern Europe in the past 2 –3 years; this has been reflected in the growth in demand for MDI.

Polyurethane Production by End Use Industry

The demand for polyurethane continues to be dominated by its use the production of furniture and bedding, whilst the demand for rigid foam in the construction industry is catching up fast. Polyurethane materials are mainly used in the forma of rigid foam as an insulation material, but also as adhesives, sealant and as a binder in wood products such as MDF and other types of fibreboard. Rigid foam insulation used by the appliance industry is also exhibiting growth in the emerging markets of Eastern Europe, where demand is strong and production costs comparatively low. The use of polyurethane resins in the footwear industry continues to decline in Western Europe, but is experiencing good growth in much of the Middle East.

Polyurethane Demand By End Use Market, 2004 (Tonnes)

End Use Markets	Demand (Tonnes)
Automotive	508,490
Refrigeration	400,800
Furniture & Bedding	962,750
Footwear	230,000
Construction	747,320

Source: IAL Consultants

This single volume report comprises of more than 1,100 pages and more than 800 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 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 leading flexible foamers and raw materials manufacturers are also included.

The report is available for the following prices:

Volume 1 - Raw Materials	**€3,000.00**
Volume 2 - Foam Products	**€5,000.00**
Volume 3 - Non-foam Products	**€5,000.00**
Volume 4 - Major End-Use Markets	**€3,000.00**
Volume 5 - Executive Summary	
THE COMPLETE REPORT	**€12,500.00**

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