Toluene Diisocyanate Market Assessment, By Application [Flexible Foams, Rigid Foams, Coatings, Elastomers, Adhesives and Sealants, Others], By End-user Industry [Building and Construction, Furniture and Bedding, Electronics and Appliances, Automotive, Footwear, Others], By Region, Opportunities and Forecast, 2018-2032F

Market Report | 2025-02-19 | 222 pages | Market Xcel - Markets and Data

AVAILABLE LICENSES:

- Single User License $4500.00
- Muti-User/Corporate Licence $5700.00
- Custom Research License $8200.00

Report description:

Global toluene diisocyante market is projected to witness a CAGR of 4.83% during the forecast period 2025-2032, growing from USD 5.05 billion in 2024 to USD 7.36 billion in 2032. The market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years.

Toluene diisocyanate (TDI) is an essential chemical intermediate mainly used to formulate polyurethane-based products. TDI is a liquid from pale yellow to colorless; it has a strong penetrating smell and is made by hydrogenation of toluene, which is obtained from the petrochemical feedstock. Toluene diisocyanate (TDI) which is a group called isocyanates due to their high reactivity level, makes it a prominent monomer used in the flexible and rigid foam, coatings, sealants, adhesives, and elastomers.

The main applications of TDI are in flexible polyurethane foams, widely used for furniture, bedding, and seats in the automotive industry. It is also used for rigid foams as insulating materials, coatings for durability purposes, and bonding as adhesives in industries.

Construction, automotive, and electronics are among the leading consumers of TDI due to the resilience and adaptability of polyurethane-based products. More recently, there is an increased demand for the adoption of eco-friendly and sustainable production as influenced by the environmental rules around the world.

Asia-Pacific leads with swift industrialization and urbanization while North America and Europe are major contributors. The TDI market is also evolving with innovations in manufacturing processes and expanding applications into emerging sectors. In 2023, Wanhua Chemicals, Covestro, BASF, and Dow are the leading players contributing more than 50% of the total market share.

Rising Demand for Polyurethane in Key Industries Drives the Growth of the Toluene Diisocyanate (TDI) Market

Global toluene diisocyanate (TDI) market is motivated by the increasing demand for polyurethane (PU) in the furniture,

construction, and automotive industries. As a major precursor in flexible PU foam production, TDI is widely used in mattresses, cushions, and seating systems. Increasing demands for lightweight, durable, and energy-efficient materials in automotive and building insulation have further driven the growth of TDI. The increasing trends in e-commerce have boosted the demand for protective packaging where PU foam has an important contribution to make towards the consumption of TDI.

Advances in the technology and innovations of the manufacturing process have made the process cost-effective and improved product quality, hence increasing demand for TDI. Government initiatives supporting energy-efficient construction materials along with growing urbanization are the reason for this market growth.

In April 2024, Mitsui Chemicals, Inc. announced it would optimize the production capacity of the TDI plant at Omuta Works by July 2025. The company will cut output from 120,000 tons per year to 50,000 tons annually, in line with global supply-demand dynamics. This will keep domestic TDI supply while diversifying the focus of the plant towards high-performance products such as ophthalmic lenses and agrochemical materials.

Advancing Sustainability and Circular Economy to Drive the Toluene Diisocyanate (TDI) Market

The TDI market is growing at a significant rate, driven by the increasing demand for environmentally friendly solutions in polyurethane (PU) manufacturing and a trend toward greater sustainability in key production industries such as construction, automotive, and furniture. TDI is a critical ingredient in PU foams and is extensively used in applications like insulation, seat systems, and mattresses, with an emphasis on energy-saving and lightweight materials.

Governments worldwide impose stricter environmental regulations and carbon reduction targets, compelling manufacturers to adopt sustainable practices and raw materials. This trend is promoting the use of circular and recycled feedstocks, which can be utilized to produce low-emission TDI and PU products. Technological advances in chemical recycling and bio-based alternatives are further enhancing market potential by reducing dependency on fossil-based resources.

Circular economic principles are reshaping the competitive landscape as major players increasingly seek partnerships and innovations to make their supply chains more sustainable. There is a growing demand for ISCC PLUS certified circular chemicals as companies strive to align themselves with global sustainability goals, which also help reduce Scope 3 emissions and address environmental concerns.

In January 2024, Covestro signed a long-term supply agreement with Encina, a US-based producer of ISCC PLUS-certified circular chemicals, to supply chemically recycled benzene and toluene. These materials will start to support the sustainable production of TDI, MDI, and polycarbonate from 2027 onwards. The partnership underlines Covestro's ambition to advance the circular economy and reduce carbon footprints, further enhancing its leadership in sustainable polymer innovation.

In December 2023, the investment in the modernization of Covestro's TDI production facility in Dormagen, Europe, is a good example. Advanced technologies such as the gas-phase process are leveraged to enhance sustainability and energy efficiency.

Dominance of Flexible Foams Application in the Market

Flexible foams dominate the toluene diisocyanate (TDI) market, particularly due to their wide range of applications in the furniture, bedding, and automotive industries. As an integral component of polyurethane (PU) foams, TDI ensures the production of lightweight, strong, and versatile materials that meet the increasing demands for comfort and energy efficiency. Flexible foams are extensively used in mattresses, cushions, and seating systems, all of which contribute to modern living standards.

In the bedding industry, consumers are increasingly favoring high-quality sustainable sleep solutions. Consequently, manufacturers are focusing on innovations in foam production that incorporate renewable feedstocks and environmentally friendly processes. Sustainability trends, coupled with government regulations, also drive the adoption of bio-based and recyclable materials to ensure environmental compliance and support market growth.

In September 2024, BASF and Future Foam announced the first commercial production of flexible foam for bedding using 100 percent domestically produced Biomass Balance (BMB) Lupranate T 80 TDI. The achievement marks a new milestone in increasing sustainability in foam production, aligning with the commitment both companies have made to promote eco-friendly solutions in bedding.

Asia-Pacific to Witness Highest Growth Rate in Toluene Diisocyanate Market

Asia-Pacific is expected to experience the highest growth rate in the toluene diisocyanate market due to increasing investments in advanced manufacturing technologies and infrastructure projects. Countries such as China, India, and Southeast Asia are witnessing surging demand for flexible polyurethane (PU) foams, used extensively in bedding, furniture, and automotive

industries. The region is rapidly urbanizing and industrializing, and it is populated by a growing middle class who demand quality mattresses, high-quality insulation materials, and lighter automotive components.
Asia-Pacific has a competitive advantage in its low-cost manufacturing environment, with ample raw materials; it has been a desirable hub for global TDI producers. Technological innovations in the production process further support the region's capabilities to meet global sustainability and energy-efficiency standards. Manufacturers are increasingly adopting energy-efficient and environmentally friendly technologies to be more aligned with global trends towards sustainability.
In April 2023, Wanhua Chemical (Fujian) site started production of TDI with an annual capacity of 250 thousand tons based on advanced and environmentally friendly technologies to meet the ongoing demand in Asia-Pacific.
Future Market Scenario (2025 - 2032F)
- The automotive industry will drive demand for lightweight PU foams, while the need for energy-efficient insulation materials in the construction sector will further drive growth.
- Manufacturers are adopting bio-based and recycled raw materials, mainly because of government regulations and increased demand for low-emission and environmentally friendly products.
- Advanced technologies like gas-phase processes and energy-efficient reactors are expected to enhance the production capacity of toluene diisocyanate with reduced costs and energy consumption.
- Strategic partnerships for sustainable raw materials, as well as digitalization in manufacturing, will determine process efficiency and innovation. Such approaches will make the manufacturers respond to market trends while facing environmental and operational challenges.
Key Players Landscape and Outlook
Global toluene diisocyanate market is highly competitive, and players compete over the expansion of capacity, technology innovation, and sustainability for sustainable shares. Among them, BASF SE, Covestro, and Wanhua Chemical are major players that have been actively upgrading the manufacturing capacity and investing in more sophisticated technologies to keep pace with the increased demand for PU products. Manufacturers largely base their production on sustainability initiatives such as the use of feedstocks from biomass and recycling technologies to cope with the strict environmental regulations and consumer preferences. The prospects in the toluene diisocyanate market are extremely promising with increasing applications in the automotive, construction, and bedding industries.
For Instance, in April 2024, Wanhua Chemical announced the Phase II Expansion Project for TDI, which will have a capacity of 360,000 tons per year. In Phase I, the production capacity was increased from 250,000 tons per year to 360,000 tons per year. Following the incorporation of Phase I & II, the overall capacity will rise by an additional 470,000 tons, bringing the total TDI production capacity to 1.42 million tons per year. This development will help the company maintain its leading position in the TDI market.

Table of Contents:

1. Project Scope and Definitions
2. Research Methodology
3. Executive Summary
4. Voice of Customer
4.1. Respondent Demographics
4.2. Factors Considered in Purchase Decisions
4.2.1. Quality and Reliability
4.2.2. Cost-effectiveness
4.2.3. Product Performance
4.2.4. Price
5. Global Toluene Diisocyanate Market Outlook, 2018-2032F
5.1. Market Size Analysis & Forecast
5.1.1. By Value
5.1.2. By Volume

5.2.Market Share Analysis & Forecast
5.2.1.By Application
5.2.1.1.Flexible Foams
5.2.1.2.Rigid Foams
5.2.1.3.Coatings
5.2.1.4.Elastomers
5.2.1.5.Adhesives and Sealants
5.2.1.6.Others
5.2.2.By End-user Industry
5.2.2.1.Building and Construction
5.2.2.2.Furniture and Bedding
5.2.2.3.Electronics and Appliances
5.2.2.4.Automotive
5.2.2.5.Footwear
5.2.2.6.Others
5.2.3.By Region
5.2.3.1.North America
5.2.3.2.Europe
5.2.3.3.Asia-Pacific
5.2.3.4.South America
5.2.3.5.Middle East and Africa
5.2.4.By Company Market Share Analysis (Top 5 Companies and Others - By Value, 2024)
5.3.Market Map Analysis, 2024
5.3.1.By Application
5.3.2.By End-user Industry
5.3.3.By Region
6.North America Toluene Diisocyanate Market Outlook, 2018-2032F*
6.1.Market Size Analysis & Forecast
6.1.1.By Value
6.1.2.By Volume
6.2.Market Share Analysis & Forecast
6.2.1.By Application
6.2.1.1.Flexible Foams
6.2.1.2.Rigid Foams
6.2.1.3.Coatings
6.2.1.4.Elastomers
6.2.1.5.Adhesives and Sealants
6.2.1.6.Others
6.2.2.By End-user Industry
6.2.2.1.Building and Construction
6.2.2.2.Furniture and Bedding
6.2.2.3.Electronics and Appliances
6.2.2.4.Automotive
6.2.2.5.Footwear
6.2.2.6.Others
6.2.3.By Country Share
6.2.3.1.United States

6.2.3.2.Canada
6.2.3.3.Mexico
6.3.Country Market Assessment
6.3.1.United States Toluene Diisocyanate Market Outlook, 2018-2032F*
6.3.1.1.Market Size Analysis & Forecast
6.3.1.1.1.By Value
6.3.1.1.2.By Volume
6.3.1.2.Market Share Analysis & Forecast
6.3.1.2.1.By Application
6.3.1.2.1.1.Flexible Foams
6.3.1.2.1.2.Rigid Foams
6.3.1.2.1.3.Coatings
6.3.1.2.1.4.Elastomers
6.3.1.2.1.5.Adhesives and Sealants
6.3.1.2.1.6.Others
6.3.1.2.2.By End-user Industry
6.3.1.2.2.1.Building and Construction
6.3.1.2.2.2.Furniture and Bedding
6.3.1.2.2.3.Electronics and Appliances
6.3.1.2.2.4.Automotive
6.3.1.2.2.5.Footwear
6.3.1.2.2.6.Others
6.3.2.Canada
6.3.3.Mexico
*All segments will be provided for all regions and countries covered
7.Europe Toluene Diisocyanate Market Outlook, 2018-2032F
7.1.Germany
7.2.France
7.3.Italy
7.4.United Kingdom
7.5.Russia
7.6.Netherlands
7.7.Spain
7.8.Turkey
7.9.Poland
8.Asia-Pacific Toluene Diisocyanate Market Outlook, 2018-2032F
8.1.India
8.2.China
8.3.Japan
8.4.Australia
8.5.Vietnam
8.6.South Korea
8.7.Indonesia
8.8.Philippines
9.South America Toluene Diisocyanate Market Outlook, 2018-2032F
9.1.Brazil
9.2.Argentina

10.Middle East and Africa Toluene Diisocyanate Market Outlook, 2018-2032F
10.1.Saudi Arabia
10.2.UAE
10.3.South Africa
11.Porter's Five Forces Analysis
12.PESTLE Analysis
13.Market Dynamics
13.1.Market Drivers
13.2.Market Challenges
14.Market Trends and Developments
15.Case Studies
16.Competitive Landscape
16.1.Competition Matrix of Top 5 Market Leaders
16.2.SWOT Analysis for Top 5 Players
16.3.Key Players Landscape for Top 10 Market Players
16.3.1.Covestro AG
16.3.1.1.Company Details
16.3.1.2.Key Management Personnel
16.3.1.3.Products and Services
16.3.1.4.Financials (As Reported)
16.3.1.5.Key Market Focus and Geographical Presence
16.3.1.6.Recent Developments/Collaborations/Partnerships/Mergers and Acquisition
16.3.2.Tosoh Asia Pte. Ltd.
16.3.3.BASF SE
16.3.4.Dow Inc.
16.3.5.Sadara Chemical Company
16.3.6.Mitsui Chemicals, Inc.
16.3.7.Wanhua Chemical Group Co., Ltd
16.3.8.Cangzhou Dahua Group Co. Ltd
16.3.9.Gujarat Narmada Valley Fertilizers & Chemicals Limited
16.3.10.Hanwha Corporation
*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.
17.Strategic Recommendations
18.About Us and Disclaimer

Toluene Diisocyanate Market Assessment, By Application [Flexible Foams, Rigid Foams, Coatings, Elastomers, Adhesives and Sealants, Others], By End-user Industry [Building and Construction, Furniture and Bedding, Electronics and Appliances, Automotive, Footwear, Others], By Region, Opportunities and Forecast, 2018-2032F

Market Report | 2025-02-19 | 222 pages | Market Xcel - Markets and Data

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$4500.00
	Muti-User/Corporate Licence	$5700.00
	Custom Research License	$8200.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	

Date	2025-05-06
Signature	