



Toluene Diisocyanate (TDI)

Product Description

Toluene Diisocyanate (TDI) is an aromatic diisocyanate widely used as a key raw material in the production of polyurethane products. It is mainly applied in flexible polyurethane foams, adhesives, coatings, sealants, elastomers, and automotive components, offering excellent reactivity and consistent processing performance.

Product Information

Property	Value
Product Name	Toluene Diisocyanate
Abbreviation	TDI
Chemical Family	Aromatic Diisocyanate
Molecular Formula	$C_9H_8N_2O_2$
Molecular Weight	174.16 g/mol
CAS No.	26471-62-5 (TDI Mixture)
EC No.	247-722-4
HS Code	2929.10
UN Number	UN 2078
Appearance	Clear, Colorless to Pale Yellow Liquid
Odor	Sharp Characteristic Odor
Solubility	Reacts with Water
Shelf Life	6 Months
Country of Origin	Turkey / China / South Korea (Upon Request)

Available Grades

Grade	Isomer Ratio	Main Application
TDI 80/20	80% 2,4-TDI / 20% 2,6-TDI	Flexible PU Foam
TDI 65/35	65% 2,4-TDI / 35% 2,6-TDI	Specialty Flexible Foam
2,4-TDI	≥99% 2,4 Isomer	Elastomers, Coatings
2,6-TDI	≥99% 2,6 Isomer	Specialty Applications



Technical Specifications

Test Item	Unit	TDI 80/20	TDI 65/35	Pure 2,4-TDI	Test Method
Appearance	-	Clear Liquid	Clear Liquid	Clear Liquid	Visual
Purity	wt. %	≥99.5	≥99.5	≥99.5	GC
2,4-Isomer	wt. %	79.5–80.5	64.5–65.5	≥99.0	GC
2,6-Isomer	wt. %	19.5–20.5	34.5–35.5	≤1.0	GC
NCO Content	wt. %	48.0 ±0.2	48.0 ±0.2	48.2 ±0.2	ASTM D5155
Acidity (as HCl)	ppm	≤80	≤80	≤80	ASTM D4662
Hydrolyzable Chlorine	ppm	≤100	≤100	≤100	ASTM D4663
Total Chlorine	ppm	≤200	≤200	≤200	ASTM D4663
Moisture Content	wt. %	≤0.03	≤0.03	≤0.03	Karl Fischer
Color	APHA	≤20	≤20	≤20	ASTM D1209
Density @25°C	g/cm ³	1.21–1.23	1.21–1.23	1.22	ASTM D1475
Dynamic Viscosity @25°C	mPa·s	2.5–3.5	2.5–3.5	2.5–3.2	ASTM D445
Refractive Index @25°C	-	1.568–1.572	1.568–1.572	1.570	ASTM D1218

Physical Properties

Property	Value
Physical State	Liquid
Color	Water White to Pale Yellow
Density @25°C	1.22 g/cm ³
Boiling Point	251–252°C
Melting Point	12–22°C (Depending on Grade)
Flash Point	132–135°C
Auto Ignition Temperature	Approx. 620°C
Vapor Pressure @25°C	0.01 mmHg
Vapor Density	Approx. 6 (Air = 1)

Chemical Properties

Property	Value
Functional Group	Isocyanate (-NCO)
Functionality	2
Reactivity	Highly Reactive with Water, Alcohols and Amines
Water Sensitivity	Very High
Polymerization	May Occur Under Improper Storage Conditions



Typical Applications

- Flexible Polyurethane Foam
- Mattresses & Pillows
- Furniture Cushions
- Automotive Seating
- Polyurethane Adhesives
- PU Sealants
- Elastomers
- Industrial Coatings
- Synthetic Leather
- Footwear Components
- Carpet Underlay
- Packaging Foam

Packaging

Packaging Type	Net Weight
Steel Drum	250 kg
ISO Tank	Bulk
Tank Truck	Bulk

Storage & Handling

Item	Recommendation
Storage Temperature	20–30°C
Keep Container	Tightly Closed
Moisture Protection	Required
Nitrogen Blanket	Recommended
Keep Away From	Water, Alcohols, Amines, Strong Bases
Storage Area	Cool, Dry & Well Ventilated

Safety Notice

This document provides typical technical information for **Toluene Diisocyanate (TDI)** and is intended for reference only. Actual values may vary slightly depending on the production batch and manufacturer. Users should refer to the latest **Safety Data Sheet (SDS/MSDS)** before handling the product and verify the specifications through the corresponding Certificate of Analysis (COA) supplied with each shipment.