



**Karun Petrochemical
Company**

Address :

Head office:

No.17,Khalilzadeh St.,
Vali-e-asr Ave., Vanak
Sq., Tehran-Iran

Factory:

Site 2,Petrochemical
Special Economic Zone
(Pet zone), Bandar-e-
Imam Khomeini-Iran

Property	Specification	Analytical Method
Appearance @ 30 °C	Clear liquid	Visual
Purity, %wt.	Min. 99.5	GC
2,4-TDI Content, %wt.	80.0 ± 1.0	ASTM D4660.00
2,6-TDI Content, %wt.	20.0 ± 1.0	ASTM D4660.00
Total Acidity, ppm by wt.	Max. 40	ASTM D5629.05
Hydrolysable chlorine, ppm by wt.	Max. 120	ASTM D4663.98
Total chlorine, ppm by wt.	Max. 500	ASTM D4661.03
Colour (APHA)	Max.25	ASTM D4877.04
Sp.gr @ 25 °C	1.22 ± 0.02	ASTM D4659.03
Nitro Isocyanate compounds, ppm	Max.30	H900.5800

TOLUENE DIISOCYANATE (TDI)

⇒The current manufacturing technology of most isocyanates is based on the phosgenation of primary amines.

• **Application areas**

TDI is commonly used to manufacture:

- ✓ Flexible foams – used for the fabrication of bedding, furniture, automotive seating, flexible packaging and carpet underlay; this is the largest market application for TDI
- ✓ "Foamed-in-place" polyurethane plastics – ranging from soft and sponge-like to hard and porous for use in furniture, packaging, insulation and boat building
- ✓ Polyurethane coatings – used on leather, wire, tank linings and masonry
- ✓ Elastomers – used to produce adhesives, films and linings, and abrasive



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wheels and other mechanical items that require abrasion and solvent resistance

- ✓ Rigid, "pour-in-place" foams – for use in appliances, and, in smaller amounts, packaging
- ✓ Urethane sealants – used in construction applications
- ✓ Cast elastomers – for production of articles such as roller blade wheels

- **Handling and storage conditions**

Use special care when handling/transporting samples. Store at 20-30°C. Material sampling procedures should avoid vapor inhalation and skin/eye contact and only be conducted with proper protective equipment. Handle empty containers with care - residue may be combustible. When cleaning or repairing equipment contaminated with this material, total encapsulating impervious protective suits, gloves, and boots should be worn to prevent any contact. Decontaminate empty, non-returnable isocyanate drums by filling with water. Allow to stand 48 hours with bung removed. After 48 hours, drain and pierce drums. Wash with sodium carbonate solution (5-10%).

Store in tightly closed/properly vented containers with vents directed to locations removed from potential personnel exposure. Store in well ventilated area away from water, moisture, humidity, and direct sunlight. Store at 20-30°C. Do not store in galvanized or other corrodible containers. Storage and handling in stainless steel is preferred. Storage in polyethylene containers is hazardous because of absorption of water through the plastic.

- **Packing details**

In 220 lit (250 kg Net.) new steel drum, each 4 drums strapped on a wooden pallet.

- **Licensor: Chematur Engineering (CEAB), Sweden.**

**Polymeric Methylene diphenyl Di-Isocyanate
Crude MDI (Low Functionality)**



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Property	Specification	Analytical Method
Appearance	Dark Brown liquid	Visual
NCO (Wt. %)	Min. 31.0	ASTM D5155-14 Method A
Hydrolysable Chloride (Wt.%)	Max. 0.2	ASTM D4663-15
Acidity as HCL (Wt.%)	Max. 0.05	ASTM 6099-13(High acidity) ASTM 5629-11(Low acidity)
Viscosity at 25(°C) (mPa.s)	40-100	ASTM D4889-15
Specific Gravity at 25(°C)	1.20-1.25	ASTM D4659-14

⇒The current manufacturing technology of most isocyanates is based on the phosgenation of primary amines.

■ **Application areas**

Polymeric MDI is commonly used to manufacture:

- ✓ Flexible foams – used for the fabrication of prepolymers for bedding, furniture, automotive seating, flexible packaging and carpet underlay; this is the largest market application for Polymeric MDI
- ✓ "Foamed-in-place" polyurethane plastics – ranging from soft and sponge-like to hard and porous for use in furniture, packaging, insulation and boat building
- ✓ Polyurethane coatings – used on leather, wire, tank linings and masonry
- ✓ Cast elastomers – for production of articles such as roller blade wheels

■ **Handling and storage conditions**

Use only with adequate ventilation. Do not eat, drink, or smoke in working area. Never use welding/cutting torch near storage containers, even if empty, because even residual product can ignite explosively. Product must be stored at 20°C to 40°C.

Storage stability: The best time is 6 month and it can be extended to 12 month.

■ **Packing details**

In 220 lit (250 kg Net.) new steel drum, each 4 drums strapped on a wooden pallet.

■ **Licensor: Chematur Engineering (CEAB), Sweden.**

**Methylene diphenyl Di-Isocyanate (MDI),
Ortho-MDI 30**



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Property	Specification	Analytical Method
Appearance	Liquid: Yellow Solid: Yellow	Visual
Purity, Wt. %	Min. 99.5	2-2.9.3-1059
4,4'-MDI Wt. %	65-75	2-2.9.3-1059
NCO Wt. %	Min. 33.2	ASTM D5155-14 Method A
Acidity as HCL Wt.%	Max. 0.01	ASTM 5629-II

⇒ The current manufacturing technology of most isocyanates is based on the phosgenation of primary amines.

■ **Application areas**

KM-70 is commonly provides better flowability for the production of injection molding. manufacture:

- ✓ Elastomers – used to produce adhesives, films and linings, and abrasive wheels and other mechanical items that require abrasion and solvent resistance
- ✓ Urethane sealants – used in construction applications
- ✓ substitute for TDI – for production of flexible PU foam, which will reduce productive cost and environmental pollution and improve handling conditions
- ✓ Flexible foams – used for the fabrication of bedding, furniture, automotive seating, flexible packaging and carpet underlay; this is the largest market application for MDI

■ **Handling and storage conditions**

Use only with adequate ventilation. Do not eat, drink, or smoke in working area. Never use welding/cutting torch near storage containers, even if empty, because even residual product can ignite explosively. Product must be stored as a liquid at 41°C to 45°C under a dry nitrogen blanket or as a solid below -15 °C. For more information see table below.

Temperature (°C)	-18	-12	-5	10-35	41-45	>50
Storage Life Days	300	200	70	note *	30	note *

* Dimer formation increases significantly in these temperature ranges. So recommended to avoid these conditions.

■ **Packing details**

In 220 lit (225 kg Net.) new steel drum, each 4 drums strapped on a wooden pallet.

■ **Licensor: Chematur Engineering (CEAB), Sweden.**

KLM100B(H)

Liquified Methylene diphenyl Di-Isocyanate (LMDI) Modified MDI



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Property	Specification	Analytical Method
Appearance	Yellow liquid	Visual
NCO Wt. %	28-30	ASTM D5155-14 Method A
Acidity as HCl Wt. %	Max. 0.01	ASTM 5629-11
Viscosity at 25(°C) mPa.s	Max. 100	ASTM D4889-15
Specific Gravity at 25(°C)	1.18-1.20	ASTM D4659-14

⇒The current manufacturing technology of most isocyanates is based on the phosgenation of primary amines.

■ Application areas

KLM100B(H) is commonly used to manufacture:

- ✓ Shoe soles – used to produce prepolymers for shoe soles
- ✓ Adhesive – used to produce laminated adhesives in packaging industry
- ✓ Medical – used to produce orthopedic band
- ✓ Elastomers – used to produce films, linings, abrasive wheels and other mechanical items that require abrasion and solvent resistance
- ✓ Urethane sealants – used in construction applications
- ✓ Cast elastomers – for production of articles such as roller blade wheels
- ✓ Flexible foams – used to produce prepolymers for fabrication of bedding, furniture, automotive seating, flexible packaging and carpet underlay; this is the largest market application for MDI

■ Handling and storage conditions

Use only with adequate ventilation. Do not eat, drink, or smoke in working area. Never use welding/cutting torch near storage containers, even if empty, because even residual product can ignite explosively. Product must be stored at 20°C to 40°C.

Storage stability: The best time is 6 month since the date of production.

■ Packing details

In 220 lit (225 kg Net.) new steel drum, each 4 drums strapped on a wooden pallet.

■ Licensor: Chematur Engineering (CEAB), Sweden.

**Polymeric Methylene diphenyl Di-Isocyanate
Polymeric MDI (Medium Functionality)**



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Property	Specification	Analytical Method
Appearance	Dark Brown liquid	Visual
NCO (Wt. %)	30.0-32.0	ASTM D5155-14 Method A
Hydrolysable Chloride (Wt.%)	Max. 0.2	ASTM D4663-15
Acidity as HCL (Wt.%)	Max. 0.05	ASTM 6099-13(High acidity) ASTM 5629-11(Low acidity)
Viscosity at 25(°C) (mPa.s)	150-250	ASTM D4889-15
Specific Gravity at 25(°C)	1.22-1.25	ASTM D4659-14
Isocyanate Equivalent Weight (gr/eq)	131-140	ASTM D5155-14 Method A

⇒The current manufacturing technology of most isocyanates is based on the phosgenation of primary amines.

■ **Application areas**

KP-200 is commonly used to manufacture:

- ✓ Rigid foams- used to produce sandwich panels and polyurethane wood.
- ✓ Flexible foams – used for the fabrication of prepolymers for bedding, furniture, automotive seating, flexible packaging and carpet underlay; this is the largest market application for Polymeric MDI
- ✓ "Foamed-in-place" polyurethane plastics – ranging from soft and sponge-like to hard and porous for use in furniture, packaging, insulation and boat building
- ✓ Polyurethane coatings – used on leather, wire, tank linings and masonry
- ✓ Rigid, "pour-in-place" foams – for use in appliances, and, in smaller amounts, packaging
- ✓ Cast elastomers – for production of articles such as roller blade wheels

■ **Handling and storage conditions**

Use only with adequate ventilation. Do not eat, drink, or smoke in working area. Never use welding/cutting torch near storage containers, even if empty, because even residual product can ignite explosively. Product must be stored at 20°C to 40°C.

Storage stability: The best time is 6 month and it can be extended to 12 month.

■ **Packing details**

In 220 lit (250 kg Net.) new steel drum, each 4 drums strapped on a wooden pallet.

■ **Licensors: Chematur Engineering (CEAB), Sweden.**

**Polymeric Methylene diphenyl Di-Isocyanate
Polymeric MDI (High Functionality)**



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Property	Specification	Analytical Method
Appearance	Dark Brown liquid	Visual
NCO (Wt. %)	29.0-30.0	ASTM D5155-14 Method A
Hydrolysable Chloride (Wt.%)	Max. 0.2	ASTM D4663-15
Acidity as HCL (Wt.%)	Max. 0.07	ASTM 6099-13(High acidity) ASTM 5629-11(Low acidity)
Viscosity at 25(°C) (mPa.s)	500-800	ASTM D4889-15
Specific Gravity at 25(°C)	1.20-1.25	ASTM D4659-14
Isocyanate Equivalent Weight (gr/eq)	137-145	ASTM D5155-14 Method A

⇒ The current manufacturing technology of most isocyanates is based on the phosgenation of primary amines.

■ **Application areas**

KP-600 is commonly used to manufacture:

- ✓ Rigid foams- used to produce sandwich panels and polyurethane wood
- ✓ Flexible foams – used for the fabrication of prepolymers for bedding, furniture, automotive seating, flexible packaging and carpet underlay; this is the largest market application for Polymeric MDI
- ✓ "Foamed-in-place" polyurethane plastics – ranging from soft and sponge-like to hard and porous for use in furniture, packaging, insulation and boat building
- ✓ Polyurethane coatings – used on leather, wire, tank linings and masonry
- ✓ Cast elastomers – for production of articles such as roller blade wheels

■ **Handling and storage conditions**

Use only with adequate ventilation. Do not eat, drink, or smoke in working area. Never use welding/cutting torch near storage containers, even if empty, because even residual product can ignite explosively. Product must be stored at 25°C to 40°C.

Storage stability: The best time is 6 month and it can be extended to 12 month.

■ **Packing details**

In 220 lit (250 kg Net.) new steel drum, each 4 drums strapped on a wooden pallet.

■ **Licensors: Chematur Engineering (CEAB), Sweden.**