

## Product Information

CM – Monomers Division

### TECHNICAL DATA SHEET

Document name: TDS\_Lupranat ME\_10239488  
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Product: **Lupranat® ME**  
PBG-No.: 10239488  
Chemical Name: methylene diphenyl diisocyanate

**Chemical nature** Lupranat ME is a 4,4'-diphenylmethane diisocyanate (MDI) with low acidity.

**Applications** Lupranat ME is used for the manufacture of elastomers and thermoplastic polyurethanes. It is also used for the production of pigments, adhesives and coatings.

**Typical properties** Appearance at room temperature: white crystalline solid  
Appearance as a liquid: colourless

2,4'-isomer	1.5	g/100g
Acidity as HCl	5	mg/kg
Density at 42 °C	1.22	g/cm <sup>3</sup>
Hydrolysable chlorine	10	mg/kg
Melting point	38.5	°C
Molar mass	250	g/mol
NCO content	33.5	g/100g
Purity	99.5	g/100g
Total chlorine	15	mg/kg
Viscosity at 42 °C	5	mPa·s

Specific heat at 50°C	1.5	kJ/(kg · K)
Latent heat of fusion	110	kJ/kg

**Delivery** Lupranat ME can be delivered in three forms:

	container	quantity
Lupranat ME liquid	heated road tanker	10 t to max. 30 t
Lupranat ME frozen	non-returnable drum	240 kg

For road tankers, the temperature should be between 41 °C and 49 °C. Lupranat ME frozen should be delivered in non-returnable drums below 0 °C.

**Storage** Lupranat ME is sensitive to moisture. It yellows, particularly on exposure to light and air. The products slowly form dimeric diphenylmethanediisocyanate, which is seen as a precipitate, and which might influence the properties of the final products if used for special applications. This dimer cannot be removed by heating.

Liquid Lupranat ME can be stored up to about a fortnight only in a narrow temperature range of about 41 °C to 45 °C and under a dry nitrogen blanket. It is essential to be able to accurately control the temperature of the storage tank and associated pipework to avoid cold spots. Consequently, the recommendation is to keep Lupranat ME in circulation via a double pipe arrangement in which a heating medium surrounds the inner pipe which carries the Lupranat ME. The temperature of the heating medium should be strictly controlled for each line whereas water, glycol and its mixings must not be contained in the heating medium. Trace heating should be used at the bottom, and in the walls, of the storage tank.

Frozen products should be stored at temperatures below 0°C, but preferably considerably below -10 °C. Under this condition and if moisture and oxygen are excluded, Lupranat ME frozen can be stored for at least 6 months.

Drums containing Lupranat ME stored at temperatures lower than room temperature must not be opened in a moisture containing atmosphere. Complete warming up to room temperature prior to utilization avoids condensation of moisture on the crystals.

Crystallized products must be melted out immediately in a hot air oven at an air temperature of 80 °C to 100 °C. The heating period must be as short as possible; during heating the overall temperature of the product must not exceed 70 °C. Local overheating must be avoided, because the product will be decomposed at temperatures above 230 °C with consequent gas production. Rolling of the drums in a hot air oven is the recommended method to melt the solid. After melting out, the content of the drum must be thoroughly mixed.

More detailed information on transport and storage of isocyanates is given in the ISOPA-Guidelines "For Safe Loading / Unloading Transportation Storage of TDI and MDI in Bulk" and "For the Safe Transportation, Unloading & Storage of Packaged TDI & MDI".

**Safety advice and environmental protection**

Labelling, transportation, storage, processing, waste treatment and disposal must comply with national regulations. Occupational exposure limits are to be observed.

Lupranat ME is classified as harmful if inhaled. It causes skin irritation and serious eye irritation. It may cause respiratory irritation. It may cause sensitization by inhalation and skin contact. It is suspected of causing cancer. It may cause damage to organs though prolonged or repeated inhalation exposure.

Before processing the product, we recommend reading the safety data sheet.

In order to avoid accidents, the residual product in the drums must be handled with care. Any water or moisture which is allowed to enter the drum will react with Lupranat ME and release carbon dioxide. Unless action is taken to prevent moisture entry or gas entrapment, the drums will become pressurized and could rupture.

If it is intended to use BASF materials for the manufacture of toys or consumer goods (e. g. products which will come into contact with foodstuffs or with the skin) or medical products, national and international regulations have to be observed.

In the case that migration tests or tests of trace monomers are recommended in the special legislations by the manufacturer of consumer goods, the obligation to fulfill these requirements and to conduct tests for the supplied products is still in the hand of the customer. BASF cannot take over this responsibility for the use of its products from our customers.

Where no regulations exist, consumer goods or medical products must at least comply with European legislation. We recommend contacting our Sales and our Ecology and Product Safety departments.

**Disposal of drums** Residues of MDI remaining in drums must be decomposed. Please contact our local offices for further information on national disposal regulations.

**Note** The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.