

ELITE CHEMICAL INDUSTRIES (PTY) LTD

MATERIAL SAFETY DATA SHEET According to 91/155 EEC

Printing date: 26.01.2011

1. Identification of substance:

Product details:

Trade name: Eli-Cast FR/453 Comp B: Hardener

Article number: FR/453

Application of the substance / the preparation

Electrical Insulating Resin

Initial product for chemical reactions

Polyurethane Hardener

Manufacturer/Supplier:

Elite Chemical Industries (Pty) Ltd

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2. Composition / Data on components:

Chemical characterization:

Chemical Name	Concentration	CAS Number	EC Number	R Phrases	Symbols
Diphenylmethane diisocyanate	> 95	9016-87-9	615-005-01-6	20,36/37/38, 42/43	Xn
Non classified ingredients	< 5				

3. Hazards identification

- Odour: earthy
- Appearance: Liquid, brown, insoluble in water
- Contact with eyes: Causes redness and irritation
- Contact with skin: Irritating to eyes, respiratory system and skin (R36/37/38), May cause sensitisation by skin contact (R43), Harmful by inhalation and contact with skin (R20/21)
- Inhalation: Vapours or aerosols may cause irritation of eyes, nose and respiratory tract, May cause sensitisation by inhalation (R42).
- Ingestion: Not regarded as a potential route of exposure. Harmful if swallowed (R22)

4. First aid measures

Contact with skin:

- Wash affected area with plenty of soap and water
- Contaminated clothing should be laundered before reuse
- When in doubt or symptoms persist, seek medical attention

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4. First aid measures (Continue/...)

Contact with eyes:

- If substance has got into eyes, immediately wash out with plenty of water for at least 15 minutes.
- Irrigate eyes thoroughly whilst lifting eyelids
- Seek medical attention if irritation persists

Ingestion

- Do not induce vomiting
- Give water or milk to drink
- Seek medical advice

Inhalation

- Remove patient to fresh air
- When in doubt or symptoms persist, seek medical attention

General

- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) (S45)

5. Fire fighting measures

Extinguishing media: CO₂, foam, dry powder, in cases of larger fires, water spray should be used.

Further information: In case of fire, formation of carbon monoxide, nitrogen oxide, isocyanate vapour, and traces of hydrogen cyanide is possible. Firemen have to wear self-contained breathing apparatus.

Evacuate personnel located downwind. Do not let enter contaminated extinguishing water into the soil, groundwater or surface waters.

6. Accidental release measures

Put on protective equipment (see paragraph 8). Cover with damp, fluid-binding materials (e.g. sand, sawdust, chemical binder based on calcium silicate hydrate). Transfer to waste container after approximately 1 hour and do not seal (CO₂ formation). Keep damp and in the open air in a safe place for 7 to 14 days. Waste should be disposed of as described in Chapter 13, "Advice on Disposal".

7. Handling and storage

Handling:

Observe the usual precautionary measures for chemicals. Avoid contact with skin. In all areas where isocyanate aerosol and/or vapour concentrations are produced, exhaust ventilation must be provided in such a way that the OEL is not exceeded. The air should be drawn away from the personnel handling the product and the efficiency of the exhaust equipment should be periodically checked.

Storage:

- Keep container tightly closed and dry.
- Keep separated from foodstuffs.
- Prevent cooling below 10°C and heating above 30°C.

Water pollution class (WGK): 1 – slightly hazardous to water
Resources Act (VwVwS 1999-05-17)
VCI storage class: 10

Protection against fire and explosion:

- Explosion protection not required

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8. Exposure controls and personal protection

Additional information about design of technical systems: No further date; see item 7

Components with critical values that require monitoring at the workplace: Not required.

Personal protective equipment

General protective and hygienic measures

Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with skin.
Avoid contact with the eyes and skin.

Breathing equipment: Not required in adequately ventilated workplace.

Protection of hands: Protective gloves

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection: Safety glasses

9. Physical and chemical properties:

Form:	Fluid		
Colour:	Brown		
Odour:	Earthy, musty		
Pour point:	- 24°C		DIN ISO 3016
Initial boiling point:	> 300°C	at 1013 mbar	
Density:	1,24 g/m ³	at 20°C	DIN 51757
Vapour pressure:	1 mbar	at 20°C	
	12 mbar	at 50°C	
	MDI:		
	<0,00001 mbar	at 20°C	
	0,00016 mbar	at 50°C	
Viscosity:	approx. 300 mPa.s	at 20°C	DIN 53019
Solubility in water:	insoluble, reacts		
pH value:	not applicable		
Flash point:	above 250°C		DIN EN 22719
Ignition temperature:	above 500°C		DIN 51794
Explosive limits:	Limits not determined.		

10. Stability and reactivity

Thermal decomposition: Polymerises at about 200°C with evolution of CO₂.

Hazardous decomposition products: No hazardous decomposition products when stored and handled correctly.

Hazardous reactions: Exothermic reaction with amines and alcohols; reacts with water forming CO₂, in closed containers risk of bursting owing to increase of pressure.

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11. Toxicological information

Acute toxicity:

Diphenylmethane-diisocyanate, isomers and homologues:
LD50 (oral, rat, female): >15000 mg/kg
LC₅₀ inhalation, rat: 490 mg as aerosol / m³, 4,0 h of exposure
Concentration of the saturated vapour of Diphenylmethane-4,4' -di-isocyanate (MDI) at 25°C: 0,09 mg/m³

Irritating / corrosive effects:

On the eyes: Causes slight temporary reddening and swelling of the conjunctiva and slight reversible clouding of the cornea. In high concentrations vapour of product has irritating effects on eyes and mucous membranes.

On the skin: Irritant. In case of longer contact with skin, tanning and irritating effects are possible.

On the respiratory tract: In high concentrations vapour of product has irritating effects on eyes and mucous membranes.

Special properties / effects:

Experience on humans: Irritation of the mucous membranes in the nose, throat and lungs, dryness of the throat, pressure on the chest, sometimes accompanied by breathing difficulties and headaches. Delayed appearance of the symptoms and allergic reaction in susceptible persons possible.

12. Ecological information

Do not allow to escape into waters, wastewater or soil.

Behaviour in open waters: Immiscible in water.

Reacts with water at the interface producing CO₂ and forming a solid and insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by watersoluble solvents. Previous experience shows that polyurea is inert and non-degradable.

Data on diphenylmethane-diisocyanate, isomers and homologues:

Biodegradability: 0% after 28 days (respirometer test)

Acute fish toxicity: LC0 = >1000 mg/l

Test species: Brachydanio rerio

Duration of test: 96 h

Toxicity for Daphnia: EC50 = >1000 mg/l

Duration of test: 24 h

Acute bacteria toxicity: EC50 = >100 mg/l

Tested on activated sludge micro organism

Duration of test: 3 h

13. Disposal considerations

The relevant Directives of regional and national regulations must be complied with.

The waste can be disposed of in a suitable incinerator under compliance with the relevant legislation.

After containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), any product residue adhering to their walls has been rendered harmless, and the product and hazard labelling has been invalidated, they can be sent to an appropriate collection point set up within the framework of the existing take-back scheme of the chemical industry.

Containers must be recycled in compliance with national legislation and environmental regulations.

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14. Transport information

GGVSea/IMDG Code: ---	UN No.: ---	EmS: ---
PG: ---	MPO: ---	
GGVSE: Class: ---	PG: ---	RID/ADR: Class: --- PG: ---
ADNR: Class: ---	PG: ---	Cat: --- ICAO/IATA-DGR: not restr.

Declaration for land shipment: ---

Declaration for sea shipment: ---

Declaration for shipment by air: ---

Other information:

Not dangerous cargo. Irritating to skin and eyes. Keep dry. Avoid heat above +50°C. Avoid temperatures below 0°C. Keep away from foodstuffs.

15. Regulatory information

Labelling in accordance with Annex I of directive 67/548/EEC and its amendments and adaptations:

Symbol: Xn, hazard description: harmful

Contains: diphenylmethane-diisocyanate, isomers and homologues

R 20: Harmful by inhalation

R 36/37/38: Irritating to eyes, respiratory system and skin

R 42/43: May cause sensitisation by inhalation and skin contact

S 23: Do not breathe vapour/spray

S 36/37: Wear suitable protective clothing and gloves

S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible.)

16. Other information

This Safety Data Sheet is provided in compliance with The Safety Data Sheets Directive (2001/58EC). The information provided about the product on this Safety Data Sheet has been compiled from knowledge of the individual constituents.

The data given here is based on current knowledge and experience. This Safety Data Sheet describes the product in terms of safety requirements and does not signify any warranty with regard to the product's properties.

The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications – usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer.