



Material Safety Data Sheet

Page 1 of 6

Issue date: October 2007

Ecofoam BS400 Isocyanate

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Ecofoam BS400 Isocyanate

Synonym: None.

Use: Polyisocyanurate Isocyanate.

Era Polymers Pty Ltd
25-27 Green Street
Banksmeadow NSW 2019
Australia
Ph: +61 2 9666 3788
Fax: +61 2 9666 4805

Emergency Advice All Hours:
Technical Manager +61 2 9666 3788

2. HAZARDS IDENTIFICATION

HAZARDOUS ACCORDING TO NOHSC CRITERIA

Hazard Category: Harmful (Xn), Irritant (Xi)

Hazard Classification: HAZARDOUS SUBSTANCE, NON-DANGEROUS GOOD

RISK PHRASES

R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.
R42/43 May cause sensitisation by inhalation and skin contact.

SAFETY PHRASES

S23 Do not breathe vapour/spray.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, contact a doctor immediately and show this container or label.

Poison Schedule: S6 [Aust]

This material is a Scheduled **S6** Poison and must be stored, handled and used according to the appropriate regulations.

Warning Statement:

Avoid breathing vapours. Avoid skin and eye contact. Breathing of vapours may produce asthma-like symptoms. Skin contact may cause allergic reaction.

3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
DIPHENYLMETHANE DIISOCYANATE, ISOMERS AND HOMOLOGUES	Greater than 60%	9016-87-9

All other ingredients not hazardous according to NOHSC Criteria.

4. FIRST AID MEASURES

Swallowed:

If swallowed, DO NOT induce vomiting. Seek medical attention immediately.

Eye:

If material is splashed into eyes, immediately, flush with plenty of water for 15 minutes, ensuring eyelids are held open. Seek medical attention.



Material Safety Data Sheet

Page 2 of 6

Issue date: October 2007

Ecofoam BS400 Isocyanate

Skin:

If material is splashed onto the skin, remove any contaminated clothing and wash skin thoroughly with a cleanser based on polyethylene glycol or plenty of water and soap (warm water is preferable if available). Seek medical attention if irritation persists after washing. Cleaning very soon after exposure is important.

Inhaled:

Remove victim to fresh air and keep them warm. Allow person to rest. Seek medical attention. Apply resuscitation if victim is not breathing. If trained personnel available administer oxygen if breathing is difficult.

First Aid Facilities:

Eye wash fountain, safety shower and normal washroom facilities.

Advice to Doctor:

The product irritates the respiratory tract and may trigger sensitisation of the skin and respiratory tract. Treatment of acute irritation or bronchial constriction is primarily symptomatic. Extended medical care may be necessary, depending on the extent of the exposure and the symptoms.

In case of poisoning, contact Poisons Information Centre

In Australia call Tel: 131126

In New Zealand Tel: 034747000

5. FIRE-FIGHTING MEASURES

Fire/Explosion Hazard

If safe to do so, move undamaged containers from fire area.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposes on heating emitting toxic fumes including oxides of carbon and nitrogen, isocyanate vapours and hydrogen cyanide.

OTHER FIRE/EXPLOSION HAZARDS: Product reacts with water; reaction may produce heat and/or gases. Reaction may be violent. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

FIRE FIGHTING PROCEDURES: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Fight fire from protected location or safe distance. Use water spray to cool fire exposed containers and fire-affected zone until fire is out. Fire fighters to wear Self-Contained Breathing Apparatus (SCBA) and full protective clothing is also recommended. Do not allow contaminated extinguishing water into the soil, groundwater or surface waters.

EXTINGUISHING MEDIA: Use carbon dioxide, dry chemical or foam. Water is not recommended, but may be applied in very large quantities as a fine spray when other extinguishing agents are not available. Do not use direct water stream, it may spread fire.

HAZCHEM CODE: None allocated [Aust]

FLAMMABILITY

This material is not flammable.

6. ACCIDENTAL RELEASE MEASURES

Wear appropriate protective equipment (refer to section 8 of this Material Safety Data Sheet). Cover spill with damp, absorbent such as sand, sawdust, or chemical binder based on calcium silicate hydrate. After approximately 1 hour, transfer to waste container and do not seal. Product will react with moisture to generate carbon dioxide gas which can rupture sealed containers. Keep waste material damp and in the open air in a safe place for 1 - 2 weeks. Refer to section 13 of this Material Safety Data Sheet for disposal of this waste.



Material Safety Data Sheet

Page 3 of 6

Issue date: October 2007

Ecofoam BS400 Isocyanate

7. HANDLING AND STORAGE

HANDLING:

Observe the usual precautionary measures for chemicals. Avoid contact with skin. In all workplaces or parts of the plant where high concentrations of isocyanate aerosols and/or vapours may be generated (e.g. during pressure release, mould venting, or when cleaning mixing heads with an air blast), appropriately located exhaust ventilation must be provided in order to prevent occupational exposure limits from being 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards

No exposure standards are available for this product, however, the following exposure standards have been assigned by [NOHSC] to the following components of the product:

DIPHENYLMETHANE DIISOCYANATE, ISOMERS AND HOMOLOGUES

(NOHSC Australia)

Isocyanates, all (as -NCO)

[TWA] 0.02 mg/m³

[STEL] 0.07 mg/m³

Notices: Sen

Engineering Controls

Maintain adequate ventilation at all times. Provide general and/or local exhaust ventilation to control airborne levels below the exposure standard. Exhaust systems should be designed to move the air away from the source of vapour/aerosol generation. If exhaust ventilation is not available or inadequate, use approved respirator to Australian Standards. Odour is inadequate warning of excessive exposure.

Personal Protection Equipment

CLOTHING: Wear suitable protective clothing to prevent skin contact.

GLOVES: Wear impervious glove to prevent skin contact. Suitable materials include butyl rubber, nitrile rubber and polyvinyl chloride.

EYES: Wear safety glasses with side shields, chemical goggles or face shield to protect eyes.

RESPIRATORY PROTECTION: Respiratory protection is required where ventilation is inadequate. Respiratory protection is also required if product is sprayed. Select respirators in accordance with AS/NZS 1715/1716. The use of a respirator for organic vapours with (disposable) or with replaceable filters is recommended. Filter capacity and respirator type depends on exposure levels and type of contaminant. If entering spaces where the airborne concentration of a contaminant is unknown then the use of a Self-Contained Breathing Apparatus (SCBA) with positive pressure air supply complying with AS/NZS 1715 / 1716, or any other acceptable International Standard is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark brown viscous liquid.
Boiling Point Melting Point:	BP > 300°C @ 1013 mbar, MP (pour point) = -12°C
Vapour Pressure:	Approx 18 mbar @ 20°C, approx 31 mbar @ 50°C
Specific Gravity:	1.25 @ 20°C
Flash Point:	232°C (ASTM D-93, PMCC)
Flammability Limits:	Not determined.
Solubility in Water:	Insoluble, reacts with water liberating carbon dioxide.

Other Properties

Ignition temperature > 500°C



Material Safety Data Sheet

Page 4 of 6

Issue date: October 2007

Ecofoam BS400 Isocyanate

10. STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions of use.

HAZARDOUS DECOMPOSITION PRODUCTS:

No hazardous decomposition products when stored and handled correctly. Emits toxic fumes including oxides of carbon and nitrogen, isocyanate vapours and hydrogen cyanide when heated to decomposition.

HAZARDOUS POLYMERIZATION:

Polymerises at about 200°C with evolution of carbon dioxide.

INCOMPATIBILITIES:

Strong alkalis, acids, oxidizing agents, amines, alcohol, water and moisture. Reacts with amines and alcohols exothermically. Reacts with water forming carbon dioxide, which can cause rupture of closed containers.

CONDITIONS TO AVOID:

Heat, flames, ignition sources and incompatibles.

11. TOXICOLOGICAL INFORMATION

No adverse health effects are expected, if the product is handled in accordance with this Material Safety Data Sheet and the product label. Symptoms and effects that may arise if the product is mishandled and overexposure occurs are:

ACUTE HEALTH EFFECTS:

Swallowed:

May cause irritation to mouth, throat and stomach with effects including mucous build up, irritation to the tongue and lips and pains in the stomach, which may lead to nausea, vomiting and diarrhoea.

Eye:

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.

Skin:

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

Inhaled:

Harmful if inhaled.

Will cause 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 is possible.

Chronic:

Prolonged or repeated skin contact may lead to dermatitis.

Prolonged contact may cause severe eye irritation and some form of permanent eye damage may occur.

Prolonged or repeated exposure may lead to irreversible damage to health.

Prolonged or repeated contact with this substance will cause sensitisation by inhalation.

Prolonged or repeated contact with this substance will cause sensitisation by skin contact.

Toxicological Data:

Swallowed: LD50 (rat) > 15,000 mg/kg

Inhalation: LC50 (rat, 4 hr) = 490 mg/m³ (aerosol).

Concentration of the saturated vapour of MDI at 25°C is 0.09 mg/m³.

In a long-term inhalation study, rats were exposed over a period of 2 years to mechanically generated respirable aerosols (aerodynamic diameter 95% less than 5µm) of polymeric MDI (PMDI) in concentrations of 0.2, 1.0, and 6.0 mg PMDI/m³. The group of animals exposed to the highest concentration suffered an increased incidence of lung tumours, persistent inflammatory changes the nose, respiratory tract and lungs, and yellowish deposits in the respiratory tract and lungs. The animals in the 1.0 mg/m³ group exhibited slight irritation and inflammatory changes to the nose,



Material Safety Data Sheet

Page 5 of 6

Issue date: October 2007

Ecofoam BS400 Isocyanate

respiratory tract and lungs, but did not develop lung tumours and/or deposits. Animals in the 0.2 mg/m³ group suffered no irritation; this concentration was therefore deemed to constitute the "no-effect level".

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Acute fish toxicity: LC0 > 1000 mg/L, (Brachydanio rerio, 96hr)

Acute bacteria toxicity: EC50 > 100 mg/L, (activated sludge micro-organism, 3hr)

Toxicity for Daphnia: EC50 > 1000 mg/L, (24hr)

Mobility:

Immiscible in water. Reacts with water at the interface producing carbon dioxide and forming a solid and insoluble product with a high melting point, a polyurea. This reaction is accelerated by surfactants (e.g. detergents) or by water-soluble solvents.

Persistence / Degradability:

Biodegradability: 0% after 28 days (respirometer test).

Polyurea formed when this product reacts with water is inert and non-degradable.

Chemical Fate Information:

Avoid contaminating waterways, drains, sewers or ground.

13. DISPOSAL CONSIDERATIONS

Do not allow into any sewers, drains, on the ground or into any body of water. Any disposal must be accordance with applicable State, Territory and/or Local government regulations. The preferred waste management option for unused, uncontaminated, unformulated, or not otherwise altered material is to send to an approved recycler, reclaimer, or incinerator. The same waste management options are recommended for used or contaminated material, although additional evaluation is required. Waste characterisation and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard the material.

Any disposal of contaminated packaging and washings must be in accordance with State, Territory and/or Local government regulations. After container has been cleaned and labelling has been removed, empty containers can be sent for recycling or disposal. If the container is to be reconditioned, the reconditioning company should be made aware of the nature of the original contents.

14. TRANSPORT INFORMATION

Road Transport

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Packing Group: None allocated

Label: Harmful (Xn), Irritant (Xi)

Air Transport

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Packing Group: None allocated

Label: Harmful (Xn), Irritant (Xi)

Sea Transport

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Packing Group: None allocated

Label: Harmful (Xn), Irritant (Xi)



Material Safety Data Sheet

Page 6 of 6

Issue date: October 2007

Ecofoam BS400 Isocyanate

15. REGULATORY INFORMATION

Poison Schedule: S6 [Aust]

Inventory Status:

<i>Inventory</i>	<i>Status</i>
Australia (AICS)	Y

Y = all ingredients are on the inventory.

16. OTHER INFORMATION

Date of Preparation:

Issue date: 05/10/07

Supersedes: None.

Reasons for Update:

New format.

Key Legend Information:

NOHSC - National Occupational Health & Safety Commission {Formerly Worksafe}[Aust]

SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons [Aust]

TWA - Time Weighted Average [Int]

STEL - Short Term Exposure Limit [Int]

AICS - Australian Inventory of Chemical Substances

EPA - Environmental Protection Agency [Int]

NIOSH - National Institute for Occupational Safety and Health [US]

AS/NZS 1715 - Selection, use and maintenance of respiratory protective devices. [Aust/NZ]

AS/NZS 1716 - Respiratory protective devices. [Aust/NZ]

IATA - International Aviation Transport Authority [Int]

ICAO - International Civil Aviation Organization [Int]

IMO - International Maritime Organisation. [Int]

IMDG - International Maritime Dangerous Goods [Int]

United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the classification and labelling of Chemicals. [Int]

EU - European Union

[Aust/NZ] = Australian New Zealand

[Int] = International

[US] = United States of America

Removal of the heading of *Poison Schedule [Aust]*, in section 3 and 15 of this Material Safety Data Sheet (MSDS) makes this a valid health and safety document in other international jurisdictions/countries. For full compliance please contact your Federal, State or Local regulators for further information.

Disclaimer

This MSDS summarises our best knowledge of the health and safety hazard information available on the product and the measures to be used to handle and use the product safely. Each user should read this MSDS and consider the information in connection with the way the product is intended to be handled or used.

Principal References:

Information supplied by manufacturer, reference sources including the public domain.

END OF MSDS