

## **MATERIAL SAFETY DATA SHEET**

### **BITHANE HARDENER**

**ISSUE NUMBER:** 2 (EC No 5978)  
**ISSUE DATE:** 18<sup>TH</sup> August 2017

#### **1 – IDENTIFICATION OF THE SUBSTANCE**

1.1 Commercial name: BITHANE hardener

1.2 Type of product: Isocyanate. Hardener for polyurethane resins

1.3 Supplier: Prysmian Cables and Systems Ltd,  
1.4 Address: Components Unit  
Wrexham Industrial Estate,  
Oak Road, Wrexham. LL13 9PH

1.5 Telephone: +44 (0)1978 66 2375

1.6 Fax: +44 (0)1978 66 2410

1.7 Emergency Number: +44 (0)1978 66 2216

1.8 E-mail: [dave.lamb@prysmian.com](mailto:dave.lamb@prysmian.com)

## 2 – HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

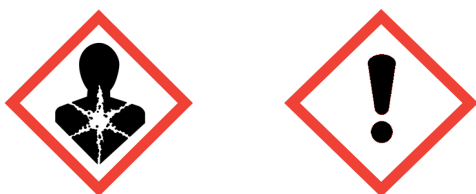
Product definition: Mixture

Classification according to (EC) No1272/2008 (CLP/GHS)

Acute Tox. 4,	H332
Skin Irrit. 2,	H315
Eye Irrit. 2,	H319
Resp. Sens. 1,	H334
Skin Sens. 1,	H317
Carc. 2,	H351
STOT SE 3,	H335 (Respiratory tract irritation)
STOT RE 2,	H373

### 2.2 Label Elements

Hazard pictograms:



Signal Word:                      Danger

Hazard Statements:

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation

H332 Harmful if inhaled

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 May cause respiratory irritation

H351 Suspected of causing cancer

H373 May cause damage to respiratory organs through prolonged or repeated exposure if inhaled

### Precautionary Statements:

P260	Do not breath vapour or spray
P284	In case of inadequate ventilation wear respiratory protection
P280	Wear protective gloves / protective clothing / eye protection / face protection
IF INHALED:	Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF ON SKIN:	Wash with plenty of soap and water
IF IN EYES:	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

If exposed or if you feel unwell call a poison centre or doctor / physician.

## 3 – COMPOSITION / INFORMATION ON INGREDIENTS

### 3.2 Mixtures

Product Name	CAS	EC	%	Classification (EC) No. 1272/2008 (CLP)
4,4' diphenylmethane diisocyanate (isomers and homologues)	9016-87-9	Polymeric	100	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 (Respiratory tract irritation) STOT RE 2, H373 (Respiratory tract inhalation)

## 4 – FIRST AID MEASURES

### 4.1 Description of first aid measures

General Information – remove contaminated clothing immediately

Inhalation:	Remove to fresh air and keep warm. If there is difficulty in breathing, seek medical advice immediately.
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Skin contact:	Wash immediately with soap and water. Seek medical advice in the event of persistent irritation. Contaminated clothing should be removed and thoroughly cleaned before re-use.
Eye contact:	Hold the eyes open and rinse with water for 10-15 minutes. Consult an ophthalmologist immediately.
Ingestion:	Do not induce vomiting. Seek medical advice immediately, showing the doctor this sheet.

#### 4.2 Most important effects, both acute and delayed

Eye contact	Causes serious eye irritation.
Inhalation:	Harmful if inhaled. This product is a respiratory irritant. Prolonged or repeated exposure may result in respiratory sensitisation
Skin Contact:	Causes skin irritation. May cause an allergic skin reaction.
Ingestion:	Irritating to mouth, throat and stomach. Ingestion may cause irritation of the gastrointestinal tract

### 5 – FIRE FIGHTING MEASURES

#### 5.1 Extinguishing media

Suitable extinguishing:	Foam, carbon dioxide or dry powder
Unsuitable extinguishing media:	Water may only be used in copious quantities. Reaction between water and hot isocyanate may be vigorous. Keep exposed (sealed) containers cool by spraying with water.

#### 5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture:	In a fire or if heated, a pressure increase will occur and the container may burst
Hazardous decomposition products:	Carbon dioxide, carbon monoxide, mixed oxides of nitrogen, isocyanate vapour and traces of hydrogen cyanide

### 5.3 Advice for firefighters

#### Special precautions:

Isolate the scene by removing all persons from the vicinity of the fire. A hazardous build up of pressure could occur if water contaminated containers are resealed.

#### Special protective equipment:

Fire fighters should wear appropriate protective equipment and full face self-contained breathing apparatus. Clothing for firefighters should conform to EN 469. Safety helmet, PVC gloves and boots should be worn.

## 6 – ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Evacuate surrounding areas. Prevent entry of unprotected personnel into contaminated areas. Avoid breathing vapours or mist. Provide adequate ventilation or ensure appropriate respirator is worn.

### 6.2 Environmental precautions

Do not allow runoff and contact with soil, waterways, drains and sewers.

### 6.3 Methods for containment and cleaning up

Small spill: Stop leak if without risk. Dilute with water and mop up if water soluble. Alternatively absorb on dry inert medium and transfer for container suitable for disposal via a licensed contractor (containers should have loose fitting lids / closures)

Large spill: Stop leak if without risk. Approach release from upwind. Prevent release into water courses, basements or confined areas. Absorb on dry inert medium and transfer to open topped container suitable for disposal via a licensed contractor.

## 7 – HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Protective measures:

Use appropriate personal protective equipment. Persons with a history of skin sensitization, allergies or asthma should not be employed in the process. Avoid contact with eyes skin and clothing. Do not breathe vapour or mist. Do not ingest. Wear appropriate respirator if ventilation is inadequate. Store in original containers re-sealed after use. Empty containers containing residue should be treated as hazardous

Advice on general occupational hygiene:

Eating drinking and smoking should be prohibited in working areas. Wash thoroughly after handling and remove contaminated clothing.

Conditions for safe storage:

Store in accordance with local regulations. Store in a cool dry location away from direct sunlight. Recommended temperature range for storage is 5°C to 40°C.

## 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

Occupational exposure limits (EH40/2005 WELs (United Kingdom, 12/2011):

Skin sensitiser (as NCO):

STEL: 0.07mg/m<sup>3</sup>, 15 minutes

TWA: 0.02mg/m<sup>3</sup>, 8 hours

Recommended monitoring procedures:

Medical supervision of all persons who come into contact with respiratory sensitisers is recommended. Personnel with a history of asthma, bronchitis or skin sensitisation should not work with MDI based products.

OELs do not apply to previously sensitised individuals who should be removed from further exposure.

## 8.2 Exposure controls

Appropriate engineering controls:

Provide exhaust ventilation to keep airborne vapour concentrations below the OEL.

Individual protection methods

Hygiene measures:

Wash exposed areas of skin thoroughly after handling. Remove contaminated clothing and launder before re-use

Eye / face protection:

Eye protection to an approved standard should be used to avoid exposure to liquid splashes, mists, gases or dust.

Skin protection:

Chemically resistant gloves to an approved standard (eg EN374) should be worn Recommended materials are nitrile rubber or (for longer term application) butyl rubber.

Body protection:

Standard industrial clothing.  
Chemically resistant boots

Respiratory protection:

Respiratory protection should be worn in case of inadequate ventilation / usage in confined spaces.

## 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1 Physical state:	Liquid
9.2 Colour:	Brown
9.3 Odour:	Earthy, musty
9.4 pH:	Not applicable
9.5 Initial boiling point:	>300°C
9.6 Melting point:	Crystallises below 5°C
9.7 Flash point:	>250°C
9.8 Self ignition temperature:	>500°C
9.9 Inflammability limit:	Not applicable
9.10 Explosive properties:	Not applicable
9.11 Vapour pressure:	<0.001 Pa @ 25°C
9.12 Vapour density:	8.5 (Air = 1)
9.13 Density:	1240 kg/m <sup>3</sup>
9.14 Viscosity:	Approximately 300 mPa.s @ 20
9.15 Solubility in water:	Insoluble. Reacts producing CO <sub>2</sub>
9.16 Solubility (other solvents):	Aromatic hydrocarbons, acetone.
9.17 Partition coefficient:	Not applicable

## 10 - STABILITY AND REACTIVITY

10.1 Reactivity:	No specific data available
10.2 Chemical stability:	The product is stable
10.3 Possibility of hazardous reactions:	Polymerises at about 200°C with evolution of CO <sub>2</sub> . Exothermic reaction with alkalis, alcohols and amines and water. May result in dangerous pressure build-up in closed containers.



- 10.4 Conditions to avoid: Avoid high temperatures
- 10.5 Incompatible materials: Alcohols, amines, water, acids and bases.
- 10.6 Hazardous decomposition products: Combustion products may include carbon monoxide, carbon dioxide, mixed oxides of nitrogen and hydrogen cyanide

## 11 – TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Acute toxicity Diphenylmethane diisocyanate (MDI), isomers and homologues:

- Ingestion LD<sub>50</sub> Oral, rat (male, female): >10000mg/kg
- Inhalation: LC<sub>50</sub> Inhalation dusts and mists, rat (male, female) 0.49mg/l (4 hour exposure)
- Skin: LD<sub>50</sub> Dermal, rabbit (male, female) >9400 mg/kg

#### Potential acute health effects

- Inhalation: Harmful if inhaled.  
Product is a respiratory irritant and potential respiratory sensitiser.  
Symptoms may include irritation to the eyes nose and throat possibly combined with dryness of the throat and tightness of chest.
- Ingestion: Irritating to mouth, throat and stomach. Low oral toxicity.  
Ingestion may cause irritation of the gastrointestinal tract.
- Skin Contact: Causes skin irritation. May cause an allergic skin reaction.  
Studies have shown that respiratory sensitisation can be induced via skin contact with respiratory sensitisers such as diisocyanates.
- Eye Contact: Causes serious eye irritation

#### Symptoms related to the physical, chemical and toxicological characteristics

- Inhalation: Adverse symptoms may include the following:  
Respiratory tract irritation  
Coughing wheezing and breathing difficulties  
Asthma
- Ingestion: No specific data
- Skin Contact: Adverse symptoms may include the following:  
Irritation  
Redness

Eye Contact: Adverse symptoms may include the following:  
Pain or irritation  
Watering  
Redness

## **12 – ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

Acute fish toxicity:	LCO >1000 mg/l Test species – brachydanio rerio Test duration – 96 hours
Toxicity for daphnia:	EC50 >1000 mg/l Test duration – 24 hours
Acute bacteria toxicity:	EC50 >100 mg/l Test on activated sludge micro-organisms Test duration – 3 hours

### **12.2 Persistence and degradability**

Reacts with water at the interface producing CO<sub>2</sub> and forming a solid, insoluble high melting point solid (polyurea). The reaction product is non-biodegradable.

### **12.3 Bioaccumulative potential**

No significant bioaccumulation

### **12.4 Mobility in soil**

No information available

### **12.5 Results of PBT and vPvB assessment**

No information available

### **12.6 Other adverse effects**

None known

## 13 – DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Methods of disposal: Generation of waste should be avoided wherever possible. Disposal of this product should comply with the requirements of environmental protection and waste disposal legislation together with any local authority requirements. Disposal should be via a licensed waste operator.

Hazardous waste: Yes

#### European waste catalogue (EWC)

Waste Code	Waste Designation
08 05 01*	Waste isocyanates
16 03 05*	Organic wastes containing dangerous substances

#### Packaging

Methods of disposal: Used resin packaging containing fully mixed and cured residue is non-hazardous and may be disposed of as general waste. If disposal by mixing scrap or waste resin packs off is not feasible then disposal should be via a licensed operator (normally controlled incineration or landfill)

Special precautions: Avoid dispersal of waste material and runoff into soil, waterways, drains and sewers.

## 14 – TRANSPORT INFORMATION

Not classified as hazardous for transport purposes under either ADR/RID, IMDG or IATA regulations

## 15 – REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations for the substance or mixture

This product is compliant with the REACH Regulation EC1907/2006

### 15.2 Chemical Safety

Chemical safety assessments have not been carried out.

## 16- OTHER INFORMATION

Full text of hazard phrases as follows:

H315 Causes skin irritation  
H317 May cause an allergic skin reaction  
H319 Causes serious eye irritation  
H332 Harmful if inhaled  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H335 May cause respiratory irritation  
H351 Suspected of causing cancer  
H373 May cause damage to respiratory organs through prolonged or repeated exposure if inhaled

Full text of classifications according to Regulation (EC) 1272/2008 [CLP/GHS]

ACUTE TOXICITY (INHALATION) - Category 4. H332  
CARCINOGENICITY – Category 2. H351  
SERIOUS EYE DAMAGE / EYE IRRITATION – Category 2. H319  
RESPIRATORY SENSITISATION – Category 1. H334  
SKIN CORROSION / IRRITATION – Category 2. H315  
SKIN SENSITISATION – Category 1. H317  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (respiratory tract, inhalation) – Category 2. H373  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (respiratory tract, irritation) – Category 3. H335

This SDS (version 2.0) is the second version of this SDS for this product.

This information is believed to be accurate and represents the best information available to the company at this time. This information is provided as a guide to the hazards and respective safety precautions relevant to this product. This MSDS does not represent any guarantee of performance or specification. The information relates only to the product specified and may not be suitable for combinations with other materials or in processes other than those specifically described herein