

## Centrecoat Griptop HB Hardener

Revision date: 01/03/2017

Revision: 8

Supersedes date: 31/05/2016

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

**Product name** Centrecoat Griptop HB HARDENER

#### 1.2. Relevant identified uses of the substance or mixture and uses advised

**against Identified uses** Component of polyurethane floor coating

**system Uses advised against** No specific uses advised against are

identified. **1.3. Details of the supplier of the safety data sheet**

**Supplier** Promain UK Limited  
Pierson Court  
Knowl Piece  
Hitchin, Herts  
SG4 0TY  
  
www.promain.co.uk  
01462 421333 info@promain.co.uk

#### 1.4. Emergency telephone number

**Emergency telephone** 01462 421333 \*\*\*\*\*9.00am - 5.00pm Mon - Fri

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (EC 1272/2008)

**Physical hazards** Not Classified

**Health hazards** 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 STOT RE 2 - H373

**Environmental hazards** Not Classified

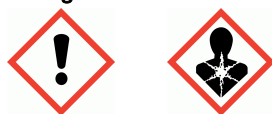
**Classification (67/548/EEC or 1999/45/EC)** Xn;R20,R48/20. Carc. Cat. 3;R40. R42/43. Xi;R36/37/38.

**Human health** See Section 11 for additional information on health hazards.

**Environmental** The product will harden into a solid mass in contact with water and moisture. The resultant material is not biodegradable.

#### 2.2. Label elements

## Pictogram



## 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 organs through prolonged or repeated exposure.

## Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P284 [In case of inadequate ventilation] wear respiratory protection.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P313 Get medical advice/ attention.

## Contains

DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES,  
DIPHENYLMETHANE-4,4'-DI-ISOCYANATE, DIPHENYLMETHANE-2,4'-DI-ISOCYANATE,  
DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

## Supplementary precautionary statements

P260 Do not breathe vapour/ spray.  
P262 Do not get in eyes, on skin, or on clothing.  
P271 Use only outdoors or in a well-ventilated area.  
P321 Specific treatment (see medical advice on this label).  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P501 Dispose of contents/ container in accordance with local regulations.

## 2.3. Other hazards

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

<b>DIPHENYLMETHANEDIISOCYANATE - ISOMERS &amp; HOMOLOGUES</b>	
CAS number: 9016-87-9	
<b>Classification</b> Acute Tox. 2 - H330 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 STOT SE 3 - H335 STOT RE 2 - H373	<b>Classification (67/548/EEC or 1999/45/EC)</b> Xn;R20,R48/20. Carc. Cat. 3;R40. Xi;R36/37/38. R42/43.

60-100%

<b>DIPHENYLMETHANE-4,4'-DI-ISOCYANATE</b>		<b>10-30%</b>
CAS number: 101-68-8		EC number: 202-966-0
<b>Classification</b> Acute Tox. 4 - H302 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 STOT RE 2 - H373		<b>Classification (67/548/EEC or 1999/45/EC)</b> Xn;R20,R48/20. Carc. Cat. 3;R40. Xi;R36/37/38. R42/43.
<b>DIPHENYLMETHANE-2,4'-DI-ISOCYANATE</b>		<b>1-10%</b>
CAS number: 5873-54-1		EC number: 227-534-9
<b>Classification</b> Acute Tox. 4 - H302 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 STOT RE 2 - H373		<b>Classification (67/548/EEC or 1999/45/EC)</b> Carc. Cat. 3;R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43
<b>DIPHENYLMETHANE-2,2'-DI-ISOCYANATE</b>		<b>1-5%</b>
CAS number: 2536-05-2		EC number: 219-799-4
<b>Classification</b> Acute Tox. 4 - H302 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 STOT RE 2 - H373		<b>Classification (67/548/EEC or 1999/45/EC)</b> Carc. Cat. 3;R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**Composition comments** Polyisocyanate pre-polymer

#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

**General information** Remove affected person from source of contamination.

**Inhalation** Move affected person to fresh air at once. Get medical attention.

<b>Ingestion</b>	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.
<b>Eye contact</b>	Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.

#### **4.2. Most important symptoms and effects, both acute and delayed**

<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	Harmful if inhaled. Vapours may cause drowsiness and dizziness. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Skin contact</b>	Skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Irritation of eyes and mucous membranes.

#### **4.3. Indication of any immediate medical attention and special treatment needed**

<b>Notes for the doctor</b>	Treat symptomatically.
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### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

<b>Suitable extinguishing media</b>	Extinguish with foam, carbon dioxide or dry powder. Larger fires: Water spray.
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#### **5.2. Special hazards arising from the substance or mixture**

<b>Specific hazards</b>	Oxides of carbon. Oxides of nitrogen. Hydrogen cyanide (HCN).
<b>Hazardous combustion products</b>	Oxides of carbon. Oxides of nitrogen. When heated, vapours/gases hazardous to health may be formed.

#### **5.3. Advice for firefighters**

<b>Protective actions during firefighting</b>	No specific firefighting precautions known.
<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

### **SECTION 6: Accidental release measures**

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

<b>Personal precautions</b>	Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes.
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#### **6.2. Environmental precautions**

<b>Environmental precautions</b>	Avoid discharge into drains or watercourses or onto the ground.
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#### **6.3. Methods and material for containment and cleaning up**

<b>Methods for cleaning up</b>	Contain spillage with sand, earth or other suitable non-combustible material. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Do not close container tightly. Risk of excess pressure build-up.
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#### **6.4. Reference to other sections**

**Reference to other sections** For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Usage precautions** Avoid inhalation of vapours. Provide adequate ventilation.

**Advice on general occupational hygiene** Do not eat, drink or smoke when using this product. Good personal hygiene procedures should be implemented.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions** Keep separate from food, feedstuffs, fertilisers and other sensitive material. Store in tightly-closed, original container in a dry, cool and well-ventilated place.

### 7.3. Specific end use(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.2.

## SECTION 8: Exposure Controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

#### DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES

Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m<sup>3</sup>(Sen)

Short-term exposure limit (15-minute): WEL 0.07 mg/m<sup>3</sup>(Sen)

#### DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m<sup>3</sup>(Sen)

Short-term exposure limit (15-minute): WEL 0.07 mg/m<sup>3</sup>(Sen)

Sen

#### DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m<sup>3</sup>(Sen)

Short-term exposure limit (15-minute): WEL 0.07 mg/m<sup>3</sup>(Sen)

#### DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m<sup>3</sup>(Sen)

Short-term exposure limit (15-minute): WEL 0.07 mg/m<sup>3</sup>(Sen)

WEL = Workplace Exposure Limit

Sen = Capable of causing occupational asthma.

#### DIPHENYLMETHANE-4,4'-DI-ISOCYANATE (CAS: 101-68-8)

#### DNEL

Workers - Dermal; Short term systemic effects: 50 mg/kg  
 Workers - Inhalation; Short term systemic effects: 0.1 mg/m<sup>3</sup>  
 Workers - Dermal; Short term local effects: 28.7 mg/cm<sup>2</sup>  
 Workers - Inhalation; Short term local effects: 0.1 mg/m<sup>3</sup>  
 Workers - Inhalation; Long term systemic effects: 0.05 mg/m<sup>3</sup>  
 Workers - Inhalation; Long term local effects: 0.05 mg/m<sup>3</sup>

#### PNEC

- Fresh water; >1 mg/l  
 - Marine water; >0.1 mg/l  
 - Soil; >1 mg/kg  
 - STP; >1 mg/l

#### DIPHENYLMETHANE-2,4'-DI-ISOCYANATE (CAS: 5873-54-1)

<b>DNEL</b>	<p>Workers - Dermal; Short term systemic effects: 50 mg/kg</p> <p>Workers - Inhalation; Short term systemic effects: 0.1 mg/m<sup>3</sup></p> <p>Workers - Dermal; Short term local effects: 28.7 mg/cm<sup>2</sup></p> <p>Workers - Inhalation; Short term local effects: 0.1 mg/m<sup>3</sup></p> <p>Workers - Inhalation; Long term systemic effects: 0.05 mg/m<sup>3</sup></p> <p>Workers - Inhalation; Long term local effects: 0.05 mg/m<sup>3</sup></p>
<b>PNEC</b>	<p>- Fresh water; &gt;1 mg/l</p> <p>- Marine water; &gt;0.1 mg/l</p> <p>- Soil; &gt;1 mg/kg</p> <p>- STP; &gt;1 mg/l</p>

## DIPHENYLMETHANE-2,2'-DI-ISOCYANATE (CAS: 2536-05-2)

<b>DNEL</b>	<p>Workers - Dermal; Short term systemic effects: 50 mg/kg</p> <p>Workers - Inhalation; Short term systemic effects: 0.1 mg/m<sup>3</sup></p> <p>Workers - Dermal; Short term local effects: 28.7 mg/cm<sup>2</sup></p> <p>Workers - Inhalation; Short term local effects: 0.1 mg/m<sup>3</sup></p> <p>Workers - Inhalation; Long term systemic effects: 0.05 mg/m<sup>3</sup></p> <p>Workers - Inhalation; Long term local effects: 0.05 mg/m<sup>3</sup></p>
<b>PNEC</b>	<p>- Fresh water; &gt;1 mg/l</p> <p>- Marine water; &gt;0.1 mg/l</p> <p>- Soil; &gt;1 mg/kg</p> <p>- STP; &gt;1 mg/l</p>

## 8.2. Exposure controls

### Protective equipment



### Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.

### Personal protection

Always check applicability with your supplier of protective equipment.

### Eye/face protection

If there is a risk of splashing, wear chemical resistant goggles or visor approved to BS EN166.

### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. Nitrile gloves to BSEN374 are recommended. Break through times can vary depending on thickness, use and source. Change gloves regularly.

### Other skin and body protection

Wear suitable protective clothing as protection against splashing or contamination. Wear apron or protective clothing in case of contact.

### Hygiene measures

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station. Remove contaminated clothing and wash the skin thoroughly with soap and water after work. Do not eat, drink or smoke when using this product.

### Respiratory protection

In the case of hypersensitivity of the respiratory tract (eg asthmatics and those who suffer from chronic bronchitis) it is inadvisable to work with this product. In case of inadequate ventilation use a respirator suitable for organic vapours. Consult respirator manufacturer for specific advice.

### Environmental exposure controls

Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

## SECTION 9: Physical and Chemical Properties

### 9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Dark brown.
Odour	Musty
Odour threshold	Not determined.
pH	Not applicable.
Melting point	Not applicable.
Initial boiling point and range	>300°C @ 1013 hPa
Flash point	>200°C
Evaporation rate	Not applicable.
Evaporation factor	Not applicable.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Other flammability	Not applicable.
Vapour pressure	<0.00001 mbar @ °C
Vapour density	Not determined.
Relative density	1.24 @ 20°C
Bulk density	Not determined.
Solubility(ies)	Insoluble in water.
Partition coefficient	Not applicable.
Auto-ignition temperature	>500°C
Decomposition Temperature	Not applicable.
Viscosity	130 cP @ 20°C
Explosive properties	Not applicable.
Explosive under the influence of a flame	Not considered to be explosive.
Oxidising properties	Not known.
Comments	Information given is applicable to the product as supplied.

### 9.2. Other information

Other information	None.
Refractive index	Not determined.
Particle size	Not applicable.
Molecular weight	Not determined.
Volatility	Not determined.

Saturation concentration	Not determined.
Critical temperature	Not determined.
Volatile organic compound	Not determined.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity	The product will harden into a solid mass in contact with water and moisture.
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### 10.2. Chemical stability

Stability	Stable under the prescribed storage conditions.
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### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. No potentially hazardous reactions known.
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### 10.4. Conditions to avoid

Conditions to avoid	Water, moisture.
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### 10.5. Incompatible materials

Materials to avoid	Amines. Alcohols, glycols. Reacts with water forming carbon dioxide. Risk of bursting owing to increased pressure in closed containers.
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### 10.6. Hazardous decomposition products

Hazardous decomposition products	Oxides of carbon. Oxides of nitrogen.
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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Toxicological effects	No information available.
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#### Acute toxicity - oral

Notes (oral LD <sub>50</sub> )	No specific test data are available.
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#### Acute toxicity - dermal

Notes (dermal LD <sub>50</sub> )	No specific test data are available.
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#### Acute toxicity - inhalation

Notes (inhalation LC <sub>50</sub> )	No specific test data are available.
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ATE inhalation (vapours mg/l)	11.02
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ATE inhalation (dusts/mists mg/l)	1.5
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#### Skin corrosion/irritation

Skin corrosion/irritation	Irritating to skin.
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Animal data	No specific test data are available.
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Human skin model test	No specific test data are available.
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Extreme pH	No specific test data are available.
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#### Serious eye damage/irritation

Serious eye damage/irritation	Irritation of eyes is assumed.
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## Respiratory sensitisation

**Respiratory sensitisation** Sensitising.

## Skin sensitisation

**Skin sensitisation** Sensitising.

## Germ cell mutagenicity

**Genotoxicity - in vitro** No specific test data are available.

**Genotoxicity - in vivo** No specific test data are available.

## Carcinogenicity

**Carcinogenicity** Suspected of causing cancer.

**Target organ for carcinogenicity** No specific target organs known.

**IARC carcinogenicity** Not listed.

## Reproductive toxicity

**Reproductive toxicity - fertility** No specific test data are available.

**Reproductive toxicity - development** Not considered to be toxic to the reproductive system.

## Specific target organ toxicity - single exposure

**STOT - single exposure** No specific test data are available.

## Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure.

**General information** The product contains small quantities of isocyanate. May cause respiratory allergy. May cause respiratory system irritation.

**Inhalation** Harmful by inhalation. Vapours irritate the respiratory system. May cause coughing and difficulties in breathing. May cause sensitisation by inhalation.

**Ingestion** May cause discomfort if swallowed.

**Skin contact** Irritating to skin. May cause sensitisation by skin contact.

**Eye contact** Irritation of eyes and mucous membranes.

**Acute and chronic health hazards** Prolonged exposure to the preparation may cause serious health effects. Frequent inhalation of vapours may cause respiratory allergy. Suspected of causing cancer.

**Route of entry** Inhalation Skin and/or eye contact

**Target organs** Eyes Respiratory system, lungs Skin

**Medical symptoms** Skin irritation. Irritation of eyes and mucous membranes. Gas or vapour in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting. Prolonged or repeated exposure may cause the following adverse effects: Allergic rash. General respiratory distress, unproductive cough. Difficulty in breathing.

**Medical considerations** Skin disorders and allergies. Pre-existing eye problems. Chronic respiratory and obstructive airway diseases.

## DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES

## Acute toxicity - oral

Acute toxicity oral (LD<sub>50</sub> mg/kg) 10,000.0

Species Rat

ATE oral (mg/kg) 10,000.0

## Acute toxicity - dermal

Acute toxicity dermal (LD<sub>50</sub> mg/kg) 9,400.0

Species Rabbit

ATE dermal (mg/kg) 9,400.0

## Acute toxicity - inhalation

Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l) 0.31

Species Rat

Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l) 0.31

Species Rat

ATE inhalation (dusts/mists mg/l) 0.31

## Skin corrosion/irritation

Skin corrosion/irritation Based on available data the classification criteria are not met.

Animal data Slightly irritating.

## Germ cell mutagenicity

Genotoxicity - in vitro Ames test: Negative.

## Carcinogenicity

Carcinogenicity Dose level: 0-0.2, 1-6 mg/m<sup>3</sup>, Inhalation, Rat

Target organ for carcinogenicity Respiratory system, lungs

## Reproductive toxicity

Reproductive toxicity - fertility No specific test data are available.

Reproductive toxicity - development Teratogenicity: - NOAEL: 12 mg/m<sup>3</sup>, Inhalation, Rat Maternal toxicity: - NOAEL: 4 mg/m<sup>3</sup>, Inhalation, Rat Developmental toxicity: - NOAEL: 4 mg/m<sup>3</sup>, Inhalation, Rat

## Specific target organ toxicity - single exposure

STOT - single exposure , Inhalation, A single exposure may cause the following adverse effects: Asthma, pulmonary sensitisation.

Target organs Respiratory tract

## Specific target organ toxicity - repeated exposure

STOT - repeated exposure , Inhalation, High concentrations may cause severe lung damage.

**Target organs** Respiratory tract

**Aspiration hazard**

**Aspiration hazard** Not relevant.

**DIPHENYLMETHANE-4,4'-DI-ISOCYANATE**

**Acute toxicity - oral**

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 2,000.0

**Species** Rat

**ATE oral (mg/kg)** 2,000.0

**Acute toxicity - dermal**

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 9,400.0

**Species** Rat

**ATE dermal (mg/kg)** 9,400.0

**Acute toxicity - inhalation**

**Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l)** 0.368

**Species** Rat

**ATE inhalation (dusts/mists mg/l)** 1.5

**Skin corrosion/irritation**

**Skin corrosion/irritation** Irritating to skin.

**Animal data** Irritating.

**Respiratory sensitisation**

**Respiratory sensitisation** Guinea pig: Sensitising. There is evidence that the product can cause respiratory hypersensitivity.

**Skin sensitisation**

**Skin sensitisation** Buehler test - Guinea pig: Not sensitising. Local Lymph Node Assay (LLNA) - Mouse: Sensitising.

**Germ cell mutagenicity**

**Genotoxicity - in vitro** Ames test: Negative.

**Carcinogenicity**

**Carcinogenicity** Dose level: 0-0.2, 1-6 mg/m<sup>3</sup>, Inhalation, Rat

**Reproductive toxicity**

**Reproductive toxicity - fertility** No specific test data are available.

**Reproductive toxicity - development** Teratogenicity: - NOAEL: 12 mg/m<sup>3</sup>, Inhalation, Rat Maternal toxicity: - NOAEL: 4 mg/m<sup>3</sup>, Inhalation, Rat Developmental toxicity: - NOAEL: 4 mg/m<sup>3</sup>, Inhalation, Rat

**Specific target organ toxicity - single exposure**

**STOT - single exposure** A single exposure may cause the following adverse effects: Asthma, pulmonary sensitisation.

**Target organs** Respiratory tract

**Specific target organ toxicity - repeated exposure**

**STOT - repeated exposure** High concentrations may cause severe lung damage.

**Target organs** Respiratory tract

**Aspiration hazard**

**Aspiration hazard** Not relevant.

**DIPHENYLMETHANE-2,4'-DI-ISOCYANATE**

**Acute toxicity - oral**

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 2,000.0

**Species** Rat

**Acute toxicity - dermal**

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 9,400.0

**Species** Rat

**ATE dermal (mg/kg)** 9,400.0

**Acute toxicity - inhalation**

**Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l)** 0.387

**Species** Rat

**ATE inhalation (dusts/mists mg/l)** 1.5

**Skin corrosion/irritation**

**Skin corrosion/irritation** Irritating to skin.

**Respiratory sensitisation**

**Respiratory sensitisation** Guinea pig: Sensitising.

**Skin sensitisation**

**Skin sensitisation** Buehler test - Guinea pig: Not sensitising. Local Lymph Node Assay (LLNA) - Mouse: Sensitising.

**Germ cell mutagenicity**

**Genotoxicity - in vitro** Ames test: Negative.

**Carcinogenicity**

**Carcinogenicity** Dose level: 0-0.2, 1-6 mg/m<sup>3</sup>, Inhalation, Rat

**Reproductive toxicity**

**Reproductive toxicity - fertility** No specific test data are available.

**Reproductive toxicity - development**      Teratogenicity: - NOAEL: 12 mg/m<sup>3</sup>, Inhalation, Rat Maternal toxicity: - NOAEL: 4 mg/m<sup>3</sup>, Inhalation, Rat Developmental toxicity: - NOAEL: 4 mg/m<sup>3</sup>, Inhalation, Rat

**Specific target organ toxicity - single exposure**

**STOT - single exposure**      A single exposure may cause the following adverse effects: Asthma, pulmonary sensitisation.

**Target organs**      Respiratory tract

**Specific target organ toxicity - repeated exposure**

**STOT - repeated exposure**      High concentrations may cause severe lung damage.

**Target organs**      Respiratory tract

**DIPHENYLMETHANE-2,2'-DI-ISOCYANATE**

**Acute toxicity - oral**

**Acute toxicity oral (LD<sub>50</sub> mg/kg)**      2,000.0

**Species**      Rat

**ATE oral (mg/kg)**      2,000.0

**Acute toxicity - dermal**

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)**      9,400.0

**Species**      Rat

**ATE dermal (mg/kg)**      9,400.0

**Acute toxicity - inhalation**

**Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l)**      0.527

**Species**      Rat

**ATE inhalation (dusts/mists mg/l)**      1.5

**Skin corrosion/irritation**

**Skin corrosion/irritation**      May be slightly irritating to skin.

**Animal data**      Slightly irritating.

**Respiratory sensitisation**

**Respiratory sensitisation**      Guinea pig: Sensitising.

**Skin sensitisation**

**Skin sensitisation**      Local Lymph Node Assay (LLNA) - Mouse: Sensitising.

**Germ cell mutagenicity**

**Genotoxicity - in vitro**      Ames test: Negative.

**Carcinogenicity**

**Carcinogenicity**      Dose level: 0-0.2, 1-6 mg/m<sup>3</sup>, Inhalation, Rat

**Reproductive toxicity**

<b>Reproductive toxicity - fertility</b>	No specific test data are available.
<b>Reproductive toxicity - development</b>	Teratogenicity: - NOAEL: 12 mg/m <sup>3</sup> , Inhalation, Rat Maternal toxicity: - NOAEL: 4 mg/m <sup>3</sup> , Inhalation, Rat Developmental toxicity: - NOAEL: 4 mg/m <sup>3</sup> , Inhalation, Rat
<b><u>Specific target organ toxicity - single exposure</u></b>	
<b>STOT - single exposure</b>	A single exposure may cause the following adverse effects: Asthma, pulmonary sensitisation.
<b>Target organs</b>	Respiratory tract
<b><u>Specific target organ toxicity - repeated exposure</u></b>	
<b>STOT - repeated exposure</b>	High concentrations may cause severe lung damage.
<b>Target organs</b>	Respiratory tract
<b><u>Aspiration hazard</u></b>	
<b>Aspiration hazard</b>	Not relevant.

## SECTION 12: Ecological Information

**Ecotoxicity** The product should not be allowed to enter drains, sewers or watercourses.

### 12.1. Toxicity

**Toxicity** Not measured. Do not allow to enter waterways or drains

**Acute toxicity - fish** Not determined

**Acute toxicity - aquatic invertebrates** Not determined.

**Acute toxicity - aquatic plants** Not determined.

**Acute toxicity - microorganisms** Not determined.

**Acute toxicity - terrestrial** Not determined.

**Chronic toxicity - fish early life stage** Not determined.

**Short term toxicity - embryo and sac fry stages** Not determined.

**Chronic toxicity - aquatic invertebrates** Not determined.

### DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: >1000 mg/l, Brachydanio rerio (Zebra Fish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 24 hours: >1000 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** , 72 hours: >1640 mg/l, Scenedesmus subspicatus

**Acute toxicity - microorganisms** EC<sub>50</sub>, 3 hours: >100 mg/l, Activated sludge

**Acute toxicity - terrestrial** NOEC, 14 days: >1000 mg/kg, Eisenia Fetida (Earthworm)

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: >10 mg/l, Daphnia magna

## DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: >1000 mg/l, Brachydanio rerio (Zebra Fish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 24 hours: >1000 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** , 72 hours: >1640 mg/l, Scenedesmus subspicatus

**Acute toxicity - microorganisms** EC<sub>50</sub>, 3 hours: >100 mg/l, Activated sludge

**Acute toxicity - terrestrial** NOEC, 14 days: >1000 mg/kg, Eisenia Fetida (Earthworm)

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: >10 mg/l, Daphnia magna

## DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: >1000 mg/l, Brachydanio rerio (Zebra Fish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 24 hours: >1000 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** , 72 hours: >1640 mg/l, Scenedesmus subspicatus

**Acute toxicity - microorganisms** EC<sub>50</sub>, 3 hours: >100 mg/l, Activated sludge

**Acute toxicity - terrestrial** NOEC, 14 days: >1000 mg/kg, Eisenia Fetida (Earthworm)

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: >10 mg/l, Daphnia magna

## DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: >1000 mg/l, Brachydanio rerio (Zebra Fish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 24 hours: >1000 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** , 72 hours: >1640 mg/l, Scenedesmus subspicatus

**Acute toxicity - microorganisms** EC<sub>50</sub>, 3 hours: >100 mg/l, Activated sludge

**Acute toxicity - terrestrial** NOEC, 14 days: >1000 mg/kg, Eisenia Fetida (Earthworm)

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: >10 mg/l, Daphnia magna

### 12.2. Persistence and degradability

<b>Persistence and degradability</b>	The product reacts with water to form a solid, insoluble reaction product which is not biodegradable.
<b>Phototransformation</b>	Not determined.
<b>Stability (hydrolysis)</b>	Not determined.
<b>Biodegradation</b>	Not readily biodegradable.
<b>Biological oxygen demand</b>	Not determined.
<b>Chemical oxygen demand</b>	Not determined.

## DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES

**Persistence and degradability** Not readily biodegradable.

**Stability (hydrolysis)** Reacts with water.

### DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

**Persistence and degradability** Not inherently biodegradable.

**Stability (hydrolysis)** Reacts with water.

### DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

**Persistence and degradability** Not inherently biodegradable.

**Stability (hydrolysis)** Reacts with water.

### DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

**Persistence and degradability** Not inherently biodegradable.

## 12.3. Bioaccumulative potential

**Bioaccumulative potential** No data available on bioaccumulation.

**Partition coefficient** Not applicable.

## DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES

**Bioaccumulative potential** BCF: < 14, Cyprinus carpio (Common carp)

### DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

**Bioaccumulative potential** BCF: 200, Cyprinus carpio (Common carp)

### DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

**Bioaccumulative potential** BCF: 200, Cyprinus carpio (Common carp)

### DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

**Bioaccumulative potential** BCF: 200, Cyprinus carpio (Common carp)



## 12.4. Mobility in soil

Mobility	The product is non-volatile.
Adsorption/desorption coefficient	Not determined.
Henry's law constant	Not determined.
Surface tension	Not determined.

### DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Henry's law constant	0.0229 Pa m <sup>3</sup> /mol @ °C
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### DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Henry's law constant	0.0229 Pa m <sup>3</sup> /mol @ °C
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### DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

Henry's law constant	0.0229 Pa m <sup>3</sup> /mol @ °C
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## 12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.
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### DIPHENYLMETHANEDIISOCYANATE - ISOMERS & HOMOLOGUES

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.
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### DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.
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## 12.6. Other adverse effects

Other adverse effects	None known.
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## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

General information	Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.
Disposal methods	Should be disposed of as hazardous waste via a licensed waste operator.

## SECTION 14: Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).
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### 14.1. UN number

Not applicable.

### 14.2. UN proper shipping name

Not applicable.

#### 14.3. Transport hazard class(es)

No transport warning sign required.

#### 14.4. Packing group

Not applicable.

#### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

#### 14.6. Special precautions for user

Not applicable.

#### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78  
and the IBC Code

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**National regulations** Control of Substances Hazardous to Health Regulations 2002 (as amended).

**Guidance** Workplace Exposure Limits EH40.  
Safety Data Sheets for Substances and Preparations.

**Authorisations (Title VII Regulation 1907/2006)** No specific authorisations are known for this product.

**Restrictions (Title VIII Regulation 1907/2006)** No specific restrictions on use are known for this product.

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### SECTION 16: Other information

**General information** Don Construction Products Ltd. Technical Datasheet.

**Key literature references and sources for data** Health and Safety Executive Guidance Note EH40 (amended annually). Workplace Exposure Limits. Type of Regulated Paint under the Air Pollution Control (Volatile Organic Compounds) Regulation of Hong Kong (Floor Coating). VOC content (mixed with resin) not exceeding 2g/litre.

**Revision comments** Section 1 update

**Revision date** 01/03/2017

**Revision** 8

**Supersedes date** 31/05/2016

**SDS status** Approved.

**Risk phrases in full**

R20 Harmful by inhalation.  
R36/37/38 Irritating to eyes, respiratory system and skin.  
R40 Limited evidence of a carcinogenic effect.  
R42/43 May cause sensitisation by inhalation and skin contact.  
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

**Hazard statements in full**

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H330 Fatal if inhaled.  
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 organs through prolonged or repeated exposure.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.