# SAFETY DATA SHEET

Ezero iso

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

### 1.1 Product identifier

**Product name** : Ezero Iso

**EC number** : Polymer

**CAS number** : 9016-87-9

**Product code** : 00009011

**Product description** : isocyanate

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

**Product use** : Component of a Polyurethane System

### 1.3 Details of the supplier of the safety data sheet

**Supplier** : CPI Foam Ltd
Unit 2c Cahrvey Lane Industrial Estate
Rathnew
Co. Wicklow
Ireland
Tel: +353 (0) 404 66111

**e-mail address of person responsible for this SDS** : info@cpifoam.ie

### 1.4 Emergency telephone number

**Supplier**

**Telephone number** : EUROPE: +32 35 75 1234
ASIA: +65 6336-6011
USA: +1/800/424.9300

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : UVCB

**Classification according to Regulation (EC) No. 1272/2008 [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, H335i
STOT RE 2, H373i

**Classification according to Directive 67/548/EEC [DSD]**

Carc. Cat. 3; R40
Xn; R20, R48/20
Xi; R36/37/38
R42/43

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

## SECTION 2: Hazards identification

**Hazard pictograms** :

**Signal word** : Danger

**Hazard statements** : Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing cancer.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure if inhaled.

**Precautionary statements**

**Prevention** : Do not breathe vapour or spray. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection/face protection.

**Response** : 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 CENTER or physician.

**Storage** : Not applicable.

**Disposal** : Not applicable.

**Supplemental label elements** : Contains isocyanates. May produce an allergic reaction.

**Supplemental label elements** : Contains isocyanates. May produce an allergic reaction.

**Special packaging requirements**

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII** : PBT: No.
P: No. B: No. T: No.

**Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : vPvB: No.
vP: No. vB: No.

**Other hazards which do not result in classification** : Not available.

## SECTION 3: Composition/information on ingredients

**Substance/mixture** : UVCB

| Product/ingredient name | Identifiers | % | Classification 67/548/EEC | Classification Regulation (EC) No. 1272/2008 [CLP] | Type |
|---|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | EC: Polymer<br>CAS: 9016-87-9 | 60 - 100 | Carc. Cat. 3; R40<br>Xn; R20, R48/20<br>Xi; R36/37/38<br>R42/43 | Acute Tox. 4, H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Resp. Sens. 1, H334<br>Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT SE 3, H335i<br>STOT RE 2, H373i | [*] |
| 4,4'-methylenediphenyl diisocyanate | REACH #: 01-2119457014-47<br>EC: 202-966-0<br>CAS: 101-68-8<br>Index: 615-005-00-9 | 30 - 60 | Carc. Cat. 3; R40<br><br>Xn; R20, R48/20<br>Xi; R36/37/38<br>R42/43<br><br>**See section 16 for the full text of the R-phrases declared above** | Acute Tox. 4, H332<br><br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Resp. Sens. 1, H334<br>Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT SE 3, H335i<br>STOT RE 2, H373i<br><br>**See Section 16 for the full text of the H statements declared above.** | [A] |

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[A] Constituent
[B] Impurity
[C] Stabilising additive

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is laboured, oxygen should be administered by qualified personnel.

**Skin contact** : After contact with skin, wash immediately with plenty of warm soapy water. Get medical attention if irritation develops. Wash clothing before reuse. Clean shoes thoroughly before reuse. An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-TamTM, PEG-400) or corn oil may be more effective than soap and water.

**Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Provided the patient is conscious, wash out mouth with water. Get medical attention if symptoms appear.

**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

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

**Potential acute health effects**

**Eye contact** : Irritating to eyes.

## SECTION 4: First aid measures

**Inhalation** : LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.
This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.

**Skin contact** : Irritating to skin. May cause sensitisation by skin contact. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

**Ingestion** : Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

**Over-exposure signs/symptoms**

**Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

**Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma

**Skin contact** : Adverse symptoms may include the following:
irritation
redness

**Ingestion** : No specific data.

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

**Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments** : Symptomatic treatment and supportive therapy as indicated. Following severe exposure the patient should be kept under medical review for at least 48 hours.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Foam, CO2 or dry powder.

**Unsuitable extinguishing media** : Water may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous. Prevent washings from entering water courses, keep fire exposed containers cool by spraying with water.

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

**Hazards from the substance or mixture** : No specific hazard.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

### 5.3 Advice for firefighters

## SECTION 5: Firefighting measures

**Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. PVC boots, gloves, safety helmet and protective clothing should be worn.

**Additional information** : Due to reaction with water producing CO2-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Containers may burst if overheated.

## SECTION 6: Accidental release measures

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

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

### 6.3 Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : If the product is in its solid form: Spilled MDI flakes should be picked up carefully. The area should be vacuum cleaned to remove remaining dust particles completely. If the product is in its liquid form: Absorb spillages onto sand, earth or any suitable adsorbent material. Leave to react for at least 30 minutes. Do not absorb onto sawdust or other combustible materials. Shovel into open-top drums for further decontamination. Wash the spillage area with water. Test atmosphere for MDI vapour. Neutralise small spillages with decontaminant. Remove and dispose of residues. The compositions of liquid decontaminants are given in Section 16. See also brochure PU 193-1 (see section 16).

**6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept

## SECTION 7: Handling and storage

tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**7.2 Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 20 to 30°C (68 to 86°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

**7.3 Specific end use(s)**

**Recommendations** : Not available.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**8.1 Control parameters**

**Occupational exposure limits**

| Product/ingredient name | Exposure limit values |
|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | **NAOSH (Ireland, 8/2007). Skin sensitiser. Notes: as NCO**<br>OELV-15min: 0.07 mg/m³, (as NCO) 15 minute(s).<br>OELV-8hr: 0.02 mg/m³, (as NCO) 8 hour(s). |
| 4,4'-methylenediphenyl diisocyanate | **NAOSH (Ireland, 8/2007). Skin sensitiser.**<br>OELV-8hr: 0.02 mg/m³, (as NCO) 8 hour(s).<br>OELV-15min: 0.07 mg/m³, (as NCO) 15 minute(s). |

**Recommended monitoring procedures** : Medical supervision of all employees who handle or come in contact with respiratory sensitisers is recommended. Personnel with a history of asthma-type conditions, bronchitis or skin sensitisation conditions should not work with MDI based products. The Occupational Exposure Limits listed do not apply to previously sensitised individuals. Sensitised individuals should be removed from any further exposure.

**Derived effect levels**

No DELs available.

**Predicted effect concentrations**

No PECs available.

**8.2 Exposure controls**

**Appropriate engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits. MDI can only be smelled if the occupational exposure limit has been exceeded considerably.

**Individual protection measures**

## SECTION 8: Exposure controls/personal protection

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

**Skin protection**

**Hand protection** : Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms.Examples of glove materials that might provide suitable protection include :Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated ("EVAL"), Polychloroprene (Neoprene*), Nitrile/butadiene rubber ("nitrile" or "NBR"), Polyvinyl chloride ("PVC" or "vinyl"), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater then 240 minutes according to EN374) is recommended.

When only brief contact is expected, a glove with protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended. Contaminated gloves should be decontaminated and disposed of.

Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier. Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.

Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers. Additional information can be found for instance at www.gisbau.de.

**Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Body: Recommended: Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek-Pro 'F' disposable coverall.

**Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection** : In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

**Appearance**

**Physical state** : Liquid.

**Colour** : Brown.

**Odour** : slightly musty

**Odour threshold** : Not available.

**pH** : Not applicable.

**Melting point/freezing point** : Not available.

**Initial boiling point and boiling range** : Not available.

**Flash point** : Closed cup: 230°C
Open cup: 230°C

**Evaporation rate** : Not available.

**Flammability (solid, gas)** : Not available.

**Burning time** : Not applicable.

**Burning rate** : Not applicable.

**Upper/lower flammability or explosive limits** : Not explosive

**Vapour pressure** : Not available.

**Vapour density** : 8.5

**Relative density** : 1.23

**Solubility(ies)**

**Water solubility** :

**Other** : insoluble in water.

**Partition coefficient: n-octanol/water** : Not applicable. Reacts with water and octanol.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic: 220 mPa·s

**Explosive properties** : Not available.

**Oxidising properties** : Not available.

### 9.2 Other information

**Density** : 1.23 g/cm$^3$ [25°C (77°F)]

## SECTION 10: Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : Stable at room temperature.

**10.3 Possibility of hazardous reactions** : Reaction with water (moisture) produces CO2-gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.

## SECTION 10: Stability and reactivity

None known

**10.4 Conditions to avoid** : Avoid high temperatures.

**10.5 Incompatible materials** : Water, alcohols, amines, bases, and acids.

**10.6 Hazardous decomposition products** : Combustion products may include: carbon oxides (CO, $CO_2$) , nitrogen oxides (NO, $NO_2$ etc.) , hydrocarbons , HCN.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity**

| Product/ingredient name | Endpoint | Species | Result | Exposure |
|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | LC50 Inhalation Dusts and mists | Rat - Male, Female | 310 mg/m3 | 4 hours |
| | LD50 Dermal | Rabbit - Male, Female | >9400 mg/kg | - |
| | LD50 Oral | Rat - Male | >10000 mg/kg | - |
| Diphenylmethane 4,4'-diisocyanate | LC50 Inhalation Dusts and mists | Rat | 0.49 mg/L | 4 hours |

**Irritation/Corrosion**

**Conclusion/Summary** : Not available.

**Sensitiser**

| Product/ingredient name | Test | Route of exposure | Species | Result |
|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 406 Skin Sensitization | skin | Guinea pig | Not sensitizing |
| | No official guidelines | Respiratory | Rat | Sensitising |
| Diphenylmethane 4,4'-diisocyanate | OECD 406 Skin Sensitization | skin | Guinea pig | Not sensitizing |
| | No official guidelines | Respiratory | Guinea pig | Sensitising |

**Conclusion/Summary** : Not available.

**Mutagenicity**

| Product/ingredient name | Test | Result |
|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 474 | Negative |
| | - | Equivocal |
| Diphenylmethane 4,4'-diisocyanate | EU | Negative |
| | OECD 474 Mammalian Erythrocyte Micronucleus Test | Negative |

**Conclusion/Summary** : Not available.

**Carcinogenicity**

| Product/ingredient name | Test | Species | Exposure | Result | Route of exposure | Target organs |
|---|---|---|---|---|---|---|

## SECTION 11: Toxicological information

| | | | | | | |
|---|---|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies | Rat | 2 years; 5 days per week | Negative | Inhalation | - |
| | EU | Rat | 2 years; 5 days per week | Negative | Inhalation | - |
| Diphenylmethane 4,4'-diisocyanate | OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies | Rat | 2 years; 5 days per week | Positive | Inhalation | lungs |

**Reproductive toxicity**

**Teratogenicity**

| Product/ingredient name | Test | Species | Result/Result type |
|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 414 Prenatal Developmental Toxicity Study | Rat - Male, Female | 4 mg/m3 NOAEL |
| Diphenylmethane 4,4'-diisocyanate | OECD 414 Prenatal Developmental Toxicity Study | Rat - Male, Female | 12 mg/m3 NOAEL |

**Specific target organ toxicity (single exposure)**

| Product/ingredient name | Category | Route of exposure | Target organs |
|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | Category 3 | Inhalation | Respiratory tract irritation |
| 4,4'-methylenediphenyl diisocyanate | Category 3 | Inhalation | Respiratory tract irritation |

**Specific target organ toxicity (repeated exposure)**

| Product/ingredient name | Category | Route of exposure | Target organs |
|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | Category 2 | Inhalation | respiratory tract |
| 4,4'-methylenediphenyl diisocyanate | Category 2 | Inhalation | respiratory tract |

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure** : Not available.

**Potential acute health effects**

**Inhalation** : LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.
This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.

**Ingestion** : Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

**Skin contact** : Irritating to skin. May cause sensitisation by skin contact. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

**Eye contact** : Irritating to eyes.

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

## SECTION 11: Toxicological information

**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

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Long term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Potential chronic health effects**

| Product/ingredient name | Test | Result type | Result | Target organs |
|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies | NOEC Dusts and mists | 0.2 mg/m3 | - |

**Conclusion/Summary** : Not available.

**General** : May cause damage to organs through prolonged or repeated exposure if inhaled. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m3), there was a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adenocarcinoma). There were no lung tumours at 1 mg/m3 and no effects at 0.2 mg/m3. Overall, the tumour incidence, both benign and malignant, and the number of animals with the tumours were not different from controls. The increased incidence of lung tumours is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumour formation will occur.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations, which are well in excess of defined occupational exposure limits.

**Fertility effects** : Not available.

**Other information** : Not available.

# SECTION 12: Ecological information

## 12.1 Toxicity

| Product/ingredient name | Test | Endpoint | Exposure | Species | Result |
|---|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 209 Activated Sludge, Respiration Inhibition Test | Acute EC50 | 3 hours Static | Bacteria | >100 mg/L |
| | OECD 202 *Daphnia* sp. Acute Immobilisation Test | Acute EC50 | 24 hours Static | Daphnia | >1000 mg/L |
| | OECD 203 Fish, Acute Toxicity Test | Acute LC50 | 96 hours Static | Fish | >1000 mg/L |
| | OECD 201 Alga, Growth Inhibition Test | Chronic EC50 | 72 hours Static | Algae | >1640 mg/L |
| | No official guidelines | Chronic NOEC | 112 days Static | Daphnia | >10000 mg/L |
| | OECD 211 Daphnia Magna Reproduction Test | Chronic NOEC | 21 days Semi-static | Daphnia | >10 mg/L |
| | No official guidelines | Chronic NOEC | 112 days Static | Fish | >10000 mg/kg |
| | No official guidelines | Chronic NOECr | 112 days Static | Algae | >10000 mg/L |
| Diphenylmethane 4,4'-diisocyanate | OECD 209 Activated Sludge, Respiration Inhibition Test | Acute EC50 | 3 hours Static | Bacteria | >100 mg/L |
| | OECD 202 *Daphnia* sp. Acute Immobilisation Test | Acute EC50 | 24 hours Static | Daphnia | >1000 mg/L |
| | OECD 203 Fish, Acute Toxicity Test | Acute LC50 | 96 hours Static | Fish | >1000 mg/L |
| | OECD 211 Daphnia Magna Reproduction Test | Chronic NOEC | 21 days Semi-static | Daphnia | >10 mg/L |

## 12.2 Persistence and degradability

| Product/ingredient name | Test | Period | Result |
|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | OECD 302C Inherent Biodegradability: Modified MITI Test (II) | 28 days | 0 % |
| 4,4'-methylenediphenyl diisocyanate | OECD 302C Inherent Biodegradability: Modified MITI Test (II) | 28 days | 0 % |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | Fresh water 0.8 days | - | Not readily |
| 4,4'-methylenediphenyl diisocyanate | - | - | Not readily |

## 12.3 Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | - | 200 | high |
| 4,4'-methylenediphenyl diisocyanate | - | 200 | high |

## 12.4 Mobility in soil

## SECTION 12: Ecological information

**Soil/water partition coefficient ($K_{OC}$)** : Not available.

**Mobility** : By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise. Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including diamino- diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related diisocyanates.

### 12.5 Results of PBT and vPvB assessment

**PBT** : PBT: No.
P: No. B: No. T: No.

**vPvB** : vPvB: No.
vP: No. vB: No.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

### 12.7 Other ecological information

## SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 13.1 Waste treatment methods

**Product**

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

**Hazardous waste** : Yes.

**European waste catalogue (EWC)**

| Waste code | Waste designation |
|---|---|
| 08 05 01*<br>16 03 05* | waste isocyanates<br>organic wastes containing dangerous substances |

**Packaging**

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

| | 14.1 UN number | 14.2 UN proper shipping name |
|---|---|---|
| **ADR/RID** | Not regulated. | - |
| **ADN/ADNR** | Not regulated. | - |
| **IMDG** | Not regulated. | - |
| **IATA** | Not regulated. | - |

| | ADR/RID | ADN/ADNR | IMDG | IATA |
|---|---|---|---|---|
| **14.3 Transport hazard class(es)** | - | - | - | - |
| **14.4 Packing group** | - | - | - | - |
| **14.5 Environmental hazards** | No. | No. | No. | No. |
| **14.6 Special precautions for user** | Not available. | Not available. | Not available. | Not available. |
| **Additional information** | - | - | - | - |

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not applicable.

## SECTION 15: Regulatory information

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

**EU Regulation (EC) No. 1907/2006 (REACH)**

**Annex XIV - List of substances subject to authorisation**

**Substances of very high concern**

None of the components are listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

**Other EU regulations**

**Europe inventory** : All components are listed or exempted.

**Black List Chemicals** : Not listed

**Priority List Chemicals** : Not listed

**Integrated pollution prevention and control list (IPPC) - Air** : Not listed

**Integrated pollution prevention and control list (IPPC) - Water** : Not listed

## SECTION 15: Regulatory information

| Product/ingredient name | Carcinogenic effects | Mutagenic effects | Developmental effects | Fertility effects |
|---|---|---|---|---|
| Isocyanic acid, polymethylenepolyphenylene ester | Carc. 2, H351 | - | - | - |
| 4,4'-methylenediphenyl diisocyanate | Carc. 2, H351 | - | - | - |

**International regulations**

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

**15.2 Chemical Safety Assessment** : Not yet complete.

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

**Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

| Classification | Justification |
|---|---|
| Acute Tox. 4, H332 | Calculation method |
| Skin Irrit. 2, H315 | Calculation method |
| Eye Irrit. 2, H319 | Calculation method |
| Resp. Sens. 1, H334 | Calculation method |
| Skin Sens. 1, H317 | Calculation method |
| Carc. 2, H351 | Calculation method |
| STOT SE 3, H335i | Calculation method |
| STOT RE 2, H373i | Calculation method |

**Full text of abbreviated H 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. |
| H335i | May cause respiratory irritation. |
| H351 | Suspected of causing cancer. |
| H373i | May cause damage to organs through prolonged or repeated exposure if inhaled. |

## SECTION 16: Other information

**Full text of classifications [CLP/GHS]** :

| | |
|---|---|
| Acute Tox. 4, H332 | ACUTE TOXICITY: INHALATION - Category 4 |
| Carc. 2, H351 | CARCINOGENICITY - Category 2 |
| Eye Irrit. 2, H319 | SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 |
| Resp. Sens. 1, H334 | RESPIRATORY SENSITIZATION - Category 1 |
| Skin Irrit. 2, H315 | SKIN CORROSION/IRRITATION - Category 2 |
| Skin Sens. 1, H317 | SKIN SENSITIZATION - Category 1 |
| STOT RE 2, H373i | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): INHALATION [respiratory tract] - Category 2 |
| STOT SE 3, H335i | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE): INHALATION [Respiratory tract irritation] - Category 3 |

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

**Full text of classifications [DSD/DPD]** : Carc. Cat. 3 - Carcinogen category 3
Xn - Harmful
Xi - Irritant

**MSDS no.** : 00009011

**Date of printing** : 1/10/2011.

**Date of issue/ Date of revision** : 1/10/2011.

**Date of previous issue** : 1/10/2011.

**Version** : 2

**Notice to reader**

***While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.***

***IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.***

***THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.***

***Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.***

**Liquid decontaminants (percentages by weight or volume) :**
**Decontaminant 1 : *- sodium carbonate : 5 - 10 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %**
**Decontaminant 2 : *- concentrated ammonia solution : 3 - 8 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %**
**Decontaminant 1 reacts slower with diisocyanates but is more environmentally friendly than decontaminant 2.**
**Decontaminant 2 contains ammonia. Ammonia presents health hazards. (See supplier safety information.)**
**Literature reference: PU 193-1 : 'MDI-Based Compositions : Hazards and Safe Handling Procedures.'**
**PU 181-15 : Recommended melting procedures for MDI-based isocyanates.**
**ISOPA Guidelines for safe Loading/Unloading, Transportation, Storage of TDI and MDI , Ref.03-96 PSC-0005-GUIDL.**
**SPI PMDI User Guidelines for the Chemical Protective Clothing Selection.**
**References of methods used in the Physico-Chemical Properties section are reported in Annex V part A to Commission Directive 92/69/EEC of 31 July 1992 adapting to technical progress for the Seventeenth time Council Directive 67/548/EEC.**

| | | | |
|---|---|---|---|
| **Date of printing** | : 10 January 2011 | **MSDS no.** | : 00009011 |
| **Date of issue** | : **10 January 2011** | **Version** | : 2 |

## SECTION 16: Other information

**Enquiries should be addressed to the CPI Foam Ltd office:**

**CPI Foam Ltd**
**Unit 2c**
**Charvey Lane Industrial Estate**
**Rathnew**
**Co. Wicklow**
**Ireland**
**Tel: +353 (0) 404 66111**