Isophorone Diisocyanate (IPDI)

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name:	Isophorone Diisocyanate (IPDI)
CAS Number:	4098-71-9
EC Number:	223-861-6

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

Product use: Laboratory chemicals, manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company name:	East Harbour Group Ltd 20 Clough Road, Severalls Industrial Park Colchester, Essex, CO4 9QS United Kingdom
Telephone:	+44 (0) 333 242 0100
Email:	info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone:	0800 246 1274

Section 2: Hazardous identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 1 (Inhalation)	H330
Skin Irritation. 2	H315
Eye Irritation. 2	H319
Resp. Sens. 1	H334
Skin Sens. 1	H317
STOT SE 3	H335
Aquatic Chronic 2	H411

2.2 Label elements

Signal Word: DANGER

Hazard Statements:

H315 – Causes skin irritation
H317 – May cause an allergic skin reaction
H319 – Causes serious eye irritation
H330 – Fatal if inhaled
H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 – May cause respiratory irritation
H411 – Toxic to aquatic life with long lasting effect

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Precautionary Statements: P260 – Do not breathe dust, fume, gas, mist, spray, vapours
P280 – Wear protective gloves, protective clothing, eye protection, face shield
P285 – In case of inadequate ventilation wear respiratory protection
P273 - Avoid release to the environment
P304+P340 – IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
P309+P311 – IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician
P305=P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P302+P350 – IF ON SKIN: Gently wash with plenty of soap and water
P403+P233 – Store in a well-ventilated place. Keep container tightly closed

2.3 Other hazards

Combustible liquid. Reacts on contact with water releasing carbon dioxide (CO_2). Hazardous reactions may occur on contact with certain chemicals.

Section 3: Composition/information on ingredients

3.1 Mixtures

CAS #	Content (W/W)	Ingredients
4098-71-9	>99.5%	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, isophorone di-isocyanate

Chemical name: Isophorone Diisocyanate (IPDI)
Common name / synonyms: Isophorone Diisocyanate; 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, isophorone di-isocyanate

Section 4: First aid measures

4.1 Description of first aid measures

In case of skin contact: Wash with soapy water. Wash off immediately and plentifully with water for at least 20 minutes. If case of redness or irritation, call a doctor, If possible show him this sheet. Failing this, show him the packaging or label.

In case of eye contact: Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Get immediate medical advice/attention. If possible show him this sheet. Failing this show him the packaging or label.

If swallowed: Never attempt to induce vomiting. Give nothing to drink. Rinse mouth out with water

If inhaled: Move the affected person away from the contaminated area. Make the person rest. Get immediate medical advice/attention. If possible show him this sheet. Failing this, show him the packaging or label.

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General:	Use appropriate protective equipment when treating a contaminated person. Remove/take off immediately all contaminated clothing. Place contaminated clothing in a sealed bag for disposal. Remove breathing equipment only after contaminated clothing has been completely removed. Artifical respiration and/or oxygen if necessary.

4.2 Most important symptoms and effects, both acute and delayed
Injuries after inhalation: Delayed fatal pulmonary oedema possible.

4.3 Indication of any immediate medical attention and special treatment needed
No information available

Section 5: Fire-fighting measures

5.1 Fire Fighting Media and Instructions:
Suitable extinguishing media: Alcohol resistant foam. Carbon dioxide. Polyvalent powders.
Unsuitable extinguishing media: Water

5.2 Special hazards arising from the substance or mixture
Fire hazard: Combustible liquid
Reactivity in case of fire: During combustion toxic vapours are released

5.3 Advice for firefighters

Protection during firefighting:	Self contained breathing apparatus. Complete protective clothing
Other information:	Keep upwind. Evacuate the personnel away from the fumes.
In case of significant fire close by:	Cool down the containers/equipment exposed to heat with a water spray. Ensure that there is no direct contact between the water and the product. Do not breathe fumes. Do not attempt to take action without suitable protective equipment. Use extinguishing media appropriate for surrounding fire.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions: Avoid contact with skin and eyes. Do not breathe vapours. Keep upwind. Do not attempt to take action without suitable protective equipment. Evacuate unnecessary personnel.
Protective Equipment: Equip clean up crew with proper protection. Self-contained breathing apparatus. Impermeable protective equipment.
Emergency Procedures: Mark out the contaminated area with signs and prevent access to unauthorised personnel. Keep people at a distance and stay on the windward side.

6.2 Environmental precautions
Do not discharge into drains or the environment. Dam up the liquid spill.

6.3 Methods and material for containment and cleaning up

Do not spray water into packaging which has been damaged or overturned. Pump up the product into a suitably labelled spare container. Recover the cleaning water for later disposal. In case of large spillages, take up liquid spill into absorbent material. Wash contaminated area with large amounts of water. Small Spillages: Slaked lime.

Section 7: Handling and storage

7.1 Precautions for safe handling

Ensure good ventilation of the workstation. Closed system. Prevent moisture contact. Avoid the formation of mists in the atmosphere. Avoid any direct contact with the product. Comply with instructions for use. Never add water to this product.

7.2 Conditions for safe storage, including any incompatibilities

Storage Conditions: The floor of the depot should be impermeable and designed to form a water-tight basin. Store in a dry place. Store in a closed container. Store in a well-ventilated position. Keep/Store away from incompatible materials.

Special Rules on Packaging: Keep only in original container. Watertight packaging. Storage in stainless steel containers. Under inert gas.

Packaging Materials: Stainless steel. Coated steels.

Section 8: Exposure controls/personal protection

8.1 Control parameters

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, isophorone di-isocyanate (409-71-9)		
EU	IOELV TWA (mg/m3)	0.09.mg/m3
EU	IOELV TWA (ppm)	0.01 ppm
EU	IOELV STEL (mg/m3)	0.18 mg/m3
EU	IOELV STEL (ppm)	0.02 ppm
United Kingdom	WEL TWA (mg/m3)	0.02 mg/m3
United Kingdom	WEL STEL (mg/m3)	0.07 mg/m3
DNEL/DMEL (Workers)		
Acute – local effects, inhalation	0.0453 mg/m3	
Long-term – local effects, inhalation	0.0453 mg/m3	
PNEC (Water)		
PNEC aqua (freshwater)	60 ug/l (Daphnia magna)	
PNEC aqua (marine water)	60 ug/l (Daphnia magna)	
PNEC aqua (intermittent, freshwater)	40 ug/l (Chaetogammarus marinus)	
PNEC (Sediment)		
PNEC sediment (freshwater)	218.9 mg/kg dwt equilibrium portioning	
PNEC sediment (marine water)	21.89 mg/kg dwt (equilibrium partitioning)	
PNEC (Soil)		
PNEC soil	44.01 mg/kg dwt (equilibrium partitioning)	
PNEC (STP)		
PNEC sewage treatment plant	10.6 mg/l (OECD 209)	

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8.2 Exposure controls and personal protective equipment

Eye/face protection:	Tightly sealed goggles
Skin protection:	Wear suitable protective clothing. Materials for protective clothing: Protective clothing (with elasticated cuffs and closed neck). Boots made of PVC.
Body protection:	Wear protective gloves. PVC gloves. Protective gloves must be chosen according to the function of the workstation: other chemicals may be handled, physical protection necessary (resistance to cutting, puncture, heat), dexterity required. The selection of gloves must take into account the extent and duration of use at the workstation.
Respiratory Protection:	In case of inadequate ventilation wear respiratory protection
Consumer Exposure Controls:	Extraction to remove vapours at their source. Used in closed systems. Ensure good ventilation of the workstation. Atmospheric monitoring at regular intervals. Specific medical surveillance. Safety shower. Eye fountain. Do not drink, eat or smoke in the workplace. Keep away from food, drink and animal feeding stuffs. Immediately remove contaminated or damp clothing. Emergency equipment and first-aid box with instructions readily available. Store protective clothing separately. Wash hands before breaks and after work.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Colourless to slightly yellow
Physical State	Liquid
Odor	Pungent
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-60 C
Boiling Point/Range	310 C
Flash Point	150 C
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Explosion Limits	Product is not explosive
Vapor Pressure	0.000635 hPa (20 C)
Vapor Density	No information available
Density	1.06 g/cm3 (20 C)
Solubility	Soluble in aromatic hydrocarbons. Soluble in chlorinated hydrocarbons. Completely soluble in ketonic solvents or esters. Reacts with water
Partition Coefficient	No information available
Auto-ignition temperature	No information available
Decomposition temperature	No information available

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Section 10: Stability and Reactivity

10.1 Reactivity:	No additional information available
10.2 Chemical Stability:	Stable at room temperature
10.3 Possibility of hazardous reactions:	Reacts with: Acids, alcohols, amines, bases, water, aqueous solution, protic solvents, with a great release of CO2, and hence a risk of a pressure build up in confined areas and forms an insoluble solid precipitate.
10.4 Conditions to avoid	Container can be pressurised by carbon dioxide due to reaction with humid air and/or water
10.5 Incompatible materials	No information available
10.6 Hazardous decomposition products	On combustion or on thermal decomposition (pyrolsis) releases: Toxic gases. Carbon oxides (CO, CO2)

Section 11: Toxicological Information

11.1 Toxicological effects:

LD50 Oral – rat – 4814 m/kg (OECD 401)
LD50 Dermal – rat - >7000 mg/kg (OECD 402)
LC50 Inhalation – rat – 31 mg/m3 (OECD 403)

11.2 Acute Toxicity:
Skin Corrosion/irritation: Causes skin irritation (OECD 404 method). Rabbit, unpublished reports. pH: Not applicable
Serious eye damage/irritation: Causes serious eye irritation (OECD 405 method). Rabbit, unpublished reports. pH: Not applicable
Respiratory or skin sensitisation: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. (OECD 406 method). Guinea-pig, human data available. Unpublished reports
Germ cell mutagenicity: Not classified. Unpublished reports
Carcinogenicity: Not classified. Unpublished reports
Reproductive toxicity: Not classified. Unpublished reports
Specific target organ toxicity (single exposure): May cause respiratory irritation. Unpublished reports
Specific target organ toxicity (repeated exposure): Not classified. Based on available data, the classification criteria are not met

11.3 Delayed and immediate effects and also chronic effects from short- and long-term exposure:
No information available

11.4 Numerical measures of toxicity (such as acute toxicity estimates):
No information available

11.5 Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA:
Not listed

Section 12: Ecological Information

12.1 Toxicity

Toxicity to fish:	static test LC50 – Brachydanio rerio – 72 mg/l – 96 h (EU C.1)
Toxicity to other aquatic organisms:	static test LC50 – Chaetogrammarus marinus – 4 mg/l – 96 h
Toxicity to daphnia:	static test EC50 – Daphnia magna – 27 mg/l – 48 h (EU C.2)
Toxicity to other aquatic organisms:	static test EC50 – Desmodesmum subpicatus – 70 mg/l – 72 h (EU C.3)
Toxicity to fish:	static test LC50 – Cyprinus carpio – 208 mg/l – 96 h (EU C.1)
Toxicity to other aquatic organisms:	static test EC50 – Bacterie – 263 mg/l – 3h (OECD 209)
Toxicity to algae:	static test EC50 – Desmodesmus subspicatus - >70 mg/l – 72 h (EU C.3)
Toxicity to daphnia:	LOEC – Daphnia magna – 10 mg/l – 21 d (OECD 202)
Toxicity to daphnia:	NOEC – Daphnia magna – 3mg/l – 21 d (OECD 202)
Toxicity to other aquatic organisms:	static test NOEC – Desmodsesmus subpicatus – 4.4 mg/l – 72 h (EU C.3)
Additional information:	low toxicity to aquatic organisms
Bioaccumulative potential:	Not potentially bioaccumulable

Section 13: Disposal considerations

13.1 Waste treatment methods
Waste disposal of substance:
Discharging into rivers and drains is forbidden. Incinerate at a licensed installation. Disposal must be done according to official regulations.

Additional Information:
Uncleaned packaging. Empty the packaging completely prior to disposal. Incinerate at a licensed installation. Disposal must be done according to official regulations.
European List of Waste (LoW) code:
09 01 08 – other still bottoms and reaction residues

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Section 14: Transport Information

ADR	IMDG	IATA
UN number: 2290	UN number: 2290	UN number: 2290
UN proper shipping name		
ISOPHORONE DIISOCYANATE	ISOPHORONE DIISOCYANATE	ISOPHORONE DIISOCYANATE
Transport document description		
UN 2290 ISOPHORONE DIISOCYANATE 6.1. III. (E). Environmentally Hazardous	UN 2290 ISOPHORONE DIISOCYANATE 6.1. III. Marine Pollutant/Environmentally Hazardous	
Transport hazard class(es)		
6.1 	6.1 	6.1 
Packing Group		
III	III	III
Environmental Hazards		
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

EU-Regulations:
No REACH Annex XVII restrictions
Isophorone Diisocyanate (IPDI) is not on the REACH Candidate List
Contains no substance on the REACH candidate list
Isophorone Diisocyanate (IPDI) is not on the REACH Annex XIV List
Contains no REACH Annex XIV substances
National Regulations:
No information available
Chemical Safety Assessment:
A chemical safety assessment has been carried out.