

## MATERIAL SAFETY DATA SHEET

### 1. Identification of the substance/preparation and company

**Product Name:** Hardener B for Flowshield ESD

**Application:** Aliphatic amine component of a 3 component floor coating.  
Mixed product is poured onto the floor and spread with a trowel and/or rake.

### 2. Composition/information on constituents

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Isophorone diamine	220-666-8	2855-13-2	20 – 40	C; R21/22. R34. R43. R52/53.
m-xylenediamine	216-032-5	1477-55-0	5 – 10	C; R20/22. R34. R43. R52/53.
Polyoxypropylene diamine	-	9046-10-0	5 – 10	C; R34.
Benzyl alcohol	202-859-9	100-51-6	30 – 50	Xn; R20/22.
2-hydroxybenzoic acid	200-712-3	69-72-7	1 - 5	Xn; R22. R37/38. R41.

See section 16 Additional information, for full text regarding symbols and Risk phrases.

### 3. Hazards Identification

**Causes Burns.** Acute effects: Contact of undiluted product with the eyes or skin quickly causes severe irritation and pain and may cause burns, necrosis and permanent injury. Burns of the eye may cause blindness.

**Harmful by inhalation.** (Is valid at increased temperatures and when spraying). Product vapour in low concentration can cause lacrimation, conjunctivitis and corneal oedema when absorbed onto the tissue of the eye from the atmosphere. Inhalation of vapours, aerosols and mist may severely damage contacted tissue and produce scarring.

**Harmful if swallowed.** Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.

**Harmful in contact with skin.** Product is absorbed through the skin and may cause nausea, headache and general discomfort. Contact with the skin may cause dryness (defatting), itching and/or rash.

**May cause sensitisation by skin contact.** Repeated and /or prolonged exposure may cause an allergic reaction/sensitisation. Once sensitised, an individual may produce an allergic eczema reaction every time they are in contact with the amines in this material.

**Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**

When the base is mixed with the hardener an exothermic reaction starts (i.e. heat is generated). If the mix is not applied within 20 - 30 minutes some smoking may occur.

### 4. First Aid measures

**Inhalation** : Move patient to fresh air. If breathing has stopped or is laboured give assisted

respiration (e.g. mouth to mouth). If symptoms persist seek medical advice.  
Prevent aspiration of vomit, turn victim's head to the side.

- Skin contact** : Remove contaminated clothing and shoes. Remove product from skin and immediately flush affected area with water for at least 15 minutes. Cover affected area with a sterile dressing or clean sheeting and transport for medical care. Do not apply greases or ointments. Control shock if present.  
Launder contaminated clothing before reuse.
- Eye Contact** : Hold eyelids apart and immediately flush with plenty of water for at least 15 minutes.  
Seek medical advice immediately.
- Ingestion** : Administer 3 – 4 glasses of milk, water or charcoal slurry.  
Never give anything by mouth to an unconscious person.  
Do not induce vomiting. Seek medical advice immediately.

#### 5. Fire-fighting measures

- Suitable extinguishing media** : In case of large fire use: Water spray, alcohol-resistant foam.  
In case of a small fire use: carbon dioxide (CO<sub>2</sub>), dry chemical, dry sand or limestone.
- Un-Suitable extinguishing media** : High volume water jet.
- Special exposure hazards** : Burning produces noxious and toxic fumes – carbon and nitrogen oxides, plus some ammonia. Personnel in vicinity and downwind should be evacuated.  
Contact of liquid with the skin must be prevented.
- Special protective equipment** : Wear self-contained breathing apparatus, butyl rubber boots, gloves and protective suit.
- Additional information** : Retain expended liquids from fire fighting for later disposal.  
Standard procedure for chemical fires.  
Water mist may be used to cool closed containers.

#### 6. Accidental release measures

- Personal precautions** : Use personal protective equipment as detailed in Section 8.  
Ensure adequate ventilation. Do not breathe vapours.  
Keep unauthorised people away.
- Environmental precautions** : Prevent the product from entering drains. Avoid subsoil penetration.  
Do not contaminate surface water.
- Methods for cleaning up** : Soak up with an inert absorbent material (e.g. sand) and dispose of as hazardous waste in accordance with section 13.

#### 7. Handling and storage

- Handling** : Provide sufficient air exchange and/or exhaust in workrooms. Avoid formation of aerosol.  
Ensure adequate ventilation - avoid breathing of vapours.  
Use personal protective equipment as detailed in Section 8.  
Handle and open container with care. Do not eat, drink or smoke when handling.  
Avoid using in any spray application without strict conformance to all applicable electrical codes.
- Storage** : Keep containers tightly closed and store in a well-ventilated place at 15 - 40°C.

Protect from freezing and direct sunlight.  
Keep away from drink, food, food containers and animal feeding stuffs.  
Do not store with strong acids and strong oxidising agents.

## 8. Exposure controls/personal protection

There are no components with occupational exposure limits established.

**Engineering measures to reduce exposure** : Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment** :

**Respiratory protection** : Not required under normal conditions in a well ventilated workplace. A respirator will be required for spray applications and in poorly ventilated areas, viz. chemical cartridge respirator with face piece to protect against the organic vapour, NIOSH approved supplied air respirator with full face shield or self-contained breathing apparatus in pressure demand mode.

**Eye protection** : Full face shield or safety goggles.

**Hand protection** : Rubber or plastic impermeable gloves (PVC, butyl or neoprene rubber). Check regularly for degradation/holes and replace as necessary.

**Skin and body protection** : Protective suit and heavy duty work shoes.

**Protective measures** : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using do not eat, drink or smoke.

**Other protective measures** : Eye wash facility.

## 9. Physical and chemical properties

Appearance	: Pale yellow liquid	pH	: 11.1 for 1:1 aqueous solution
Odour	: Ammoniacal	Relative Density	: ~1.04
Boiling Point	: >100 °C	Water solubility	: Partly soluble
Flashpoint	: >100 °C	Water miscibility	: miscible
Explosion limits	: Not explosive.		

## 10. Stability and reactivity

Material is stable when stored and handled under recommended conditions. When the base is mixed with the hardener an exothermic reaction starts (i.e. heat is generated). If the mix is not applied within 20 - 30 minutes some smoking may occur.

**Conditions to avoid** : Avoid temperatures above 40 °C.  
Protect from freezing.

**Materials to avoid** : Strong acids and strong oxidising agents. Reaction with peroxides may result in violent decomposition of peroxide, possibly creating an explosion. Slowly corrodes copper, aluminium and zinc (includes galvanised surfaces).

**Hazardous decomposition products** : Ammonia produced when heated.  
Irritating and toxic fumes at elevated temperatures.

Burning produces noxious and toxic fumes of nitrogen oxides, carbon monoxide and carbon dioxide (CO<sub>2</sub>).  
Hazardous polymerisation will not occur.

### 11. Toxicological information

- Acute toxicity** : Oral LD<sub>50</sub>, rat, 1030 mg/kg (isophorone diamine)  
Oral LD<sub>50</sub>, rat, 940 mg/kg (m-xylenediamine)  
Oral LD<sub>50</sub>, rat, 1230 mg/kg (benzyl alcohol)  
Dermal LD<sub>50</sub>, rabbit, 2000 mg/kg (benzyl alcohol)  
Inhalation LC<sub>50</sub>, rat, 2.4mg/l (4 hours) (m-xylenediamine)
- Inhalation** : The risk of inhalation of hazardous vapours or spray is considered to be small at recommended storage and handling conditions.
- Inhalation of vapour or mist may result in smarting pain, cough, headache, nausea, tiredness and dizziness.
- Ingestion** : Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.
- Eye irritation** : Material is Corrosive, burns of the eye can cause blindness.
- Skin Irritation** : Material is Corrosive, causes burns, and will cause skin irritation.
- Sensitisation** : Prolonged or repeated skin contact may result in allergic eczema.

### 12. Ecological information

- Ecotoxicity** : Isophorone diamine - EC<sub>50</sub>/ 48 hr/daphnia magna = 23 mg/l  
LC<sub>50</sub>/ 96 hr/fish (Brachydanio rerio) = 110 mg/l  
m-Xylenediamine - EC<sub>50</sub>/ 48 hr/daphnia magna = 16 mg/l  
LC<sub>50</sub>/ 96 hr/fish (Brachydanio rerio) = >100 mg/l  
IC<sub>50</sub>/ 72hr / algae = 12mg/l
- Mobility** : Mobile
- Persistence and degradability** : Not readily biodegradable.
- Bioaccumulative potential** : No data available.
- Additional ecological information** : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Avoid subsoil penetration. Prevent product from entering drains, do not contaminate surface water.

### 13. Disposal considerations

- Unused Product/waste from cleaning etc.** : Must be disposed in compliance with local and national regulations. EC Waste Catalogue (EWC) code: 08 01 11\* (a hazardous waste)
- Unused product can be mixed with Base A and disposed of under EC Waste Catalogue (EWC) code: 08 01 12 (not a hazardous waste). Remove/invalidate the warning label.
- Contaminated packaging** : Partially filled containers shall be treated as hazardous waste, as above.

Empty containers which have been cleaned can be disposed of as non-hazardous packaging waste in accordance with the regulations. Remove/invalidate the warning label. Use EWC Code: 15 01 02 for plastic, 15 01 04 for metal containers.

Well drained containers are classified as hazardous packaging waste, Use EWC Code: 15 01 10\* .

#### 14. Transport information

**Proper shipping name:** Isophoronediamine solution  
**UN No:** 2289

##### ADR/RID

**Class** : 8  
**HI No** : 80 **Packing Group** : III  
**Contains** : Isophoronediamine

##### IMO

**Class** : 8 **Marine Pollutant** : No  
**Packing Group** : III  
**Contains** : Isophoronediamine

##### IATA

Keep from freezing.  
**Class** : 8 **Packing Group** : III  
**Contains** : Isophoronediamine

#### 15. Regulatory information

**Classification according to EEC regulations. Labelling requirements.**  
**Hazard Symbols:**



Corrosive

##### R-phrases

**R34** : Causes burns.  
**R20/21/22** : Harmful by inhalation, in contact with skin and if swallowed.  
**R43** : May cause sensitisation by skin contact.  
**R52/53** : Harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

##### S-phrases

**S26** : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
**S36/37/39** : Wear suitable protective clothing, gloves and eye/face protection.  
**S45** : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)  
**S61** : Avoid release to the environment. Refer to special instructions/safety data sheet.

**Special provisions statement** : Keep liquid above freezing.

**Hazardous component(s) which must be listed on the label** : Isophoronediamine, m-xylene diamine

<b>EC Directives:</b>	Dangerous Substances Directive, 67/548/EEC & adaptations. Dangerous Preparations Directive, 1999/45/EC. Safety Data Sheets Directive, 91/155/EEC and adaptations.
<b>Statutory Instruments:</b>	Chemicals (Hazard Information & Packaging for Supply) Regs 2002. Control of Substances Hazardous to Health Regs 2002. Environmental Protection (Duty of Care) Regs. 1991.
<b>Codes of Practice</b>	Waste Management. The Duty of Care. Approved classification and labelling guide (Fifth edition). L131. The compilation of safety data sheets (Third edition).
<b>Guidance Notes</b>	Occupational Exposure Limits EH40 CHIP for Everyone HSG(108)

## 16. Other Information

This safety data sheet has been prepared in accordance with CHIP3. Compared to the data previously issued (as separate data sheets for each product), the text has changed in sections 1, 2, 9, 10, 11, 12, 13, 14 and 16.

The text in each section and the section order/ headings are in line with the requirements of CHIP3.

The provision of Safety data sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals, Hazard Information and Packaging Regulations). This is in addition to the Health and Safety at Work Act 1974.

Users of our products should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (CoSHH). This data sheet does not replace the obligation of the user to provide their own assessment of workplace risk as required by other Health & Safety legislation.

EC Directive relating to the classification, packaging and labelling of dangerous substances and preparations –  
Classification(s) and Risk (R) phrase(s) referred to in this document:

C : Corrosive X : Harmful  
n

R34 : Causes burns.  
R20/21/2 : Harmful by inhalation, in contact with skin and if swallowed.  
2  
R20/22 : Harmful by inhalation and if swallowed.  
R21/22 : Harmful in contact with skin and if swallowed.  
R22 : Harmful if swallowed.  
R37/38 : Irritating to respiratory system and skin.  
R41 : Risk of serious damage to eyes.  
R43 : May cause sensitisation by skin contact.  
R52/53 : Harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

**Training Advice**

Applicators need to be trained in:-  
Handling and hygiene associated with use of industrial chemicals.  
Correct mixing and application of the product.  
Correct cleaning and disposal methods.

**Restrictions on Use**

The product is intended for use by appropriately trained applicators in industrial situations. It is not suitable for use in home DIY applications, especially because of its hazardous nature and the protective measures required.

**Notes**

Do not use organic solvents for skin cleansing, it will lead to defatting of the skin, skin irritation and/or dermatitis.

Some solvents can be absorbed through the skin.

Beware of cross contamination where different products are in use in the same location.

This safety data sheet is based on our present knowledge and experience and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.