

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## REN HY 5213 BD

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: -           |
| 1.0     | 09.06.2017     | 400001009747 | Date of first issue: 09.06.2017 |

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

#### 1.1 Product identifier

Trade name : REN HY 5213 BD

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

Use of the Substance/Mixture : Hardener

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

Company : Huntsman Advanced Materials (Europe)BVBA  
Address : Everslaan 45  
3078 Everberg  
Belgium  
Telephone : +41 61 299 20 41  
Telefax : +41 61 299 20 40

E-mail address of person responsible for the SDS : Global\_Product\_EHS\_AdMat@huntsman.com

#### 1.4 Emergency telephone number

Emergency telephone number : EUROPE: +32 35 75 1234  
France ORFILA: +33(0)145425959  
ASIA: +65 6336-6011  
China: +86 20 39377888  
+86 532 83889090  
India: + 91 22 42 87 5333  
Australia: 1800 786 152  
New Zealand: 0800 767 437  
USA: +1/800/424.9300

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

|                                    |                                                |
|------------------------------------|------------------------------------------------|
| Acute toxicity, Category 4         | H302: Harmful if swallowed.                    |
| Acute toxicity, Category 4         | H312: Harmful in contact with skin.            |
| Skin corrosion, Category 1A        | H314: Causes severe skin burns and eye damage. |
| Serious eye damage, Category 1     | H318: Causes serious eye damage.               |
| Skin sensitisation, Category 1     | H317: May cause an allergic skin reaction.     |
| Reproductive toxicity, Category 1B | H360F: May damage fertility.                   |

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Specific target organ toxicity - repeated exposure, Category 2, Liver, Kidney, Pancreas

H373: May cause damage to organs through prolonged or repeated exposure if swallowed.

Acute aquatic toxicity, Category 1

H400: Very toxic to aquatic life.

Chronic aquatic toxicity, Category 1

H410: Very toxic to aquatic life with long lasting effects.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

:



Signal word

: Danger

Hazard statements

: H302 + H312  
H314  
H317  
H360F  
H373

Harmful if swallowed or in contact with skin  
Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.  
May damage fertility.  
May cause damage to organs (Liver, Kidney, Pancreas) through prolonged or repeated exposure if swallowed.  
Very toxic to aquatic life with long lasting effects.

H410

Precautionary statements

: **Prevention:**

P201  
P260  
P280

Obtain special instructions before use.  
Do not breathe mist or vapours.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Hazardous components which must be listed on the label:  
diethyltoluenediamine

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isophorone diamine

1,2-diaminocyclohexane

4,4'-isopropylidenediphenol

**Additional Labelling:**

Restricted to professional users.

**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

**Hazardous components**

| Chemical name               | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number       | Classification                                                                                                                           | Concentration<br>(% w/w) |
|-----------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Diethylmethylbenzenediamine | 68479-98-1<br>270-877-4<br>612-130-00-0<br>01-2119486805-25 | Acute Tox. 4; H302<br>Acute Tox. 4; H312<br>Eye Irrit. 2; H319<br>STOT RE 2; H373<br>Aquatic Acute 1; H400<br>Aquatic Chronic 1;<br>H410 | 30 - 60                  |
| Isophoronediamine           | 2855-13-2<br>220-666-8<br>612-067-00-9<br>-                 | Acute Tox. 4; H302<br>Acute Tox. 4; H312<br>Skin Corr. 1B; H314<br>Skin Sens. 1; H317<br>Aquatic Chronic 3;<br>H412                      | 13 - 30                  |
| Cyclohex-1,2-ylenediamine   | 694-83-7<br>211-776-7<br>-                                  | Acute Tox. 4; H302<br>Acute Tox. 4; H332<br>Acute Tox. 4; H312<br>Skin Corr. 1A; H314<br>STOT SE 3; H335                                 | 7 - 13                   |
| m-Phenylenebis(methylamine) | 1477-55-0<br>216-032-5<br>01-2119480150-50                  | Acute Tox. 4; H302<br>Acute Tox. 4; H332<br>Skin Corr. 1B; H314<br>Eye Dam. 1; H318<br>Skin Sens. 1; H317<br>Aquatic Chronic 3;<br>H412  | 7 - 13                   |
| 4,4'-Isopropylidenediphenol | 80-05-7<br>201-245-8<br>604-030-00-0                        | Eye Dam. 1; H318<br>Skin Sens. 1; H317<br>Repr. 1B; H360F                                                                                | 3 - 7                    |

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|                          |                                            |                                                                 |         |
|--------------------------|--------------------------------------------|-----------------------------------------------------------------|---------|
|                          | 01-2119457856-23                           | STOT SE 3; H335<br>Aquatic Chronic 2;<br>H411                   |         |
| 1-Methylimidazole        | 616-47-7<br>210-484-7<br>613-035-00-7<br>- | Acute Tox. 4; H302<br>Acute Tox. 3; H311<br>Skin Corr. 1B; H314 | 1 - 3   |
| Toluene-4-sulphonic acid | 104-15-4<br>203-180-0<br>-                 | STOT SE 3; H335<br>Skin Irrit. 2; H315<br>Eye Irrit. 2; H319    | 0,1 - 1 |

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- |                         |                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General advice          | : Move out of dangerous area.<br>Consult a physician.<br>Show this safety data sheet to the doctor in attendance.<br>Do not leave the victim unattended.                                                                                                                                                                                                                                        |
| If inhaled              | : If unconscious, place in recovery position and seek medical advice.<br>If symptoms persist, call a physician.                                                                                                                                                                                                                                                                                 |
| In case of skin contact | : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.<br>If on skin, rinse well with water.<br>If on clothes, remove clothes.                                                                                                                                                                                              |
| In case of eye contact  | : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.<br>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>Continue rinsing eyes during transport to hospital.<br>Remove contact lenses.<br>Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist. |
| If swallowed            | : Keep respiratory tract clear.<br>Do NOT induce vomiting.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Take victim immediately to hospital.                                                                                                                                              |

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

None known.

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

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : High volume water jet

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

- Specific hazards during firefighting : No data is available on the product itself.
- Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : No hazardous combustion products are known
- No data is available on the product itself.

### 5.3 Advice for firefighters

- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

## SECTION 6: Accidental release measures

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

- Personal precautions : Use personal protective equipment.

### 6.2 Environmental precautions

- Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

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

- Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel,

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acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

None

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours/dust.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
To avoid spills during handling keep bottle on a metal tray.  
Dispose of rinse water in accordance with local and national regulations.  
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : When using do not eat or drink. When using do not smoke.  
Wash hands before breaks and at the end of workday.

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

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Recommended storage temperature : 2 - 40 °C

Other data : No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis   |
|------------|---------|-------------------------------|--------------------|---------|
| 4,4'-      | 80-05-7 | TWA (inhalable)               | 10 mg/m3           | GB EH40 |

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|                         |                                                                                                                   |                      |          |             |
|-------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------|----------|-------------|
| isopropylidenediph enol |                                                                                                                   | dust)                |          |             |
| Further information     | Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used |                      |          |             |
|                         |                                                                                                                   | TWA (inhalable dust) | 10 mg/m3 | 2009/161/EU |
| Further information     | Indicative                                                                                                        |                      |          |             |

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

| Substance name     | End Use   | Exposure routes | Potential health effects              | Value              |
|--------------------|-----------|-----------------|---------------------------------------|--------------------|
| isophorone diamine | Workers   | Inhalation      | Systemic effects, Short-term exposure | 20,1 mg/m3         |
|                    | Workers   | Inhalation      | Local effects, Short-term exposure    | 20,1 mg/m3         |
|                    | Consumers | Oral            | Systemic effects, Long-term exposure  | 0,526 mg/kg bw/day |
| metaxylenediamine  | Workers   | Inhalation      | Long-term systemic effects            | 1,2 mg/m3          |
|                    | Workers   | Inhalation      | Long-term local effects               | 0,2 mg/m3          |
|                    | Workers   | Dermal          | Long-term systemic effects            | 0,33 mg/kg         |
| 1-Methylimidazole  | Workers   | Inhalation      | Systemic effects, Long-term exposure  | 1,47 mg/m3         |
|                    | Workers   | Dermal          | Systemic effects, Long-term exposure  | 0,42 mg/kg bw/day  |

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

| Substance name     | Environmental Compartment | Value       |
|--------------------|---------------------------|-------------|
| isophorone diamine | Fresh water               | 0,06 mg/l   |
| Remarks:           | Assessment Factors        |             |
|                    | Marine water              | 0,006 mg/l  |
|                    | Assessment Factors        |             |
|                    | Freshwater - intermittent | 0,23 mg/l   |
|                    | Assessment Factors        |             |
|                    | Sewage treatment plant    | 3,18 mg/l   |
|                    | Assessment Factors        |             |
|                    | Fresh water sediment      | 5,784 mg/kg |
|                    | Assessment Factors        |             |
|                    | Marine sediment           | 0,578 mg/kg |
|                    | Assessment Factors        |             |
|                    | Soil                      | 1,121 mg/kg |

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|                   |                           |             |
|-------------------|---------------------------|-------------|
|                   | Assessment Factors        |             |
|                   | Secondary Poisoning       |             |
|                   | Assessment Factors        |             |
| metaxylenediamine | Fresh water               | 0,094 mg/l  |
|                   | Marine water              | 0,009 mg/l  |
|                   | Freshwater - intermittent | 0,152 mg/l  |
|                   | Sewage treatment plant    | 10 mg/l     |
|                   | Fresh water sediment      | 0,43 mg/kg  |
|                   | Marine sediment           | 0,043 mg/kg |
|                   | Soil                      | 0,045 mg/kg |
| 1-Methylimidazole | Fresh water               | 0,1 mg/l    |
|                   | Assessment Factors        |             |
|                   | Marine water              | 0,01 mg/l   |
|                   | Assessment Factors        |             |
|                   | Freshwater - intermittent | 1 mg/l      |
|                   | Assessment Factors        |             |
|                   | Sewage treatment plant    | 590 mg/kg   |
|                   | Assessment Factors        |             |
|                   | Fresh water sediment      | 6,95 mg/kg  |
|                   | Equilibrium method        |             |
|                   | Marine sediment           | 0,695 mg/kg |
|                   | Equilibrium method        |             |
|                   | Soil                      | 1,26 mg/kg  |
|                   | Equilibrium method        |             |

### 8.2 Exposure controls

#### Personal protective equipment

Eye protection : Eye wash bottle with pure water  
Tightly fitting safety goggles  
Wear face-shield and protective suit for abnormal processing problems.

#### Hand protection

Material : butyl-rubber  
Break through time : > 8 h

Material : Ethyl Vinyl Alcohol Laminate (EVAL)  
Break through time : > 8 h

Material : Nitrile rubber

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|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Break through time       | : 10 - 480 min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Remarks                  | : The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The suitability for a specific workplace should be discussed with the producers of the protective gloves. |
| Skin and body protection | : Impervious clothing<br>Choose body protection according to the amount and concentration of the dangerous substance at the work place.                                                                                                                                                                                                                                                                                                                                                                                                         |
| Respiratory protection   | : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.<br>Recommended Filter type:<br>Combined particulates and organic vapour type                                                                                                                                                                                                                                                                                  |
| Filter type              | : Filter type A-P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|                           |                                                             |
|---------------------------|-------------------------------------------------------------|
| Appearance                | : liquid                                                    |
| Colour                    | : brown<br>yellow                                           |
| Odour                     | : slight                                                    |
| Odour Threshold           | : No data is available on the product itself.               |
| pH                        | : No data is available on the product itself.               |
| Freezing point            | : No data is available on the product itself.               |
| Melting point             | : No data is available on the product itself.               |
| Boiling point             | : > 200 °C                                                  |
| Flash point               | : > 100 °C<br>Method: Pensky-Martens closed cup, closed cup |
| Evaporation rate          | : No data is available on the product itself.               |
| Flammability (solid, gas) | : No data is available on the product itself.               |

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|                                        |                                               |
|----------------------------------------|-----------------------------------------------|
| Burning rate                           | : No data is available on the product itself. |
| Upper explosion limit                  | : No data is available on the product itself. |
| Lower explosion limit                  | : No data is available on the product itself. |
| Vapour pressure                        | : < 0,1 hPa (25 °C)                           |
| Relative vapour density                | : No data is available on the product itself. |
| Relative density                       | : No data is available on the product itself. |
| Density                                | : 1 g/cm <sup>3</sup> (20 °C)                 |
| Solubility(ies)                        |                                               |
| Water solubility                       | : partly soluble (20 °C)                      |
| Solubility in other solvents           | : No data is available on the product itself. |
| Partition coefficient: n-octanol/water | : No data is available on the product itself. |
| Auto-ignition temperature              | : No data is available on the product itself. |
| Decomposition temperature              | : > 200 °C                                    |
| Viscosity                              |                                               |
| Viscosity, dynamic                     | : 250 - 500 mPa,s (25 °C)                     |
| Explosive properties                   | : No data is available on the product itself. |
| Oxidizing properties                   | : No data is available on the product itself. |

### 9.2 Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No decomposition if stored and applied as directed.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

### 10.4 Conditions to avoid

Conditions to avoid : No data available

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### 10.5 Incompatible materials

### 10.6 Hazardous decomposition products

Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Burning produces noxious and toxic fumes.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : 952,14 mg/kg  
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate : > 5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : 1 689 mg/kg  
Method: Calculation method

Acute toxicity (other routes of administration) : No data available

#### Skin corrosion/irritation

##### Components:

diethyltoluenediamine:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

isophorone diamine:

Species: Rabbit

Assessment: Causes burns.

Result: Causes burns.

1,2-diaminocyclohexane:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Causes severe burns.

GLP: no

metaxylenediamine:

Species: Rat

Assessment: Causes burns.

Method: Directive 67/548/EEC, Annex V, B.4.

Result: Causes burns.

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4,4'-isopropylidenediphenol:

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

1-Methylimidazole:

Species: Rabbit

Assessment: Causes burns.

Method: OECD Test Guideline 404

Result: Causes burns.

P-toluenesulphonic acid:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

### Serious eye damage/eye irritation

#### Components:

diethyltoluenediamine:

Species: Rabbit

Assessment: Irritant

Result: Irritating to eyes.

Species: Rabbit

Assessment: Irritant

Method: OECD Test Guideline 405

Result: Normally reversible injuries

1,2-diaminocyclohexane:

Species: Rabbit

Result: Risk of serious damage to eyes.

GLP: no

4,4'-isopropylidenediphenol:

Species: Rabbit

Method: OECD Test Guideline 405

Result: Irreversible effects on the eye

1-Methylimidazole:

Species: Rabbit

Assessment: Corrosive

Method: OECD Test Guideline 405

Result: Corrosive

P-toluenesulphonic acid:

Species: Rabbit

Result: Irritation to eyes, reversing within 7 days

Assessment: Irritating to eyes.

Result: Irritating to eyes.

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### Respiratory or skin sensitisation

#### Components:

diethyltoluenediamine:

Exposure routes: Skin

Species: Guinea pig

Result: Does not cause skin sensitisation.

isophorone diamine:

Exposure routes: Skin

Species: Guinea pig

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 406

Result: Causes sensitisation.

1,2-diaminocyclohexane:

Exposure routes: Skin

Species: Guinea pig

Result: negative

metaxylenediamine:

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: Causes sensitisation.

4,4'-isopropylidenediphenol:

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: Does not cause skin sensitisation.

Exposure routes: Skin

Species: Humans

Assessment: May cause sensitisation by skin contact.

Result: Causes sensitisation.

P-toluenesulphonic acid:

Exposure routes: Skin

Species: Guinea pig

Method: Directive 67/548/EEC, Annex V, B.6.

Result: Does not cause skin sensitisation.

#### Components:

metaxylenediamine:

Assessment:

Harmful if swallowed or if inhaled, May be harmful in contact with skin., Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.

### Germ cell mutagenicity

#### Components:

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diethyltoluenediamine:  
Genotoxicity in vitro

: Metabolic activation: negative  
Method: OECD Test Guideline 476  
Result: negative

1,2-diaminocyclohexane:  
Genotoxicity in vitro

: Concentration: 15 - 1500 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes

: Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
GLP: yes

: Concentration: 33 - 1142 µg/L  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
GLP: yes

metaxylenediamine:  
Genotoxicity in vitro

: Test Type: Ames test  
Test species: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

: Test Type: Chromosome aberration test in vitro  
Test species: Chinese hamster lung cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

: Test Type: In vitro mammalian cell gene mutation test  
Test species: mouse lymphoma cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

4,4'-isopropylidenediphenol:  
Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation  
Result: negative

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1-Methylimidazole:  
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Result: negative

: Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

: Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

P-toluenesulphonic acid:  
Genotoxicity in vitro : Concentration: 5000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

: Concentration: 1902 µg/L  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

### Components:

diethyltoluenediamine:  
Genotoxicity in vivo : Application Route: Oral  
Method: OECD Test Guideline 474  
Result: negative

1,2-diaminocyclohexane:  
Genotoxicity in vivo : Application Route: Inhalation  
Exposure time: 13 Weeks  
Dose: 1.6 - 160 mg/m<sup>3</sup>  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

Application Route: Oral  
Dose: 75 - 750 mg/kg  
Method: OECD Test Guideline 475  
Result: negative  
GLP: yes

metaxylenediamine:  
Genotoxicity in vivo : Test Type: In vivo micronucleus test

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Test species: Mouse (male and female)  
Cell type: Bone marrow  
Application Route: Oral  
Exposure time: single dose  
Dose: 750 mg/kg body weight  
Method: OECD Test Guideline 474  
Result: negative

4,4'-isopropylidenediphenol:  
Genotoxicity in vivo

: Method: OECD Test Guideline 474  
Result: negative

P-toluenesulphonic acid:  
Genotoxicity in vivo

: Application Route: Oral  
Exposure time: 72 h  
Dose: 4467 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

Application Route: Intraperitoneal injection  
Exposure time: 72 h  
Dose: 580 mg/kg  
Method: EPA OTS 798.5395  
Result: negative

### **Components:**

metaxylenediamine:  
Germ cell mutagenicity-  
Assessment

: Tests on bacterial or mammalian cell cultures did not show  
mutagenic effects., Animal testing did not show any mutagenic  
effects.

Germ cell mutagenicity-  
Assessment

: No data available

### **Carcinogenicity**

#### **Components:**

diethyltoluenediamine:  
Species: Rat, (male and female)  
Application Route: Oral  
Exposure time: 24 month(s)  
Dose: 1.8 - 3.2 mg/kg  
Frequency of Treatment: 7 daily  
Method: OECD Test Guideline 451  
Result: negative

4,4'-isopropylidenediphenol:  
Species: Rat, (male and female)

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Application Route: Oral  
Exposure time: 103 weeks  
Frequency of Treatment: 7 daily  
Result: negative

P-toluenesulphonic acid:  
Species: Rat, (male and female)  
Application Route: Oral  
Exposure time: 24 month(s)  
Dose:  $\geq 240$  mg/kg  
Frequency of Treatment: 5 daily  
Method: OECD Test Guideline 453  
Result: negative

Carcinogenicity - Assessment : No data available

### Reproductive toxicity

#### Components:

1,2-diaminocyclohexane:  
Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 416  
GLP: yes

metaxylenediamine:  
Species: Rat, male and female  
Application Route: Oral  
Dose: 0, 50, 150 and 450 mg/kg  
General Toxicity - Parent: No-observed-effect level: 50 - 150 mg/kg body weight  
General Toxicity F1: No-observed-effect level: 450 mg/kg body weight  
Method: OECD Test Guideline 421  
Result: No effects on fertility and early embryonic development were detected.

4,4'-isopropylidenediphenol:  
Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 416  
Result: Embryotoxic effects and adverse effects on the offspring were detected.

1-Methylimidazole:  
Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 422  
Result: No effects on fertility and early embryonic development were detected.

#### Components:

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isophorone diamine:

Effects on foetal  
development

: Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: No-observed-effect level: 50 mg/kg  
body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

1,2-diaminocyclohexane:

Species: Rat, male and female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
ca. 184 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects  
GLP: no

metaxylenediamine:

Test Type: Pre-natal  
Species: Rat, male and female  
Strain: Sprague-Dawley  
Application Route: Oral  
Dose: 0, 30, 100, 300 mg/kg milligram per kilogram  
Duration of Single Treatment: 19 d  
Frequency of Treatment: 1 daily  
General Toxicity Maternal: No observed adverse effect level:  
100 mg/kg body weight  
Embryo-foetal toxicity: No observed adverse effect level: 300  
mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No effects on fertility and early embryonic  
development were detected.

4,4'-isopropylidenediphenol:

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
< 160 mg/kg body weight  
Method: OECD Test Guideline 416  
Result: No teratogenic effects

P-toluenesulphonic acid:

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
> 936 mg/kg body weight  
Result: No teratogenic effects

### **Components:**

metaxylenediamine:  
Reproductive toxicity -  
Assessment

: No evidence of adverse effects on sexual function and fertility,  
or on development, based on animal experiments.

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4,4'-isopropylidenediphenol:  
Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

### STOT - single exposure

#### Components:

1,2-diaminocyclohexane:  
Exposure routes: Inhalation  
Target Organs: Respiratory Tract  
Assessment: May cause respiratory irritation.

4,4'-isopropylidenediphenol:  
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

P-toluenesulphonic acid:  
Target Organs: Respiratory Tract  
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

### STOT - repeated exposure

#### Components:

diethyltoluenediamine:  
Exposure routes: Ingestion  
Target Organs: Pancreas, Liver, Kidney  
Assessment: May cause damage to organs through prolonged or repeated exposure.

### Repeated dose toxicity

#### Components:

diethyltoluenediamine:  
Species: Rat, male and female  
NOAEL: 8 - 10 mg/kg  
Application Route: Ingestion  
Exposure time: 2 160 h Method: Subchronic toxicity

isophorone diamine:  
Species: Rat, male and female  
: 60 mg/kg, 200  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 216 h Number of exposures: 6 h  
Method: Subchronic toxicity

1,2-diaminocyclohexane:  
Species: Rat, male and female  
: 16  
Test atmosphere: dust/mist

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Exposure time: 13 Weeks Method: OECD Test Guideline 413

metaxylenediamine:

Species: Rat, male and female

NOEL: 150 mg/kg

Application Route: oral (gavage)

Exposure time: 672 h Number of exposures: 7 d

Dose: 0, 10, 40, 150 and 600 mg/kg/d

Method: OECD Test Guideline 407

Species: Rat, male and female

: 0,6

Application Route: Inhalation

Exposure time: 13 weeks Number of exposures: 6 hours per day, 5 days per week

Dose: 0, 0.64, 5.1, 31 mg/m<sup>3</sup>

Method: OECD Test Guideline 413

Target Organs: Lungs

4,4'-isopropylidenediphenol:

Species: Dog, male and female

: 75 mg/kg, 10

Application Route: Ingestion

Test atmosphere: dust/mist

Exposure time: 2 160 h Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

LOAEL: 600 mg/kg

Application Route: Ingestion

Exposure time: 672 h Number of exposures: 7 d

Method: Subchronic toxicity

1-Methylimidazole:

Species: Rat, male and female

NOAEL: 30

Application Route: Ingestion

Number of exposures: 7 d

Method: Subacute toxicity

P-toluenesulphonic acid:

Species: Rat, male and female

NOAEL:  $\geq$  500 mg/kg

Application Route: Ingestion

Exposure time: 672 h Number of exposures: 7 d

Method: Subchronic toxicity

### **Components:**

metaxylenediamine:

Repeated dose toxicity -

Assessment

: Harmful if swallowed or if inhaled, May be harmful in contact with skin., Causes severe skin burns and eye damage.

No adverse effect has been observed in chronic toxicity tests.

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### Aspiration toxicity

No data available

### Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

### Toxicology, Metabolism, Distribution

No data available

### Neurological effects

No data available

### Further information

Ingestion: No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

diethyltoluenediamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 200 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: DIN 38412

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 0,5 mg/l  
aquatic invertebrates  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water

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Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae : ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): ca. 104 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (Pseudomonas putida): >= 170 mg/l  
Exposure time: 24 h  
Test Type: static test  
Test substance: Fresh water

isophorone diamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 110 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 : 23 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 : 37 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.3.

Toxicity to microorganisms : EC10 : 1 120 mg/l  
Exposure time: 18 h  
Method: Measured

(Pseudomonas putida): 1 120 mg/l  
Exposure time: 18 h  
Test Type: static test  
Test substance: Fresh water

1,2-diaminocyclohexane:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 200 mg/l  
Exposure time: 48 h  
Test substance: Fresh water  
Method: DIN 38412  
GLP: yes  
Remarks: Toxic to aquatic organisms.

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|                                                                        |                                                                                                                                                                                  |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to daphnia and other aquatic invertebrates                    | : EC50 (Daphnia magna (Water flea)): 19,8 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Test substance: Fresh water<br>Method: OECD Test Guideline 202<br>GLP: no     |
| Toxicity to algae                                                      | : EC50 : 29,6 mg/l<br>Exposure time: 72 h                                                                                                                                        |
| Toxicity to fish (Chronic toxicity)                                    | : GLP: yes                                                                                                                                                                       |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : NOEC: 4,16 mg/l<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Test Type: semi-static test<br>Test substance: Fresh water<br>Method: OECD Test Guideline 211 |
| metaxylenediamine:                                                     |                                                                                                                                                                                  |
| Toxicity to fish                                                       | : LC50 (Oryzias latipes (Orange-red killifish)): 87,6 mg/l<br>Exposure time: 96 h<br>Test Type: semi-static test<br>Method: OECD Test Guideline 203                              |
| Toxicity to daphnia and other aquatic invertebrates                    | : EC50 (Daphnia magna (Water flea)): 15,2 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Method: OECD Test Guideline 202                                               |
| Toxicity to algae                                                      | : ErC50 (Selenastrum capricornutum (green algae)): 32,1 mg/l<br>Exposure time: 72 h<br>Test Type: static test<br>Method: OECD Test Guideline 201                                 |
| Toxicity to microorganisms                                             | : EC50 (activated sludge): > 1 000 mg/l<br>Exposure time: 0,5 h<br>Test Type: static test<br>Method: OECD Test Guideline 209                                                     |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : NOEC: 4,7 mg/l<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Test Type: semi-static test<br>Method: OECD Test Guideline 211                                 |
| 4,4'-isopropylidenediphenol:                                           |                                                                                                                                                                                  |
| Toxicity to fish                                                       | : LC50 (Oncorhynchus mykiss (rainbow trout)): 7,5 mg/l<br>Exposure time: 96 h                                                                                                    |
| Toxicity to daphnia and other aquatic invertebrates                    | : EC50 : 3,9 - 10,2 mg/l<br>Exposure time: 48 h                                                                                                                                  |

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(Ceriodaphnia dubia (Water flea)):

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 2,5 - 3,1 mg/l  
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : NOEC: 0,016 mg/l  
Exposure time: 444 d  
Species: Pimephales promelas (fathead minnow)  
Test Type: flow-through test  
Test substance: Fresh water  
Method: EPA OPPTS 850.1500  
Remarks: Toxic to aquatic organisms.

M-Factor (Chronic aquatic toxicity) : 1

Ecotoxicology Assessment  
Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

1-Methylimidazole:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 100 - < 215 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 267,9 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae : ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 180,7 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (activated sludge): 1 050 mg/l  
Exposure time: 7 h  
Method: DIN 38 412 Part 8

P-toluenesulphonic acid:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 325 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 103 mg/l

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aquatic invertebrates

Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Toxicity to algae

: ErC50 (Selenastrum capricornutum (green algae)): 73 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 40 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.3.

EC50 (Selenastrum capricornutum (green algae)): >= 758 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water

EC50 (Selenastrum capricornutum (green algae)): >= 230 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to microorganisms

: EC50 (activated sludge): > 650 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 209

### 12.2 Persistence and degradability

#### Components:

diethyltoluenediamine:

Biodegradability

: Result: Not readily biodegradable.  
Biodegradation: < 60 %  
Exposure time: 28 d

Result: Not readily biodegradable.  
Biodegradation: < 1 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

Photodegradation

: Test Type: Air  
Rate constant: < .00001

isophorone diamine:

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Biodegradability : Inoculum: activated sludge  
Concentration: 6,9 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 8 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.A.

1,2-diaminocyclohexane:

Biodegradability : Result: Readily biodegradable.  
Exposure time: 17 d  
Method: OECD Test Guideline 301D

Stability in water : Method: No information available.  
GLP: No information available.  
Remarks: see user defined free text

Photodegradation : Rate constant: < .001  
GLP: no

metaxylenediamine:

Biodegradability : Inoculum: activated sludge  
Concentration: 14,2 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 49 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

4,4'-isopropylidenediphenol:

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 1 - 2 %  
Exposure time: 28 d

1-Methylimidazole:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 - 10 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

Inoculum: activated sludge  
Concentration: 9 000 mg/l  
Result: Inherently biodegradable.  
Biodegradation: 79 %  
Exposure time: 60 d  
Method: ISO

P-toluenesulphonic acid:

Biodegradability : Result: Readily biodegradable.  
Biodegradation: > 60 %  
Exposure time: 28 d

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### 12.3 Bioaccumulative potential

**Components:**

diethyltoluenediamine:  
Bioaccumulation

: Bioconcentration factor (BCF): 13,82  
Remarks: Bioaccumulation is unlikely.

Bioconcentration factor (BCF): 2,75  
Remarks: Does not bioaccumulate.

Partition coefficient: n-  
octanol/water

: log Pow: 1,17 (25 °C)  
Method: OECD Test Guideline 107

isophorone diamine:  
Partition coefficient: n-  
octanol/water

: log Pow: 0,99 (23 °C)  
pH: 6,34  
Method: OECD Test Guideline 107

1,2-diaminocyclohexane:  
Partition coefficient: n-  
octanol/water

: log Pow: < -0,9 (20 °C)  
pH: 7  
Method: OECD Test Guideline 107  
GLP: yes

metaxylenediamine:  
Bioaccumulation

: Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): < 0,3  
Remarks: Does not bioaccumulate.

Partition coefficient: n-  
octanol/water

: log Pow: 0,18 (25 °C)  
pH: 10,3 - 10,4  
Method: OECD Test Guideline 107

1-Methylimidazole:  
Partition coefficient: n-  
octanol/water

: log Pow: -0,19 (25 °C)  
pH: 9,25 - 9,85  
Method: OECD Test Guideline 107

P-toluenesulphonic acid:  
Partition coefficient: n-  
octanol/water

: log Pow: 0,41 (25 °C)  
Method: Partition coefficient

### 12.4 Mobility in soil

**Components:**

diethyltoluenediamine:  
Distribution among  
environmental compartments

: Koc: 132 - 170

: Koc: 31,72 - 551

isophorone diamine:  
Distribution among  
environmental compartments

: Koc: 928

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1-Methylimidazole:  
Distribution among : Koc: 27  
environmental compartments Method: Calculation method

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

### 12.6 Other adverse effects

#### Product:

Additional ecological : An environmental hazard cannot be excluded in the event of  
information unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

## SECTION 14: Transport information

#### **IATA**

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : Amines, liquid, corrosive, n.o.s.  
(ISOPHORONE DIAMINE, DIETHYLTOLUENEDIAMINE)  
**14.3 Transport hazard class(es)** : 8  
**14.4 Packing group** : II  
Labels : Corrosive  
Packing instruction (cargo aircraft) : 855  
Packing instruction (passenger aircraft) : 851

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### IMDG

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : AMINES, LIQUID, CORROSIVE, N.O.S.  
(ISOPHORONE DIAMINE, DIETHYLTOLUENEDIAMINE)  
**14.3 Transport hazard class(es)** : 8  
**14.4 Packing group** : II  
Labels : 8  
EmS Code : F-A, S-B  
**14.5 Environmental hazards**  
Marine pollutant : yes

### ADR

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : AMINES, LIQUID, CORROSIVE, N.O.S.  
(ISOPHORONE DIAMINE, DIETHYLTOLUENEDIAMINE)  
**14.3 Transport hazard class(es)** : 8  
**14.4 Packing group** : II  
Labels : 8  
**14.5 Environmental hazards**  
Environmentally hazardous : yes

### RID

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : AMINES, LIQUID, CORROSIVE, N.O.S.  
(ISOPHORONE DIAMINE, DIETHYLTOLUENEDIAMINE)  
**14.3 Transport hazard class(es)** : 8  
**14.4 Packing group** : II  
Labels : 8  
**14.5 Environmental hazards**  
Environmentally hazardous : yes

### Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : 4,4'-isopropylidenediphenol

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations,

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where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

**The components of this product are reported in the following inventories:**

|       |                                                          |
|-------|----------------------------------------------------------|
| DSL   | : All components of this product are on the Canadian DSL |
| AICS  | : Not in compliance with the inventory                   |
| NZIoC | : Not in compliance with the inventory                   |
| ENCS  | : Low volume exemption                                   |
| KECI  | : On the inventory, or in compliance with the inventory  |
| PICCS | : Not in compliance with the inventory                   |
| IECSC | : On the inventory, or in compliance with the inventory  |
| TCSI  | : On the inventory, or in compliance with the inventory  |
| TSCA  | : On the inventory, or in compliance with the inventory  |

**Inventories**

AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOIC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

### 15.2 Chemical safety assessment

## SECTION 16: Other information

**Full text of H-Statements**

|      |                                            |
|------|--------------------------------------------|
| H302 | : Harmful if swallowed.                    |
| H311 | : Toxic in contact with skin.              |
| H312 | : Harmful in contact with skin.            |
| H314 | : Causes severe skin burns and eye damage. |
| H315 | : Causes skin irritation.                  |
| H317 | : May cause an allergic skin reaction.     |
| H318 | : Causes serious eye damage.               |
| H319 | : Causes serious eye irritation.           |

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|       |                                                                      |
|-------|----------------------------------------------------------------------|
| H332  | : Harmful if inhaled.                                                |
| H335  | : May cause respiratory irritation.                                  |
| H360F | : May damage fertility.                                              |
| H373  | : May cause damage to organs through prolonged or repeated exposure. |
| H400  | : Very toxic to aquatic life.                                        |
| H410  | : Very toxic to aquatic life with long lasting effects.              |
| H411  | : Toxic to aquatic life with long lasting effects.                   |
| H412  | : Harmful to aquatic life with long lasting effects.                 |

### Full text of other abbreviations

|                 |                                                      |
|-----------------|------------------------------------------------------|
| Acute Tox.      | : Acute toxicity                                     |
| Aquatic Acute   | : Acute aquatic toxicity                             |
| Aquatic Chronic | : Chronic aquatic toxicity                           |
| Eye Dam.        | : Serious eye damage                                 |
| Eye Irrit.      | : Eye irritation                                     |
| Repr.           | : Reproductive toxicity                              |
| Skin Corr.      | : Skin corrosion                                     |
| Skin Irrit.     | : Skin irritation                                    |
| Skin Sens.      | : Skin sensitisation                                 |
| STOT RE         | : Specific target organ toxicity - repeated exposure |
| STOT SE         | : Specific target organ toxicity - single exposure   |

### Further information

#### Classification of the mixture:

|                   |       |
|-------------------|-------|
| Acute Tox. 4      | H302  |
| Acute Tox. 4      | H312  |
| Skin Corr. 1A     | H314  |
| Eye Dam. 1        | H318  |
| Skin Sens. 1      | H317  |
| Repr. 1B          | H360F |
| STOT RE 2         | H373  |
| Aquatic Acute 1   | H400  |
| Aquatic Chronic 1 | H410  |

#### Classification procedure:

|                    |
|--------------------|
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |

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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.

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