

TFC 300

MATERIAL SAFETY

The information contained within this Technical Data Sheet, details product description, health and safety hazard information of the product and how to safely handle and use the product in the workplace. Also refer to the MSDS for more information. Each user of this product should read the MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact Demtech Australia Pty Ltd. Demtech Australia Pty Ltd makes no representation as to the completeness and accuracy of the data contained within this data sheet. It is the user's obligation to evaluate and use this product safely, and to comply with all relevant Federal, State and Local Government laws and regulations. Demtech Australia Pty Ltd shall not be responsible for loss, damage or injury resulting from reliance upon or failure to adhere to any recommendation or information contained herein, from abnormal use of the material, or any hazard inherent in the nature of the material.

1. PRODUCT IDENTIFICATION

Product identifier

Product name	Cureflex® TFC 300 (Part B)
Proper shipping name(s)	<ul style="list-style-type: none">• AMINES, LIQUID, CORROSIVE, N.O.S.• POLYAMINES, LIQUID, CORROSIVE, N.O.S. (contains latent aliphatic polyamine)
Other means of identification	Not available

Relevant identified uses of the substance or mixture

Relevant identified uses	Component of a polyurea system
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Details of the supplier of the safety data sheet

Registered company name	Demtech Australia Pty Ltd
Address	16 Logis Blvd, Dandenong South VIC 3175 Australia
Telephone	1300 300 090
Fax	Not available
Website	www.demtech.com.au
Email	reception@demtech.com.au

Emergency telephone number

Association/organisation	Not available
Emergency telephone number	Not available
Other emergency telephone	Not available

2. HAZARD IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the Model WHS Regulations and the ADG Code.

Poisons schedule	S5
Classification	Skin sensitizer; Category 1. Serious eye damage; Category 1. Acute aquatic hazard; Category 3. Chronic aquatic hazard; Category 3. Skin corrosion/irritation; Category 1C.
Legend	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 Annex VI.

Label elements



Signal word: DANGER

Hazard statement(s)

H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
H314	Causes severe skin burns and eye damage.

Prevention precautionary statement(s)

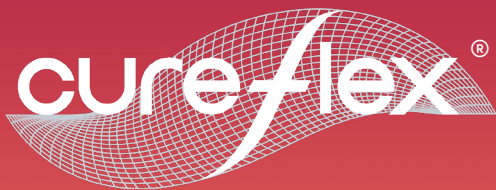
P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response precautionary statement(s)

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P363	Wash contaminated clothing before reuse.

Storage precautionary statement(s)

P405	Store locked up.
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2. HAZARD IDENTIFICATION Cont.

Disposal precautionary statement(s)

P501

Dispose of contents/container in accordance with local regulations.

3. PRODUCT COMPOSITION

Composition of mixtures

CAS No	% (weight)	Name
136210-30-5	>60	Aspartic acid
54914-37-3	5-15	Latent aliphatic polyamine
Not available	<10	Non-hazardous pigment blend
Not available	to 100	All other substances - non-hazardous

4. FIRST AID MEASURES

Description of first aid measures

Eye contact

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

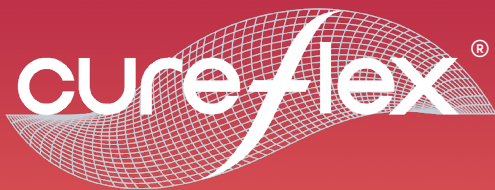
For amines:

- If liquid amines come in contact with the eyes, irrigate immediately and continuously with low pressure flowing water, preferably from an eye wash fountain, for 15 to 30 minutes.
- For more effective flushing of the eyes, use the fingers to spread apart and hold open the eyelids. The eyes should then be "rolled" or moved in all directions.
- Seek immediate medical attention, preferably from an ophthalmologist.

Skin contact

If skin or hair contact occurs:

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.



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4. FIRST AID MEASURES Cont.

Description of first aid measures

Skin contact

For amines:

- In case of major exposure to liquid amine, promptly remove any contaminated clothing, including rings, watches, and shoes, preferably under a safety shower.
- Wash skin for 15 to 30 minutes with plenty of water and soap. Call a physician immediately.
- Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering.
- Inform individuals responsible for cleaning of potential hazards associated with contaminated clothing.
- Discard contaminated leather articles such as shoes, belts, and watchband
- NOTE: Treat any skin burns as thermal burns. After decontamination, consider the use of cold packs and topical antibiotics.

Inhalation

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.
- Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. This must definitely be left to a doctor or person authorised by him/her (ICSC13719).

For amines:

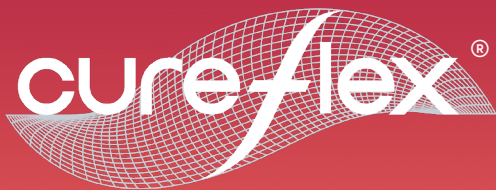
- All employees working in areas where contact with amine catalysts is possible should be thoroughly trained in the administration of appropriate first aid procedures.
- Experience has demonstrated that prompt administration of such aid can minimize the effects.
- Promptly move the affected person away from the contaminated area to an area of fresh air.
- Keep the affected person calm and warm, but not hot.
- If breathing is difficult, oxygen may be administered by a qualified person.
- If breathing stops, give artificial respiration. Call a physician at once.

Ingestion

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed DO NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness.
- Give water to rinse out mouth, provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

For amines:

- If liquid amine are ingested, have the affected person drink several glasses of water or milk.
- Do not induce vomiting.
- Immediately transport to a medical facility and inform medical personnel about the nature of the exposure. The decision of whether to induce vomiting should be made by an attending physician.



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4. FIRST AID MEASURES Cont.

Indication of any immediate medical attention and special treatment needed

For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Ingestion:

- Milk and water are the preferred diluents. No more than 2 glasses of water should be given to an adult.
- Neutralising agents should never be given since exothermic heat reaction may compound injury.
 - Catharsis and emesis are absolutely contra-indicated.
 - Activated charcoal does not absorb alkali.
 - Gastric lavage should not be used.
- Supportive care involves the following:
 - Withhold oral feedings initially.
 - If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
 - Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
 - Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

Skin and eye:

- Injury should be irrigated for 20-30 minutes.
- Eye injuries require saline (Ellenhorn & Barceloux: Medical Toxicology).
- For amines:
 - Certain amines may cause injury to the respiratory tract and lungs if aspirated. Also, such products may cause tissue destruction leading to stricture. If lavage is performed, endotracheal and/or esophagoscopy control is suggested.
 - No specific antidote is known.
 - Care should be supportive and treatment based on the judgment of the physician in response to the reaction of the patient.

Laboratory animal studies have shown that a few amines are suspected of causing depletion of certain white blood cells and their precursors in lymphoid tissue. These effects may be due to an immunosuppressive mechanism. Some persons with hyper-reactive airways (e.g., asthmatic persons) may experience wheezing attacks (bronchospasm) when exposed to airway irritants. Lung injury may result following a single massive overexposure to high vapour concentrations or multiple exposures to lower concentrations of any pulmonary irritant material. Health effects of amines, such as skin irritation and transient corneal edema ("blue haze," "halo effect," "glauropsia"), are best prevented by means of formal worker education, industrial hygiene monitoring, and exposure control methods. Persons who are highly sensitive to the triggering effect of non-specific irritants should not be assigned to jobs in which such agents are used, handled, or manufactured.

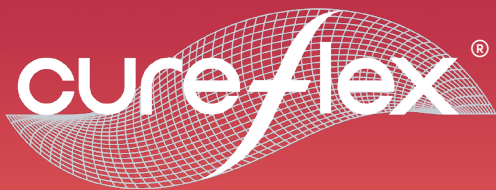
Medical surveillance programs should consist of a pre-placement evaluation to determine if workers or applicants have any impairments (e.g., hyper-reactive airways or bronchial asthma) that would limit their fitness for work in jobs with potential for exposure to amines. A clinical baseline can be established at the time of this evaluation. Periodic medical evaluations can have significant value in the early detection of disease and in providing an opportunity for health counseling.

Medical personnel conducting medical surveillance of individuals potentially exposed to polyurethane amine catalysts should consider the following:

- Health history, with emphasis on the respiratory system and history of infections.
- Physical examination, with emphasis on the respiratory system and the lymphoreticular organs (lymph nodes, spleen, etc.).
- Lung function tests, pre- and post-bronchodilator if indicated.
- Total and differential white blood cell count.
- Serum protein electrophoresis.

Persons who are concurrently exposed to isocyanates also should be kept under medical surveillance. Pre-existing medical conditions generally aggravated by exposure include skin disorders and allergies, chronic respiratory disease (e.g. bronchitis, asthma, emphysema), liver disorders, kidney disease, and eye disease.

Broadly speaking, exposure to amines, as characterised by amine catalysts, may cause effects similar to those caused by exposure to ammonia. As such, amines should be considered potentially injurious to any tissue that is directly contacted.



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4. FIRST AID MEASURES Cont.

Indication of any immediate medical attention and special treatment needed

Inhalation of aerosol mists or vapors, especially of heated product, can result in chemical pneumonitis, pulmonary edema, laryngeal edema, and delayed scarring of the airway or other affected organs. Clinical management is based upon supportive treatment, similar to that for thermal burns. Persons with major skin contact should be maintained under medical observation for at least 24 hours due to the possibility of delayed reactions.

- Polyurethane Amine Catalysts: Guidelines for Safe Handling and Disposal Technical Bulletin - June 2000.
- Alliance for Polyurethanes Industry.

5. FIREFIGHTING MEASURES

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog (large fires only).

Special hazards arising from the substrate or mixture

Fire incompatibility

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Advice for firefighters

Fire fighting

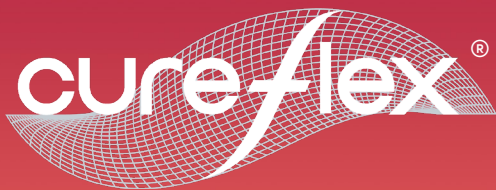
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.

For amines:

- For firefighting, cleaning up large spills, and other emergency operations, workers must wear a self-contained breathing apparatus with full face-piece, operated in a pressure-demand mode.
- Airline and air purifying respirators should not be worn for firefighting or other emergency or upset conditions.
- Respirators should be used in conjunction with a respiratory protection program, which would include suitable fit testing and medical evaluation of the user.

Fire/explosion hazard

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Combustion products include carbon dioxide (CO₂), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material. May emit corrosive fumes.



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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor spills

- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.

For amines:

- If possible (i.e., without risk of contact or exposure), stop the leak.
- Contain the spilled material by diking, then neutralize.
- Next, absorb the neutralized product with clay, sawdust, vermiculite, or other inert absorbent and shovel into containers.
- Store the containers outdoors.
- Brooms and mops should be disposed of, along with any remaining absorbent, in accordance with all applicable federal, state, and local regulations and requirements.

Major spills

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).

For amines:

- First remove all ignition sources from the spill area.
- Have firefighting equipment nearby, and have firefighting personnel fully trained in the proper use of the equipment and in the procedures used in fighting a chemical fire.
- Spills and leaks of polyurethane amine catalysts should be contained by diking, if necessary, and cleaned up only by properly trained and equipped personnel.
- All others should promptly leave the contaminated area and stay upwind.
- Protective equipment for cleanup crews should include appropriate respiratory protective devices and impervious clothing, footwear, and gloves.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

7. HANDLING & STORAGE

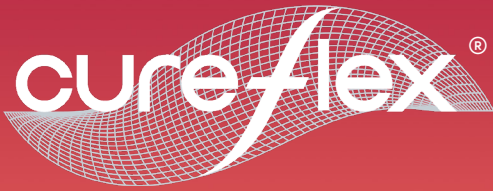
Precautions for safe handling

Safe handling

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with moisture.
- Avoid contact with incompatible materials.

Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- DO NOT store near acids, or oxidising agents
- No smoking, naked lights, heat or ignition sources.



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7. HANDLING & STORAGE Cont.

Conditions for safe storage, including any incompatibilities

Suitable container

- Lined metal can, lined metal pail/can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

For low viscosity materials:

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 °C) and solids (15-40 °C):

- Removable head packaging, cans with friction closures and low pressure tubes and cartridges.

Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

Storage incompatibility

- Segregate from alcohol, water.
- Avoid contact with copper, aluminium and their alloys.
- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- Avoid reaction with oxidising agents.

8. EXPOSURE CONTROLS

Control parameters

Occupational exposure limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Cureflex® TFC 300 (Part B)	Not available	Not available	Not available	Not available

Ingredient	Original IDLH	Revised IDLH
Aspartic acid N,N'(methylenedicyclohexanediyl)bis-ester	Not available	Not available
Latent aliphatic polyamine	Not available	Not available
Non-hazardous pigment blend (depending on colour)	Not available	Not available
All other substances - non-hazardous	Not available	Not available

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

- Process controls which involve changing the way a job activity or process is done to reduce the risk.
- Enclosure and/or isolation of emission source which keeps a selected hazard “physically” away from the worker and ventilation that strategically “adds” and “removes” air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly.

8. EXPOSURE CONTROLS Cont.

Exposure controls

Personal protection



Eye and face protection

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.

Special precaution:

- Because amines are alkaline materials that can cause rapid and severe tissue damage, wearing of contact lenses while working with amines is strongly discouraged. Wearing such lenses can prolong contact of the eye tissue with the amine, thereby causing more severe damage.
- Appropriate eye protection should be worn whenever amines are handled or whenever there is any possibility of direct contact with liquid products, vapors, or aerosol mists.

Caution:

- Ordinary safety glasses/face-shields will not prevent eye irritation from high concentrations of vapour.
- In operations where positive-pressure, air-supplied breathing apparatus is not required, all persons handling liquid amine catalysts or other polyurethane components in open containers should wear chemical workers safety goggles.

Skin protection

Hand/feet protection

See hand protection below.

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. rubber
- When handling corrosive liquids, wear trousers/overalls outside of boots, to avoid spills entering boots.
- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch bands should be removed and destroyed.

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

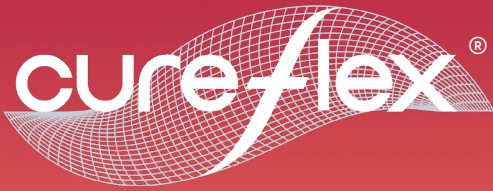
Important factors in the selection of gloves include:

- Frequency and duration of contact.
- Chemical resistance of glove material.
- Glove thickness.
- Dexterity.

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). Leather wear not recommended. Contaminated leather footwear, watch bands, should be destroyed, i.e. burnt, as they cannot be adequately decontaminated.

For amines:

- Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried.
- Application of a non-perfumed moisturiser is recommended
- Where there is a possibility of exposure to liquid amines skin protection should include: rubber gloves, (neoprene, nitrile, or butyl).
- DO NOT USE latex.



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8. EXPOSURE CONTROLS Cont.

Exposure controls

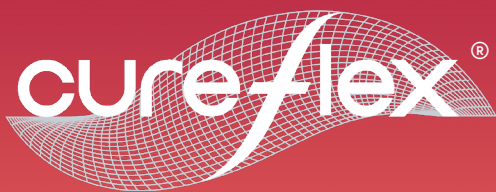
Body protection	See other protection below.
Other protection	<ul style="list-style-type: none"> • Overalls. • PVC Apron. • PVC protective suit may be required if exposure severe. • Eyewash unit. • Ensure there is ready access to a safety shower.
Thermal hazards	Not available.

Respiratory protection

- Type AEK-P Filter of sufficient capacity (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).
- Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the 'Exposure Standard' (or ES), respiratory protection is required. Degree of protection varies with both face-piece and class of filter, the nature of protection varies with type of filter.

Required min. protection factor	Half-face respirator	Full-face respirator	Powered air respirator
up to 10 x ES	AEK-AUS P2		AEK-PAPR-AUS/Class 1 P2
up to 50 x ES		AEK-AUS/Class 1 P2	
up to 100 x ES		AEK-2 P2	AEK-PAPR-2 P2^

- ^ = Full-face
- A (All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide (HCN), B3 = Acid gas or hydrogen cyanide (HCN), E = Sulfur dioxide (SO2), G = Agricultural chemicals, K = Ammonia (NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds (below 65 °C).



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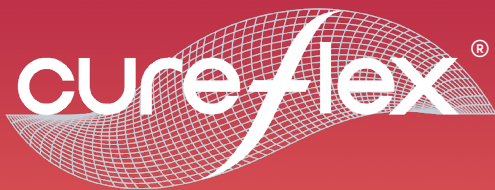
9. PHYSICAL & CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Varying colour based on pigment	Relative density (water = 1)	1.04
Physical state	Liquid	Partition coefficient	Not available
Odour	Not available	Auto-ignition temperature (°C)	Not available
Odour threshold	Not available	Decomposition temperature	Not available
pH (as supplied)	Not available	Viscosity (cSt)	Not available
Melting/freezing point (°C)	Not available	Molecular weight (g/mol)	Not available
Boiling point/range (°C)	Not available	Taste	Not available
Flash point (°C)	Not available	Explosive properties	Not available
Evaporation rate	Not available	Oxidising properties	Not available
Flammability	Not available	Surface tension (dyn/cm or mN/m)	Not available
Upper explosive limit (%)	Not available	Volatile component (%vol)	Not available
Lower explosive limit (%)	Not available	Gas group	Not available
Vapour pressure (kpa)	Not available	pH as a solution (1%)	Not available
Solubility in water	Not available	VOC g/l	Not available
Vapour density (air = 1)	Not available		

10. STABILITY & REACTIVITY

Reactivity	See Section 7.
Chemical stability	<ul style="list-style-type: none">• Unstable in the presence of incompatible materials.• Product is considered stable.• Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See Section 7.
Conditions to avoid	See Section 7.
Incompatible materials	See Section 7.
Hazardous decomposition products	See Section 5.



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11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

- | | |
|--------------|---|
| Inhaled | <ul style="list-style-type: none"> Inhalation of amine vapours may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough. Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety. The material has NOT been classified by EC Directives or other classification systems as “harmful by inhalation”. This is because of the lack of corroborating animal or human evidence. There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body’s response to such irritation can cause further lung damage. |
| Ingestion | <ul style="list-style-type: none"> The material can produce chemical burns within the oral cavity and gastrointestinal tract. Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract. The material has NOT been classified by EC Directives or other classification systems as “harmful by ingestion”. This is because of the lack of corroborating animal or human evidence. |
| Skin contact | <ul style="list-style-type: none"> The material can produce chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Volatile amine vapours produce irritation and inflammation of the skin. Direct contact can cause burns. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. |
| Eye | <ul style="list-style-type: none"> The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage. Vapours of volatile amines irritate the eyes, causing excessive secretion of tears, inflammation of the conjunctiva and slight swelling of the cornea, resulting in “halos” around lights. This effect is temporary, lasting only for a few hours. However this condition can reduce the efficiency of undertaking skilled tasks, such as driving a car. Direct eye contact with liquid volatile amines may produce eye damage, permanent for the lighter species. |
| Chronic | <ul style="list-style-type: none"> Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Sensitisation may give severe responses to very low levels of exposure, i.e. hypersensitivity. |

Aspartic acid
N,N'(methylenedicyclohexanediyl)bis-ester

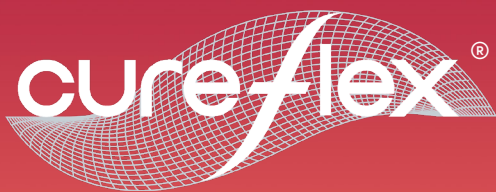
Toxicity	Irritation
Dermal (rat) LD50: >2000 mg/kg*d[2]	Eye - mild.
Oral (rat) LD50: >2000 mg/kg*e[2]	Skin - moderate.

Latent aliphatic polyamine

Toxicity	Irritation
Dermal (rat) LD50: >5080 mg/kg][2]	
Oral (rat) LD50: 4150 mg/kgE[2]	Skin (rabbit) 4h: CORROSIVE.

Legend

[1] Value obtained from Europe ECHA Registered Substances - acute toxicity.
 [2] Value obtained from manufacturer’s MSDS.
 Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of Chemical Substances.



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11. TOXICOLOGICAL INFORMATION Cont.

Information on toxicological effects

Acute toxicity	✗	Carcinogenicity	✗
Skin irritation/corrosion	✓	Reproductivity	✗
Serious eye damage/irritation	✓	STOT: Single exposure	✗
Respiratory or skin sensitisation	✓	STOT: Repeated exposure	✗
Mutagenicity	✗	Aspiration hazard	✗

Legend: ✓ Data available to make classification.

✗ Data either not available or does not fill the criteria for classification.

12. ECOLOGICAL INFORMATION

Toxicity

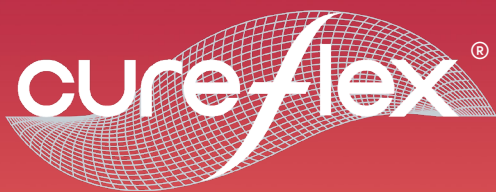
Aspartic acid (N,N'(methylenedicyclohexanediyl)bis-ester)

Endpoint	Test duration (hr)	Species	Value	Source
LC50	96	Fish	66mg/L	2
EC50	48	Crustacea	88.6mg/L	2
EC50	72	Algae or aquatic plants	34mg/L	2

Latent aliphatic polyamine

Endpoint	Test duration (hr)	Species	Value	Source
LC50	96	Fish	>53.7mg/L	2
EC50	48	Crustacea	14.7mg/L	2
EC50	72	Algae or aquatic plants	9.6mg/L	2

- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- DO NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark.
- DO NOT contaminate water when cleaning equipment or disposing of equipment wash-waters.
- Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
- Prevent, by any means available, spillage from entering drains or water courses.
- DO NOT discharge into sewer or waterways.



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12. ECOLOGICAL INFORMATION Cont.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
No data available for all ingredients	No data available for all ingredients	No data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
No data available for all ingredients	No data available for all ingredients

Mobility in soil

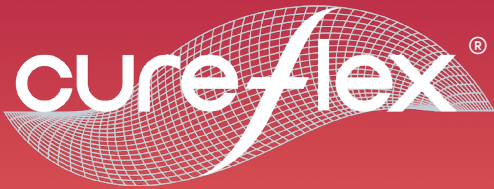
Ingredient	Mobility
No data available for all ingredients	No data available for all ingredients

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product/packaging disposal:

- Containers may still present a chemical hazard/danger when empty. Return to supplier for reuse/recycling if possible.
- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A hierarchy of controls seems to be common and the user should investigate: Reduction; Reuse; Recycling; Disposal (if all else fails). This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.
- DO NOT recycle spilled material. Consult State Land Waste Management Authority for disposal. Neutralise spill material carefully and decontaminate empty containers and spill residues with 10% ammonia solution plus detergent or a proprietary decontaminant prior to disposal.
- DO NOT seal or stopper drums being decontaminated as CO₂ gas is generated and may pressurise containers. Puncture containers to prevent re-use. Bury or incinerate residues at an approved site.



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14. TRANSPORT INFORMATION

Labels required



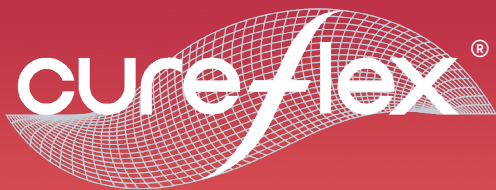
Marine pollutant	No
HAZCHEM	2X

Land transport

UN number	2735
Packing group	III
UN proper shipping name	<ul style="list-style-type: none">• AMINES, LIQUID, CORROSIVE, N.O.S.• POLYAMINES, LIQUID, CORROSIVE, N.O.S. (contains latent aliphatic polyamine)
Environmental hazard	No relevant data
Transport hazard class(es)	<ul style="list-style-type: none">• Class: 8• Subrisk: Not applicable
Special precautions for user	<ul style="list-style-type: none">• Special provisions: 223 274• Limited quantity: 5L

Air transport

UN number	2735
Packing group	III
UN proper shipping name	<ul style="list-style-type: none">• AMINES, LIQUID, CORROSIVE, N.O.S.• POLYAMINES, LIQUID, CORROSIVE, N.O.S. (contains latent aliphatic polyamine)
Environmental hazard	No relevant data
Transport hazard class(es)	<ul style="list-style-type: none">• ICAO/IATA Class: 8• ICAO/IATA Subrisk: Not applicable• ERG Code: 8L
Special precautions for user	<ul style="list-style-type: none">• Special provisions: A3A803• Cargo only packing instructions: 856• Cargo only maximum qty/pack: 60L• Passenger and cargo packing instructions: 852• Passenger and cargo maximum qty/pack: 5L• Passenger and cargo limited quantity packing instructions: Y841• Passenger and cargo limited maximum qty/pack: 1L



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MATERIAL SAFETY

14. TRANSPORT INFORMATION Cont.

Sea transport

UN number	2735
Packing group	III
UN proper shipping name	<ul style="list-style-type: none">• AMINES, LIQUID, CORROSIVE, N.O.S.• POLYAMINES, LIQUID, CORROSIVE, N.O.S. (contains latent aliphatic polyamine)
Environmental hazard	No relevant data
Transport hazard class(es)	<ul style="list-style-type: none">• IMDG Class: 8• IMDG Subrisk: Not applicable
Special precautions for user	<ul style="list-style-type: none">• EMS Number: F-A, S-B• Special provisions: 223 274• Limited quantities: 5L

15. REGULATORY INFORMATION

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

Aspartic acid (N,N'(methylenedicyclohexanediyl)bis-ester) (136210-30-5) is found on the following regulatory lists:

- Australia Hazardous Substances Information System
- Australia Inventory of Chemical Substances (AICS)

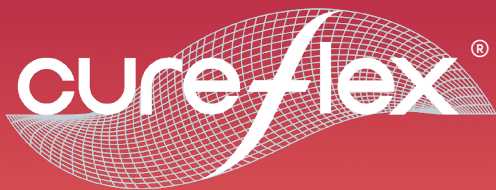
Latent aliphatic polyamine (54914-37-3) is found on the following regulatory lists:

- Australia Inventory of Chemical Substances (AICS)

National inventory status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
China - IECSC	Yes
Europe - EINEC/ELINCS/NLP	Yes
New Zealand - NZIoC	Yes
USA - TSCA	Yes

Legend: Yes = All ingredients are on the inventory.



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15. REGULATORY INFORMATION Cont.

Definitions and abbreviations

PC - TWA: Permissible Concentration - Time Weighted Average

PC - STEL: Permissible Concentration - Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL: No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit of Detection

OTV: Odour Threshold Value

BCF: Bio-concentration Factors

BEI: Biological Exposure Index