



## Epoxy 600 Part B

### ICP Building Solutions Group

Version No: 6.9

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 02/25/2022

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S.GHS.USA.EN

#### SECTION 1 Identification

##### Product Identifier

Product name	Epoxy 600 Part B
Synonyms	Not Available
Proper shipping name	Amines, liquid, corrosive, n.o.s. (contains isophorone diamine and m-xylenediamine)
Other means of identification	Not Available

##### Recommended use of the chemical and restrictions on use

Relevant identified uses	Specialty flooring curative
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##### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	ICP Building Solutions Group
Address	4565 W Watkins Street Phoenix AZ 85043 United States
Telephone	623-435-2277
Fax	Not Available
Website	<a href="http://www.icpgroup.com">www.icpgroup.com</a>
Email	sds@icpgroup.com

##### Emergency phone number

Association / Organisation	ChemTel
Emergency telephone numbers	1-800-255-3924
Other emergency telephone numbers	1-813-248-0585

#### SECTION 2 Hazard(s) identification

##### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification	Skin Corrosion/Irritation Category 1B, Hazardous to the Aquatic Environment Long-Term Hazard Category 2, Corrosive to Metals Category 1, Acute Toxicity (Inhalation) Category 4, Acute Toxicity (Oral) Category 4, Reproductive Toxicity Category 2, Sensitisation (Skin) Category 1
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##### Label elements

Hazard pictogram(s)	
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Signal word	Danger
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##### Hazard statement(s)

H314	Causes severe skin burns and eye damage.
H411	Toxic to aquatic life with long lasting effects.

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H290	May be corrosive to metals.
H332	Harmful if inhaled.
H302	Harmful if swallowed.
H361	Suspected of damaging fertility or the unborn child.
H317	May cause an allergic skin reaction.

**Hazard(s) not otherwise classified**

Not Applicable

**Precautionary statement(s) Prevention**

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fumes/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area..
P272	Contaminated clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statement(s) Response**

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310	Immediately call a POISON CENTER, or doctor/physician.
P303+P361+P353	IF ON SKIN (or hair): 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.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P363	Wash contaminated clothing before reuse.

**Precautionary statement(s) Storage**

P405	Store locked up.
P406	Store in corrosive resistant/ container with a resistant inner liner.

**Precautionary statement(s) Disposal**

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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**SECTION 3 Composition / information on ingredients****Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
84852-15-3	7-13	<u>4-nonylphenol, branched</u>
91672-41-2	.1-1	<u>2-nonylphenol, branched</u>
100-51-6	20-60	<u>benzyl alcohol</u>
1477-55-0	10-30	<u>m-xylenediamine</u>
2855-13-2	10-30	<u>isophorone diamine</u>
98-54-4	1-10	<u>p-tert-butylphenol</u>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

**SECTION 4 First-aid measures****Description of first aid measures**

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ 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.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul> <p>For amines:</p> <ul style="list-style-type: none"> <li>▶ 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.</li> <li>▶ 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.</li> <li>▶ Seek immediate medical attention, preferably from an ophthalmologist.</li> </ul>
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<b>Skin Contact</b>	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>▶ Quickly remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul> <p>For amines:</p> <ul style="list-style-type: none"> <li>▶ In case of major exposure to liquid amine, promptly remove any contaminated clothing, including rings, watches, and shoe, preferably under a safety shower.</li> <li>▶ Wash skin for 15 to 30 minutes with plenty of water and soap. Call a physician immediately.</li> <li>▶ 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.</li> <li>▶ Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.</li> <li>▶ Discard contaminated leather articles such as shoes, belts, and watchbands.</li> <li>▶ Note to Physician: Treat any skin burns as thermal burns. After decontamination, consider the use of cold packs and topical antibiotics.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ 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.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> <li>▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.</li> <li>▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).</li> <li>▶ 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.</li> <li>▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.</li> </ul> <p><b>This must definitely be left to a doctor or person authorised by him/her.</b> (ICSC13719)</p> <p>For amines:</p> <ul style="list-style-type: none"> <li>▶ All employees working in areas where contact with amine catalysts is possible should be thoroughly trained in the administration of appropriate first aid procedures.</li> <li>▶ Experience has demonstrated that prompt administration of such aid can minimize the effects of accidental exposure.</li> <li>▶ Promptly move the affected person away from the contaminated area to an area of fresh air.</li> <li>▶ Keep the affected person calm and warm, but not hot.</li> <li>▶ If breathing is difficult, oxygen may be administered by a qualified person.</li> <li>▶ If breathing stops, give artificial respiration. Call a physician at once.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor at once.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Transport to hospital or doctor without delay.</li> </ul> <p>For amines:</p> <ul style="list-style-type: none"> <li>▶ If liquid amine are ingested, have the affected person drink several glasses of water or milk.</li> <li>▶ Do not induce vomiting.</li> <li>▶ 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.</li> </ul>

**Most important symptoms and effects, both acute and delayed**

See Section 11

**Indication of any immediate medical attention and special treatment needed**

Clinical experience of benzyl alcohol poisoning is generally confined to premature neonates in receipt of preserved intravenous salines.

- ▶ Metabolic acidosis, bradycardia, skin breakdown, hypotonia, hepatorenal failure, hypotension and cardiovascular collapse are characteristic.
- ▶ High urine benzoate and hippuric acid as well as elevated serum benzoic acid levels are found.
- ▶ The so-called "gaspings syndrome" describes the progressive neurological deterioration of poisoned neonates.
- ▶ Management is essentially supportive.

For acute or short term repeated exposures to phenols/ cresols:

- ▶ Phenol is absorbed rapidly through lungs and skin. [Massive skin contact may result in collapse and death]\*
- ▶ [Ingestion may result in ulceration of upper respiratory tract; perforation of oesophagus and/or stomach, with attendant complications, may occur. Oesophageal stricture may occur.]\*
- ▶ An initial excitatory phase may present. Convulsions may appear as long as 18 hours after ingestion. Hypotension and ventricular tachycardia that require vasopressor and antiarrhythmic therapy, respectively, can occur.
- ▶ Respiratory arrest, ventricular dysrhythmias, seizures and metabolic acidosis may complicate severe phenol exposures so the initial attention should be directed towards stabilisation of breathing and circulation with ventilation, intubation, intravenous lines, fluids and cardiac monitoring as indicated.
- ▶ [Vegetable oils retard absorption; do NOT use paraffin oils or alcohols. Gastric lavage, with endotracheal intubation, should be repeated until phenol odour is no longer detectable; follow with vegetable oil. A saline cathartic should then be given.]\* ALTERNATIVELY: Activated charcoal (1g/kg) may be given. A cathartic should be given after oral activated charcoal.
- ▶ Severe poisoning may require slow intravenous injection of methylene blue to treat methaemoglobinemia.
- ▶ [Renal failure may require haemodialysis.]\*
- ▶ Most absorbed phenol is biotransformed by the liver to ethereal and glucuronide sulfates and is eliminated almost completely after 24 hours. [Ellenhorn and Barceloux: Medical Toxicology] \*[Union Carbide]

**BIOLOGICAL EXPOSURE INDEX - BEI**

These represent the determinants observed in specimens collected from a healthy worker who has been exposed to the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Total phenol in blood	250 mg/gm creatinine	End of shift	B, NS

B: Background levels occur in specimens collected from subjects **NOT** exposed

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NS: Non-specific determinant; also seen in exposure to other materials

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.

Alkalis continue to cause damage after exposure.

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 hyperreactive 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," "glaucompsia"), 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., hyperreactive 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.

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. There is no specific treatment.

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**

## SECTION 5 Fire-fighting measures

### Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

### Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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### Special protective equipment and precautions for fire-fighters

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▸ Wear full body protective clothing with breathing apparatus.</li> <li>▸ Prevent, by any means available, spillage from entering drains or water course.</li> </ul> <p>For amines:</p> <ul style="list-style-type: none"> <li>▸ 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.</li> <li>▸ Airline and air purifying respirators should not be worn for firefighting or other emergency or upset conditions.</li> <li>▸ Respirators should be used in conjunction with a respiratory protection program, which would include suitable fit testing and medical evaluation of the user.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▸ Combustible.</li> <li>▸ Slight fire hazard when exposed to heat or flame.</li> <li>▸ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> </ul> <p>Combustion products include: carbon dioxide (CO<sub>2</sub>)</p>

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aldehydes  
 nitrogen oxides (NOx)  
 other pyrolysis products typical of burning organic material.  
 May emit corrosive fumes.  
**WARNING:** Long standing in contact with air and light may result in the formation of potentially explosive peroxides.

**SECTION 6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

See section 8

**Environmental precautions**

See section 12

**Methods and material for containment and cleaning up**

<b>Minor Spills</b>	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> <li>▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.</li> <li>▶ Check regularly for spills and leaks.</li> </ul> <p>Slippery when spilt.</p> <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> </ul> <p>for amines:</p> <ul style="list-style-type: none"> <li>▶ If possible (i.e., without risk of contact or exposure), stop the leak.</li> <li>▶ Contain the spilled material by diking, then neutralize.</li> <li>▶ Next, absorb the neutralized product with clay, sawdust, vermiculite, or other inert absorbent and shovel into containers.</li> </ul>
<b>Major Spills</b>	<p>Environmental hazard - contain spillage.</p> <p>Slippery when spilt.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> </ul> <p>For amines:</p> <ul style="list-style-type: none"> <li>▶ First remove all ignition sources from the spill area.</li> <li>▶ 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.</li> <li>▶ Spills and leaks of polyurethane amine catalysts should be contained by diking, if necessary, and cleaned up only by properly trained and equipped personnel.</li> </ul>

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

**SECTION 7 Handling and storage****Precautions for safe handling**

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> </ul>
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ <b>DO NOT store near acids, or oxidising agents</b></li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> </ul>

**Conditions for safe storage, including any incompatibilities**

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ <b>DO NOT use aluminium or galvanised containers</b></li> <li>▶ Lined metal can, lined metal pail/ can.</li> <li>▶ Plastic pail.</li> <li>▶ Polyliner drum.</li> </ul> <p>For low viscosity materials</p> <ul style="list-style-type: none"> <li>▶ Drums and jerricans must be of the non-removable head type.</li> <li>▶ Where a can is to be used as an inner package, the can must have a screwed enclosure.</li> </ul> <p>For materials with a viscosity of at least 2680 cSt.</p>
<b>Storage incompatibility</b>	<p>Benzyl alcohol:</p> <ul style="list-style-type: none"> <li>▶ may froth in contact with water</li> <li>▶ slowly oxidises in air, oxygen forming benzaldehyde</li> <li>▶ is incompatible with mineral acids, caustics, aliphatic amines, isocyanates</li> <li>▶ reacts violently with strong oxidisers, and explosively with sulfuric acid at elevated temperatures</li> <li>▶ corrodes aluminium at high temperatures</li> <li>▶ is incompatible with aluminum, iron, steel</li> <li>▶ attacks some nonfluorinated plastics; may attack, extract and dissolve polypropylene</li> </ul> <p>Benzyl alcohol contaminated with 1.4% hydrogen bromide and 1.2% of dissolved iron(II) polymerises exothermically above 100 deg. C.</p>

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## p-tert-Butylphenol:

- ▶ is incompatible with strong acids, caustics, aliphatic amines, amides, oxidisers, steel, brass, copper and its alloys.
- ▶ Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
- ▶ Phenols are incompatible with strong reducing substances such as hydrides, nitrides, alkali metals, and sulfides.
- ▶ Avoid use of aluminium, copper and brass alloys in storage and process equipment.
- ▶ Heat is generated by the acid-base reaction between phenols and bases.
- ▶ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.
- ▶ Avoid contact with copper, aluminium and their alloys.

## Amines are incompatible with:

- isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides.
- strong reducing agents such as hydrides, due to the liberation of flammable gas.

Amines possess a characteristic ammonia smell, liquid amines have a distinctive "fishy" smell.

## SECTION 8 Exposure controls / personal protection

## Control parameters

## Occupational Exposure Limits (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELS)	m-xylenediamine	m-Xylene-alpha,alpha'-diamine	Not Available	Not Available	0.1 mg/m3	[skin]
US ACGIH Threshold Limit Values (TLV)	m-xylenediamine	m-Xylene α,α'-diamine	Not Available	Not Available	0.018 ppm	Skin
US OSHA Permissible Exposure Limits (PELs) Table Z-3	p-tert-butylphenol	Inert or Nuisance Dust: Total Dust	15 mg/m3 / 50 mppcf	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-3	p-tert-butylphenol	Inert or Nuisance Dust: Respirable fraction	5 mg/m3 / 15 mppcf	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-1	p-tert-butylphenol	Particulates Not Otherwise Regulated (PNOR)-Total dust	15 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-1	p-tert-butylphenol	Particulates Not Otherwise Regulated (PNOR)-Respirable fraction	5 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELS)	p-tert-butylphenol	Particulates not otherwise regulated	Not Available	Not Available	Not Available	See Appendix D

## Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
4-nonylphenol, branched	3.9 mg/m3	43 mg/m3	260 mg/m3
2-nonylphenol, branched	4.9 mg/m3	53 mg/m3	320 mg/m3
benzyl alcohol	30 ppm	52 ppm	740 ppm
p-tert-butylphenol	1.5 mg/m3	40 mg/m3	240 mg/m3

Ingredient	Original IDLH	Revised IDLH
4-nonylphenol, branched	Not Available	Not Available
2-nonylphenol, branched	Not Available	Not Available
benzyl alcohol	Not Available	Not Available
m-xylenediamine	Not Available	Not Available
isophorone diamine	Not Available	Not Available
p-tert-butylphenol	Not Available	Not Available

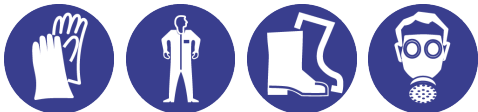
## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
4-nonylphenol, branched	E	≤ 0.1 ppm
2-nonylphenol, branched	E	≤ 0.1 ppm
benzyl alcohol	E	≤ 0.1 ppm
isophorone diamine	D	> 0.1 to ≤ 1 ppm

## Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

## Exposure controls

<b>Appropriate engineering controls</b>	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.
<b>Personal protection</b>	

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<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure.</li> <li>▶ Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.</li> <li>▶ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.</li> </ul> <p>For amines: SPECIAL PRECAUTION:</p> <ul style="list-style-type: none"> <li>▶ 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.</li> <li>▶ 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.</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> <li>▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>▶ 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.</li> <li>▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.</li> </ul> <p>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.</p> <p>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.</p> <ul style="list-style-type: none"> <li>▶ Leather wear not recommended: Contaminated leather footwear, watch bands, should be destroyed, i.e. burnt, as they cannot be adequately decontaminated</li> </ul> <p>For amines:</p> <ul style="list-style-type: none"> <li>▶ Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly.</li> <li>▶ Application of a non-perfumed moisturiser is recommended</li> <li>▶ Where there is a possibility of exposure to liquid amines skin protection should include: rubber gloves, (neoprene, nitrile, or butyl).</li> </ul>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ PVC Apron.</li> <li>▶ PVC protective suit may be required if exposure severe.</li> </ul>

**Respiratory protection**

Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

Where engineering controls are not feasible and work practices do not reduce airborne amine concentrations below recommended exposure limits, appropriate respiratory protection should be used. In such cases, air-purifying respirators equipped with cartridges designed to protect against amines are recommended.

**SECTION 9 Physical and chemical properties****Information on basic physical and chemical properties**

<b>Appearance</b>	Not Available		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	Not Available	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Available	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available

Continued...

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<b>Solubility in water</b>	Immiscible	<b>pH as a solution (Not Available%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

**SECTION 10 Stability and reactivity**

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

**SECTION 11 Toxicological information****Information on toxicological effects**

<b>Inhaled</b>	<p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. 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. Inhalation of epoxy resin amine hardeners (including polyamines and amine adducts) may produce bronchospasm and coughing episodes lasting several days after cessation of the exposure. Even faint traces of these vapours may trigger an intense reaction in individuals showing "amine asthma".</p> <p>The compound causes intestinal irritation due to its caustic nature. Lower doses may cause impaired appetite, sluggish reaction to stimuli and reduced alertness. High doses may cause eye irritation, excessive tear secretion; difficulty in breathing; lung, liver and kidney damage. Exposure to high levels of p-tert-butylphenol dust may result in spasm of the bronchi and lung swelling. Vapours and mist may irritate the nose and throat. Inhaling concentrated vapour may cause headaches, nausea, drowsiness, slurred speech, dizziness, stupor, sleepiness and even unconsciousness.</p> <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.</p> <p>Inhalation of benzyl alcohol may affect breathing (causing depression and paralysis of breathing and lower blood pressure). Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.</p> <p>Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness.</p>
<b>Ingestion</b>	<p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum.</p> <p>Ingestion of amine epoxy-curing agents (hardeners) may cause severe abdominal pain, nausea, vomiting or diarrhoea. The vomitus may contain blood and mucous.</p> <p>Nonionic surfactants may produce localised irritation of the oral or gastrointestinal lining and induce vomiting and mild diarrhoea. Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract.</p> <p>Ingestion of p-tert-butylphenol may cause fatigue, muscle weakness, laboured breathing and gastrointestinal irritation.</p> <p>Swallowing large doses of benzyl alcohol may cause abdominal pain, nausea, vomiting and diarrhoea. It may affect behaviour and/or the central nervous system, and cause headache, sleepiness, excitement, dizziness, inco-ordination, coma, convulsions and other symptoms of central nervous system depression.</p> <p>In newborns, exposure to excessive amounts of benzyl alcohol has been associated with toxicity (low blood pressure and metabolic acidosis), and an increased incidence of severe jaundice leading to nervous system symptoms called kernicterus.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p> <p>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.</p>
<b>Skin Contact</b>	<p>Skin contact with the material may be harmful; systemic effects may result following absorption.</p> <p>Volatile amine vapours produce irritation and inflammation of the skin. Direct contact can cause burns.</p> <p>Non-ionic surfactants cause less irritation than other surfactants as they have less ability to denature protein in the skin.</p> <p>Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitisation dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling.</p> <p>Undiluted benzene-1,3-dimethanamine may be corrosive to the skin. Concentrated solution of the material produces severe reddening and irritation. Repeated applications of a dilute concentration produce local swelling and redness, and skin sensitisation, which has been reported among workers in plastics manufacturing.</p> <p>Skin contact with p-tert-butylphenol may result in severe irritation or ulceration and burns, and sensitization has been known to occur. Skin inflammation may also result from less severe exposures.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p> <p>Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.</p> <p>The material can produce chemical burns following direct contact with the skin.</p>
<b>Eye</b>	<p>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.</p>



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	<p>Non-ionic surfactants can cause numbing of the cornea, which masks discomfort normally caused by other agents and leads to corneal injury. Irritation varies depending on the duration of contact, the nature and concentration of the surfactant.</p> <p>Irritation of the eyes may produce a heavy secretion of tears (lachrymation).</p> <p>Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely.</p> <p>Eye contact with p-tert-butylphenol may cause severe pain and eye damage. If concentrated, the vapour will irritate the eyes and cause inflammation of the conjunctiva and excessive tear secretion.</p> <p>The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.</p> <p>There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain.</p>												
<b>Chronic</b>	<p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.</p> <p>Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.</p> <p>This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.</p> <p>Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>Exposure to alkyl phenolics is associated with reduced sperm count and fertility in males.</p> <p>Prolonged or repeated skin contact may cause degreasing, followed by drying, cracking and skin inflammation.</p> <p>Prolonged or repeated exposure to benzyl alcohol may cause allergic contact dermatitis (skin inflammation). Prolonged or repeated swallowing may affect behaviour and the central nervous system with symptoms similar to acute swallowing. It may also affect the liver, kidneys, cardiovascular system, the lungs and cause weight loss.</p> <p>Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.</p> <p>Long-term exposure to phenol derivatives can cause skin inflammation, loss of appetite and weight, weakness, muscle aches and pain, liver damage, dark urine, loss of nails, skin eruptions, diarrhoea, nervous disorders with headache, salivation, fainting, discolouration of the skin and eyes, vertigo and mental disorders, and damage to the liver and kidneys.</p>												
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<b>Legend:</b>	<p>1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances</p>												

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<b>4-NONYLPHENOL, BRANCHED</b>	Gastrointestinal changes, liver changes, effects on newborn recorded.
<b>2-NONYLPHENOL, BRANCHED</b>	Data for nonylphenol
<b>BENZYL ALCOHOL</b>	<p>Unlike benzylic alcohols, the beta-hydroxyl group of the members of benzyl alkyl alcohols contributes to break down reactions but do not undergo phase II metabolic activation. Though structurally similar to cancer causing ethyl benzene, phenethyl alcohol is only of negligible concern due to limited similarity in their pattern of activity.</p> <p>For benzoates: Benzyl alcohol, benzoic acid and its sodium and potassium salt have a common metabolic and excretion pathway. All but benzyl alcohol are considered to be unarmful and of low acute toxicity. They may cause slight irritation by oral, dermal or inhalation exposure except sodium benzoate which doesn't irritate the skin.</p> <p>This is a member or analogue of a group of benzyl derivatives generally regarded as safe (GRAS), based partly on their self-limiting properties as flavouring substances in food. In humans and other animals, they are rapidly absorbed, broken down and excreted, with a wide safety margin. They also lack significant potential to cause genetic toxicity and mutations.</p> <p>The aryl alkyl alcohol (AAA) fragrance ingredients have diverse chemical structures, with similar metabolic and toxicity profiles. The AAA fragrances demonstrate low acute and subchronic toxicity by skin contact and swallowing. At concentrations likely to be encountered by consumers, AAA fragrance ingredients are non-irritating to the skin.</p>
<b>M-XYLENEDIAMINE</b>	<p>Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms.</p> <p>Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema.</p> <p>Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.</p>
<b>ISOPHORONE DIAMINE</b>	<p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.</p>
<b>P-TERT-BUTYLPHENOL</b>	For p-tert-butylphenol: p-tert-butylphenol has low acute toxicity via all routes. It irritates the skin, eyes and airway. It may cause skin sensitisation in humans.
<b>Epoxy 600 Part B &amp; 4-NONYLPHENOL, BRANCHED &amp; 2-NONYLPHENOL, BRANCHED &amp; M-XYLENEDIAMINE &amp; ISOPHORONE DIAMINE &amp; P-TERT-BUTYLPHENOL</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant.
<b>Epoxy 600 Part B &amp; BENZYL ALCOHOL &amp; M-XYLENEDIAMINE &amp; ISOPHORONE DIAMINE</b>	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.
<b>Epoxy 600 Part B &amp; BENZYL ALCOHOL</b>	<p>Adverse reactions to fragrances in perfumes and fragranced cosmetic products include allergic contact dermatitis, irritant contact dermatitis, sensitivity to light, immediate contact reactions, and pigmented contact dermatitis. Airborne and connubial contact dermatitis occurs. Contact allergy is a lifelong condition, so symptoms may occur on re-exposure.</p> <p>Fragrance allergens act as haptens, low molecular weight chemicals that cause an immune response only when attached to a carrier protein. However, not all sensitizing fragrance chemicals are directly reactive, but require previous activation. A prehapten is a chemical that itself causes little or no sensitization, but is transformed into a hapten in the skin (bioactivation), usually via enzyme catalysis.</p>
<b>Epoxy 600 Part B &amp; M-XYLENEDIAMINE</b>	<p>For benzene-1,3-dimethanamine (m-xylene-alpha, alpha -diamine): Animal testing showed that benzene-1,3-methanamine caused tissue damage to the digestive and respiratory organs, if given by mouth or inhaled, respectively. The chemical is corrosive to animal skin, and may cause sensitization. Testing has not shown any reproductive toxicity or ability to cause mutations.</p> <p>Overexposure to most of these materials may cause adverse health effects.</p> <p>Many amine-based compounds can cause release of histamines, which, in turn, can trigger allergic and other physiological effects, including constriction of the bronchi or asthma and inflammation of the cavity of the nose. Whole-body symptoms include headache, nausea, faintness, anxiety, a decrease in blood pressure, rapid heartbeat, itching, reddening of the skin, urticaria (hives) and swelling of the face, which are usually transient.</p> <p>There are generally four routes of possible or potential exposure: inhalation, skin contact, eye contact, and swallowing.</p> <p>Inhalation: Inhaling vapours may result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs. Higher concentrations of certain amines can produce severe respiratory irritation, characterized by discharge from the nose, coughing, difficulty in breathing and chest pain.</p>
<b>Epoxy 600 Part B &amp; ISOPHORONE DIAMINE</b>	Isophorone diamine is a strong skin irritant, corrosive with repeated application. Frequent occupational exposure may lead to the development of allergic skin inflammation. There could be damage to the smell organ, throat and lungs following inhalational exposure.
<b>4-NONYLPHENOL, BRANCHED &amp; 2-NONYLPHENOL, BRANCHED</b>	<p>For nonylphenol and its compounds: Alkylphenols like nonylphenol and bisphenol A have estrogenic effects in the body. They are known as xenoestrogens. Estrogenic substances and other endocrine disruptors are compounds that have hormone-like effects in both wildlife and humans.</p> <p>For nonylphenol: Animal testing suggests that repeated exposure to nonylphenol may cause liver changes and kidney dysfunction. Nonylphenol was not found to cause mutations or chromosomal aberrations.</p>
<b>4-NONYLPHENOL, BRANCHED &amp; 2-NONYLPHENOL, BRANCHED &amp; P-TERT-BUTYLPHENOL</b>	These substances are intravenous anaesthetic agents. They have a very low level of acute toxicity; they may cause skin irritation. Repeated exposure may irritate the stomach.
<b>4-NONYLPHENOL, BRANCHED &amp; 2-NONYLPHENOL, BRANCHED &amp; M-XYLENEDIAMINE &amp; P-TERT-BUTYLPHENOL</b>	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

## Epoxy 600 Part B

<b>4-NONYLPHENOL, BRANCHED &amp; 2-NONYLPHENOL, BRANCHED &amp; M-XYLENEDIAMINE</b>	The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.		
<b>BENZYL ALCOHOL &amp; ISOPHORONE DIAMINE &amp; P-TERT-BUTYLPHENOL</b>	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.		
<b>Acute Toxicity</b>	✓	<b>Carcinogenicity</b>	✗
<b>Skin Irritation/Corrosion</b>	✓	<b>Reproductivity</b>	✓
<b>Serious Eye Damage/Irritation</b>	✗	<b>STOT - Single Exposure</b>	✗
<b>Respiratory or Skin sensitisation</b>	✓	<b>STOT - Repeated Exposure</b>	✗
<b>Mutagenicity</b>	✗	<b>Aspiration Hazard</b>	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

Epoxy 600 Part B	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
4-nonylphenol, branched	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	96h	Crustacea	0.018mg/l	1
	LC50	96h	Fish	0.05mg/l	2
	EC50	72h	Algae or other aquatic plants	0.027-0.033mg/l	4
	EC50	48h	Crustacea	0.044mg/l	4
2-nonylphenol, branched	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	336h	Fish	5.1mg/l	2
	LC50	96h	Fish	10mg/l	2
benzyl alcohol	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	500mg/l	2
	EC50	48h	Crustacea	230mg/l	2
	EC50	96h	Algae or other aquatic plants	76.828mg/l	2
	m-xylenediamine	Endpoint	Test Duration (hr)	Species	Value
BCF		1008h	Fish	<0.3	7
NOEC(ECx)		504h	Crustacea	4.7mg/l	2
LC50		96h	Fish	75mg/l	2
EC50		72h	Algae or other aquatic plants	12mg/l	2
isophorone diamine	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	48h	Crustacea	14.6-21.5mg/l	4
	NOEC(ECx)	72h	Algae or other aquatic plants	1.5mg/l	1
	Endpoint	Test Duration (hr)	Species	Value	Source
	BCF	1008h	Fish	<0.3	7
p-tert-butylphenol	Endpoint	Test Duration (hr)	Species	Value	Source
	EC10(ECx)	72h	Algae or other aquatic plants	0.23mg/l	2
	LC50	96h	Fish	>1mg/l	2
	EC50	72h	Algae or other aquatic plants	~2.4mg/l	2
	EC50	48h	Crustacea	3.4-4.5mg/l	4

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

## Epoxy 600 Part B

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and/or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and/or delayed, to the structure and/or functioning of natural ecosystems.

Toxic 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.

Surfactants are in general toxic to aquatic organisms due to their surface-active properties. Historically, synthetic surfactants were often composed of branched alkyl chains resulting in poor biodegradability which led to concerns about their environmental effects. Today however, many of them, for example those used in large amounts, globally, as detergents, are linear and therefore readily biodegradable and considered to be of rather low risk to the environment.

For isophorone diamine:

Persistence/Biodegradability: 42% (DOC, OECD 303A) \*8.0% (DOC, Die away test -9/69/EEC)\*

\* [Morton]

Environmental Fate:

Isophorone diamine has a melting point of 10 C, it mixes with water and has a vapour pressure of 0.02 hPa at 20 C. The measured log Kow is 0.99 (23 C). The pKa of approximately 10.4 characterises the substance as a moderate base.

Models calculate the main target compartment for isophorone diamine to be water (99.8 %), followed by sediment and soil (both 0.08 %).

For p-tert-butylphenol

log Kow : 3.31-3.65

Environmental Fate: If p-tert-butyl phenol is released into water or soil, it is unlikely to be distributed into other compartments. If p-t-butyl phenol is released into air, it is likely to be transported to other compartments. p-tert-Butylphenol is a stable solid and is classified as a readily biodegradable chemical (OECD TG 301).

For Alkylphenols:

Environmental Fate: The alkylphenolics may be divided into three groups. Group I: Ortho-substituted mono-alkylphenols. Group II: Para-substituted mono-alkylphenols.

For Alkylphenols and their Ethoxylates, or Propoxylates (APE):

Environmental fate: Alkylphenols are found everywhere in the environment, when released. Releases are generally as wastes; they are extensively used throughout industry and in the home. Alkylphenol ethoxylates are widely used surfactants in domestic and industrial products, which are commonly found in wastewater discharges and in sewage treatment plant effluents.

For benzene-1,3-dimethanamine (m-xylene-alpha,alpha'- diamine)

**Environmental fate:**

The chemical has a log Pow value of 0.18 at 2 a vapour pressure 5 C, of 0.04 hPa at 25 C, and a water solubility of > 100 000 mg/L. Fugacity model Mackay level III calculations suggest that the majority of the chemical would distribute to soil if released to soil and/or air compartment(s), and water if released to aquatic compartment.

The chemical is not readily biodegradable (49% after 28 d) or inherently biodegradable (BOD = 22%, TOC = 6% and analysis in HPLC = 21%) and it does not hydrolyse (half-life >1 y at 25 C).

For Phenols:

Ecotoxicity - Phenols with log Pow >7.4 are expected to exhibit low toxicity to aquatic organisms however; the toxicity of phenols with a lower log Pow is variable. Dinitrophenols are more toxic than predicted from QSAR estimates. Hazard information for these groups is not generally available.

For Surfactants: Kow cannot be easily determined due to hydrophilic/hydrophobic properties of the molecules in surfactants. BCF value: 1-350.

Aquatic Fate: Surfactants tend to accumulate at the interface of the air with water and are not extracted into one or the other liquid phases.

For benzyl alcohol: log Kow : 1.1Koc : <5Henry's atm m3 /mol: 3.91E-07BOD 5: 1.55-1.6,33-62%COD : 96%ThOD : 2.519BCF : 4

Bioaccumulation: Not significant

Anaerobic Effects: Significant degradation.

Effects on algae and plankton: Inhibits degradation of glucose

Degradation Biological: Significant processes

Abiotic: RxnOH\*, no photochem

Ecotoxicity: Fish LC50 (48 h): fathead minnow 770 mg/l; (72 h): 480 mg/l; (96 h) 460 mg/l. Fish LC50 (96 h) fathead minnow 10 ppm, bluegill sunfish 15 ppm; tidewater silverside fish 15 ppm.

Prevent, by any means available, spillage from entering drains or water courses.

**DO NOT discharge into sewer or waterways.**

### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
4-nonylphenol, branched	HIGH	HIGH
benzyl alcohol	LOW	LOW
m-xylenediamine	HIGH	HIGH
isophorone diamine	HIGH	HIGH
p-tert-butylphenol	HIGH	HIGH

### Bioaccumulative potential

Ingredient	Bioaccumulation
4-nonylphenol, branched	LOW (BCF = 271)
benzyl alcohol	LOW (LogKOW = 1.1)
m-xylenediamine	LOW (BCF = 2.7)
isophorone diamine	LOW (BCF = 3.4)
p-tert-butylphenol	LOW (BCF = 240)

### Mobility in soil

Ingredient	Mobility
4-nonylphenol, branched	LOW (KOC = 56010)
benzyl alcohol	LOW (KOC = 15.66)
m-xylenediamine	LOW (KOC = 914.6)
isophorone diamine	LOW (KOC = 340.4)
p-tert-butylphenol	LOW (KOC = 1912)

## SECTION 13 Disposal considerations

### Waste treatment methods



Continued...

## Epoxy 600 Part B

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▶ 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.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Recycle wherever possible.</li> <li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li> <li>▶ Treat and neutralise at an approved treatment plant.</li> </ul>
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## SECTION 14 Transport information

## Labels Required

<b>Labels Required</b>	
<b>Marine Pollutant</b>	

## Land transport (DOT)

<b>UN number</b>	2735	
<b>UN proper shipping name</b>	Amines, liquid, corrosive, n.o.s. (contains isophorone diamine and m-xylenediamine)	
<b>Transport hazard class(es)</b>	Class	8
	Subrisk	Not Applicable
<b>Packing group</b>	III	
<b>Environmental hazard</b>	Environmentally hazardous	
<b>Special precautions for user</b>	Hazard Label	8
	Special provisions	IB3, T7, TP1, TP28

## Air transport (ICAO-IATA / DGR)

<b>UN number</b>	2735	
<b>UN proper shipping name</b>	Amines, liquid, corrosive, n.o.s. (contains isophorone diamine and m-xylenediamine)	
<b>Transport hazard class(es)</b>	ICAO/IATA Class	8
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	8L
<b>Packing group</b>	III	
<b>Environmental hazard</b>	Environmentally hazardous	
<b>Special precautions for user</b>	Special provisions	A3 A803
	Cargo Only Packing Instructions	856
	Cargo Only Maximum Qty / Pack	60 L
	Passenger and Cargo Packing Instructions	852
	Passenger and Cargo Maximum Qty / Pack	5 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y841
Passenger and Cargo Limited Maximum Qty / Pack	1 L	

## Sea transport (IMDG-Code / GGVSee)

<b>UN number</b>	2735	
<b>UN proper shipping name</b>	AMINES, LIQUID, CORROSIVE, N.O.S.(contains isophorone diamine and m-xylenediamine)	
<b>Transport hazard class(es)</b>	IMDG Class	8
	IMDG Subrisk	Not Applicable
<b>Packing group</b>	III	
<b>Environmental hazard</b>	Marine Pollutant	

## Epoxy 600 Part B

Special precautions for user	EMS Number	F-A, S-B
	Special provisions	223 274
	Limited Quantities	5 L

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code**

Product name	Group
4-nonylphenol, branched	Not Available
2-nonylphenol, branched	Not Available
benzyl alcohol	Not Available
m-xylenediamine	Not Available
isophorone diamine	Not Available
p-tert-butylphenol	Not Available

**Transport in bulk in accordance with the ICG Code**

Product name	Ship Type
4-nonylphenol, branched	Not Available
2-nonylphenol, branched	Not Available
benzyl alcohol	Not Available
m-xylenediamine	Not Available
isophorone diamine	Not Available
p-tert-butylphenol	Not Available

**SECTION 15 Regulatory information****Safety, health and environmental regulations / legislation specific for the substance or mixture****4-nonylphenol, branched is found on the following regulatory lists**

Chemical Footprint Project - Chemicals of High Concern List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US DOE Temporary Emergency Exposure Limits (TEELs)	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US EPCRA Section 313 Chemical List	US TSCA Section 12(b) - List of Chemical Substances Subject to Export Notification Requirements
US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Section 4/12 (b) - Sunset Dates/Status

**2-nonylphenol, branched is found on the following regulatory lists**

US DOE Temporary Emergency Exposure Limits (TEELs)	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory	US TSCA Section 12(b) - List of Chemical Substances Subject to Export Notification Requirements

**benzyl alcohol is found on the following regulatory lists**

US - Massachusetts - Right To Know Listed Chemicals	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US AIHA Workplace Environmental Exposure Levels (WEELs)	US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL)
US DOE Temporary Emergency Exposure Limits (TEELs)	US TSCA Chemical Substance Inventory - Interim List of Active Substances

**m-xylenediamine is found on the following regulatory lists**

US - Massachusetts - Right To Know Listed Chemicals	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US ACGIH Threshold Limit Values (TLV)	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US NIOSH Recommended Exposure Limits (RELs)	

**isophorone diamine is found on the following regulatory lists**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory	US TSCA Chemical Substance Inventory - Interim List of Active Substances
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**p-tert-butylphenol is found on the following regulatory lists**

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)	US OSHA Permissible Exposure Limits (PELs) Table Z-1
US - Alaska Air Quality Control - Concentrations Triggering an Air Quality Episode for Air Pollutants Other Than PM-2.5	US OSHA Permissible Exposure Limits (PELs) Table Z-3
US DOE Temporary Emergency Exposure Limits (TEELs)	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US NIOSH Recommended Exposure Limits (RELs)	US TSCA Chemical Substance Inventory - Interim List of Active Substances

**Federal Regulations****Superfund Amendments and Reauthorization Act of 1986 (SARA)****Section 311/312 hazard categories**

Flammable (Gases, Aerosols, Liquids, or Solids)	No
Gas under pressure	No
Explosive	No
Self-heating	No

Continued...

## Epoxy 600 Part B

Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	Yes
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	Yes
Reproductive toxicity	Yes
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	Yes
Serious eye damage or eye irritation	No
Specific target organ toxicity (single or repeated exposure)	No
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No
Hazards Not Otherwise Classified	No

**US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)**

None Reported

**State Regulations****US. California Proposition 65**

None Reported

**National Inventory Status**

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	No (2-nonylphenol, branched)
Canada - DSL	No (2-nonylphenol, branched)
Canada - NDSL	No (benzyl alcohol; m-xylenediamine; p-tert-butylphenol)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (2-nonylphenol, branched)
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (2-nonylphenol, branched)
Vietnam - NCI	Yes
Russia - FBEPH	No (2-nonylphenol, branched)
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

**SECTION 16 Other information**

Revision Date	02/25/2022
Initial Date	04/16/2021

**CONTACT POINT**

\*\*PLEASE NOTE THAT TITANIUM DIOXIDE IS NOT PRESENT IN CLEAR OR NEUTRAL BASES\*\*

**SDS Version Summary**

Version	Date of Update	Sections Updated
5.9	02/25/2022	Ingredients

**Other information**

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios.

Continued...

**Epoxy 600 Part B****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  
ES: Exposure Standard  
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: BioConcentration Factors  
BEI: Biological Exposure Index  
AIIIC: Australian Inventory of Industrial Chemicals  
DSL: Domestic Substances List  
NDSL: Non-Domestic Substances List  
IECSC: Inventory of Existing Chemical Substance in China  
EINECS: European INventory of Existing Commercial chemical Substances  
ELINCS: European List of Notified Chemical Substances  
NLP: No-Longer Polymers  
ENCS: Existing and New Chemical Substances Inventory  
KECI: Korea Existing Chemicals Inventory  
NZIoC: New Zealand Inventory of Chemicals  
PICCS: Philippine Inventory of Chemicals and Chemical Substances  
TSCA: Toxic Substances Control Act  
TCSI: Taiwan Chemical Substance Inventory  
INSQ: Inventario Nacional de Sustancias Químicas  
NCI: National Chemical Inventory  
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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