Epoxy 550 Concrete Gray Part B
ICP Building Solutions Group

Version No: **1.1**
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: **08/27/2020**
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S.GHS.USA.EN

SECTION 1 Identification

Product Identifier

Product name	Epoxy 550 Concrete Gray Part B
Synonyms	Not Available
Proper shipping name	Amines, liquid, corrosive,flammable, n.o.s. (contains 1,3-cyclohexanebis(methylamine)) and 2-propoxyethanol)
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Specialty Flooring Curative

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 United States
Telephone	623-435-2277
Fax	Not Available
Website	www.icpgroup.com
Email	Not Available

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	Respiratory Sensitizer Category 1, Chronic Aquatic Hazard Category 2, Acute Aquatic Hazard Category 3, Flammable Liquid Category 2, Serious Eye Damage Category 1, Carcinogenicity Category 1A, Reproductive Toxicity Category 2, Skin Sensitizer Category 1, Germ cell mutagenicity Category 2, Specific target organ toxicity - repeated exposure Category 1, Skin Corrosion/Irritation Category 1A

Label elements

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H411	Toxic to aquatic life with long lasting effects.
H402	Harmful to aquatic life.

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H225	Highly flammable liquid and vapour.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H372	Causes damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.

Hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
1761-71-3	1-5	4,4'-methylenebis(cyclohexylamine)
2579-20-6	1-5	1,3-cyclohexanebis(methylamine)
100-51-6	5-15	benzyl alcohol
128-37-0	1-5	2,6-di-tert-butyl-4-methylphenol
1317-80-2	30-35	titanium dioxide (rutile)
21645-51-2	1-5	aluminium hydroxide
471-34-1	5-10	calcium carbonate
25154-52-3	<1	nonylphenol
2807-30-9	5-10	2-propoxyethanol
1333-86-4	<1	carbon black

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

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 by the Poisons Information Centre or a doctor, 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.

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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. For amines: ▸ In case of major exposure to liquid amine, promptly remove any contaminated clothing, including rings, watches, and shoe, 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 handling contaminated clothing. ▸ Discard contaminated leather articles such as shoes, belts, and watchbands. ▸ Note to Physician: 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, without delay. ▸ 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 of accidental exposure. ▸ 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; i.e. becoming unconscious. ▸ Give water to rinse out mouth, then 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.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
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 "gasping syndrome describes the progressive neurological deterioration of poisoned neonates.
▸ Management is essentially supportive.
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]

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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 esophagoscopic 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,” “glaucopsia”), 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.
Polyurethene Amine Catalysts: Guidelines for Safe Handling and Disposal Technical Bulletin June 2000
Alliance for Polyurethanes Industry

SECTION 5 Fire-fighting measures

Extinguishing media
- Water spray or fog.
- Foam.

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

Special protective equipment and precautions for fire-fighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. 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.
Fire/Explosion Hazard	▸ Liquid and vapour are highly flammable. ▸ Severe fire hazard when exposed to heat, flame and/or oxidisers. Combustion products include: carbon dioxide (CO_2) carbon monoxide (CO) aldehydes metal oxides 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

Minor Spills	Environmental hazard - contain spillage. ▸ Remove all ignition sources. ▸ Clean up all spills immediately. ▸ 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. for amines: ▸ If possible (i.e., without risk of contact or exposure), stop the leak. ▸ Contain the spilled material by diking, then neutralize.

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Major Spills	Environmental hazard - contain spillage. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. 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.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Containers, even those that have been emptied, may contain explosive vapours. ▸ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ▸ **DO NOT** allow clothing wet with material to stay in contact with skin
Other information	▸ Store in approved flammable liquid storage area. ▸ No smoking, naked lights/ignition sources. ▸ **DO NOT** store near acids, or oxidising agents

Conditions for safe storage, including any incompatibilities

Suitable container	▸ Lined metal can, lined metal pail/ can. ▸ Plastic pail. 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.
Storage incompatibility	Benzyl alcohol: ▸ may froth in contact with water ▸ slowly oxidises in air, oxygen forming benzaldehyde ▸ is incompatible with mineral acids, caustics, aliphatic amines, isocyanates ▸ reacts violently with strong oxidisers, and explosively with sulfuric acid at elevated temperatures ▸ corrodes aluminium at high temperatures ▸ is incompatible with aluminum, iron, steel ▸ attacks some nonfluorinated plastics; may attack, extract and dissolve polypropylene Benzyl alcohol contaminated with 1.4% hydrogen bromide and 1.2% of dissolved iron(II) polymerises exothermically above 100 deg. C. Calcium carbonate: ▸ is incompatible with acids, ammonium salts, fluorine, germanium, lead diacetate, magnesium, mercurous chloride, silicon, silver nitrate, titanium. Contact with acid generates carbon dioxide gas, which may pressurise and then rupture closed containers For alkyl aromatics: The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring. ▸ Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents. ▸ Aromatics can react exothermically with bases and with diazo compounds. Titanium dioxide ▸ reacts with strong acids, strong oxidisers ▸ reacts violently with aluminium, calcium, hydrazine, lithium (at around 200 deg C.), magnesium, potassium, sodium, zinc, especially at elevated temperatures - these reactions involves reduction of the oxide and are accompanied by incandescence ▸ dust or powders can ignite and then explode in a carbon dioxide atmosphere ▸ WARNING: Avoid or control reaction with peroxides. All *transition metal* peroxides should be considered as potentially explosive. ▸ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates. ▸ Avoid contact with copper, aluminium and their alloys.

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)	2,6-di-tert-butyl-4-methylphenol	BHT; Butylated hydroxytoluene; Dibutylated hydroxytoluene; 4-Methyl-2,6-di-tert-butyl phenol	10 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	2,6-di-tert-butyl-4-methylphenol	Butylated hydroxytoluene (Inhalable fraction and vapor)	2 mg/m3	Not Available	Not Available	URT irr
US NIOSH Recommended Exposure Limits (RELs)	titanium dioxide (rutile)	Rutile, Titanium oxide, Titanium peroxide	Not Available	Not Available	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z1	titanium dioxide (rutile)	Titanium dioxide: Total dust	15 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	titanium dioxide (rutile)	Titanium dioxide	10 mg/m3	Not Available	Not Available	LRT irr

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Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELs)	aluminium hydroxide	Synonyms vary depending upon the specific aluminum compound.	2 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	aluminium hydroxide	Synonyms vary depending upon the specific aluminum compound.	5 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	aluminium hydroxide	Particulates not otherwise regulated (PNOR): Total dust	15 mg/m3	Not Available	Not Available	(f) All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
US ACGIH Threshold Limit Values (TLV)	aluminium hydroxide	Aluminum metal and insoluble compounds (Respirable particulate matter)	1 mg/m3	Not Available	Not Available	Pneumoconiosis; LRT irr; neurotoxicity
US NIOSH Recommended Exposure Limits (RELs)	calcium carbonate	Calcium salt of carbonic acid [Note: Occurs in nature as as limestone, chalk, marble, dolomite, aragonite, calcite and oyster shells.]	10 (total), 5 (resp) mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	calcium carbonate	Calcium carbonate, Natural calcium carbonate [Note: Calcite & aragonite are commercially important natural calcium carbonates.]	10 (total), 5 (resp) mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	calcium carbonate	Calcium carbonate, Natural calcium carbonate [Note: Marble is a metamorphic form of calcium carbonate.]	10 (total), 5 (resp) mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Limestone: Respirable fraction	5 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Limestone: Total dust	15 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Calcium carbonate: Total dust	15 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Respirable fraction	5 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Marble: Total dust	15 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Marble: Respirable fraction	5 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	carbon black	Acetylene black, Channel black, Furnace black, Lamp black, Thermal black	3.5 mg/m3	Not Available	Not Available	Ca See Appendix A See Appendix C
US OSHA Permissible Exposure Levels (PELs) - Table Z1	carbon black	Carbon black	3.5 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	carbon black	Carbon black (Inhalable particulate matter)	3 mg/m3	Not Available	Not Available	Bronchitis

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
benzyl alcohol	Benzyl alcohol	30 ppm	52 ppm	740 ppm
titanium dioxide (rutile)	Titanium oxide; (Titanium dioxide)	30 mg/m3	330 mg/m3	2,000 mg/m3
aluminium hydroxide	Aluminum hydroxide	8.7 mg/m3	73 mg/m3	440 mg/m3
calcium carbonate	Carbonic acid, calcium salt	45 mg/m3	210 mg/m3	1,300 mg/m3
nonylphenol	Nonyl phenol, 4- (branched)	3.9 mg/m3	43 mg/m3	260 mg/m3
2-propoxyethanol	Ethylene glycol monopropyl ether; (Propyl cellosolve; Ektasolve EP)	2.2 ppm	24 ppm	140 ppm
carbon black	Carbon black	9 mg/m3	99 mg/m3	590 mg/m3

Ingredient	Original IDLH	Revised IDLH
4,4'-methylenebis(cyclohexylamine)	Not Available	Not Available
1,3-cyclohexanebis(methylamine)	Not Available	Not Available
benzyl alcohol	Not Available	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available	Not Available
titanium dioxide (rutile)	5,000 mg/m3	Not Available
aluminium hydroxide	Not Available	Not Available
calcium carbonate	Not Available	Not Available
nonylphenol	Not Available	Not Available
2-propoxyethanol	Not Available	Not Available

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Ingredient	Original IDLH	Revised IDLH
carbon black	1,750 mg/m3	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
4,4'-methylenebis(cyclohexylamine)	E	≤ 0.1 ppm
1,3-cyclohexanebis(methylamine)	E	≤ 0.1 ppm
benzyl alcohol	E	≤ 0.1 ppm
nonylphenol	E	≤ 0.1 ppm
2-propoxyethanol	E	≤ 0.1 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

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.
Personal protection	
Eye and face protection	‣ 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. ‣ Chemical goggles.whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. For amines: 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.
Skin protection	See Hand protection below
Hands/feet protection	‣ Elbow length PVC gloves ‣ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. **NOTE:** ‣ 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. 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. For amines: ‣ Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly.
Body protection	See Other protection below
Other protection	‣ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] ‣ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. ‣ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. ‣ Overalls. ‣ PVC Apron. ‣ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. ‣ For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).

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

Appearance	Not Available

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Physical state	Liquid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	49	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Flammable.	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely toxic effects; these may be fatal. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhaling corrosive bases may irritate the respiratory tract. Symptoms include cough, choking, pain and damage to the mucous membrane. 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. On exposure to mixed trimethylbenzenes, some people may become nervous, tensed, anxious and have difficult breathing. There may be a reduction red blood cells and bleeding abnormalities. 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. The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics. Inhalation of benzyl alcohol may affect breathing (causing depression and paralysis of breathing and lower blood pressure.
Ingestion	Ingestion of alkaline corrosives may produce burns around the mouth, ulcerations and swellings of the mucous membranes, profuse saliva production, with an inability to speak or swallow. Both the oesophagus and stomach may experience burning pain; vomiting and diarrhoea may follow. 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. Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract. Swallowing large doses of benzyl alcohol may cause abdominal pain, nausea, vomiting and diarrhea. 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.
Skin Contact	The material can produce severe chemical burns following direct contact with the skin. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep. 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 the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

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Eye	If applied to the eyes, this material causes severe eye damage. Direct eye contact with corrosive bases can cause pain and burns. There may be swelling, epithelium destruction, clouding of the cornea and inflammation of the iris. 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.
Chronic	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. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. 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. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Long term exposure to titanium and several of its compounds produces lung scarring and chronic bronchitis. Breathing is impaired and cardiac changes with right heart enlargements occur. 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. 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". Sensitisation may give severe responses to very low levels of exposure, i.e. hypersensitivity.

Epoxy 550 Concrete Gray Part B	**TOXICITY**	**IRRITATION**
	Not Available	Not Available

4,4'-methylenebis(cyclohexylamine)	**TOXICITY**	**IRRITATION**
	100-1250 mg/kg[2]	Eye (rabbit): 10uL./24h SEVERE
	Inhalation (mouse) LC50: 0.4 mg/l/4H[2]	Eye: adverse effect observed (irreversible damage)[1]
	Oral (rat) LD50: 380 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
		Skin (rabbit): SEVERE Corrosive **
		Skin: adverse effect observed (corrosive)[1]

1,3-cyclohexanebis(methylamine)	**TOXICITY**	**IRRITATION**
	Not Available	Eye: adverse effect observed (irritating)[1]
		Skin: adverse effect observed (corrosive)[1]

benzyl alcohol	**TOXICITY**	**IRRITATION**
	~105 mg/kg[2]	Eye (rabbit): 0.75 mg open SEVERE
	~2080 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	~60 mg/kg[2]	Skin (man): 16 mg/48h-mild
	>=25<=400 mg/kg[2]	Skin (rabbit):10 mg/24h open-mild
	>=25-400 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
	>=500<=800 mg/kg[2]	
	>400800 mg/kg[2]	
	2000 mg/kg[2]	
	324 mg/kg[2]	
	480 mg/kg[2]	
	950 mg/kg[2]	
	Inhalation (rat) LC50: >4.178 mg/l/4h[2]	
	Oral (rat) LD50: =2080 mg/kg[2]	
	Oral (rat) LD50: 1230 mg/kg[2]	

2,6-di-tert-butyl-4-methylphenol	**TOXICITY**	**IRRITATION**
	=10700 mg/kg[2]	Eye (rabbit): 100 mg/24h-moderate
	=2500 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	138-1739 mg/kg[2]	Skin (human): 500 mg/48h - mild
	200 mg/kg[2]	Skin (rabbit):500 mg/48h-moderate
	3550 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
	400 mg/kg[2]	
	80 mg/kg[2]	

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	8000 mg/kg[2]	
	940-2100 mg/kg[2]	
	Dermal (rabbit) LD50: >2000 mg/kg[2]	
	Oral (mouse) LD50: =1800 mg/kg[2]	
	Oral (mouse) LD50: =2000 mg/kg[2]	
	Oral (rabbit) LD50: =3200 mg/kg[2]	
	Oral (rat) LD50: =1906 mg/kg[2]	
	Oral (rat) LD50: =1970 mg/kg[2]	
	Oral (rat) LD50: =2255 mg/kg[2]	
	Oral (rat) LD50: =5800 mg/kg[2]	
	Oral (rat) LD50: >10000 mg/kg[2]	
	Oral (rat) LD50: >2000 mg/kg[2]	
	Oral (rat) LD50: 890 mg/kg[2]	

titanium dioxide (rutile)	**TOXICITY**	**IRRITATION**
	0.0032 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	0.04 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
	60000 mg/kg[2]	
	Oral (rat) LD50: >2000 mg/kg[1]	

aluminium hydroxide	**TOXICITY**	**IRRITATION**
	Not Available	Eye: no adverse effect observed (not irritating)[1]
		Skin: no adverse effect observed (not irritating)[1]

calcium carbonate	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: 6450 mg/kg[2]	Eye (rabbit): 0.75 mg/24h - SEVERE
		Eye: no adverse effect observed (not irritating)[1]
		Skin (rabbit): 500 mg/24h-moderate
		Skin: no adverse effect observed (not irritating)[1]

nonylphenol	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: =1300 mg/kg[2]	Eye (rabbit): 0.5 mg (open)-SEVERE
	Oral (rat) LD50: =580 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: 1000-2500 mg/kg[2]	Skin (rabbit): 500 mg(open)-mod
	Oral (rat) LD50: 1620 mg/kg[2]	Skin(rabbit):10mg/24h(open)-SEVERE
		Skin: adverse effect observed (corrosive)[1]

2-propoxyethanol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 960 mg/kg[2]	Eye (rabbit): 0.75 mg/24h SEVERE
	Inhalation (rat) LC50: 1997.718 mg/l/4hourE[2]	Eye (rabbit): 100 mg - SEVERE
	Oral (rat) LD50: 3089 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
		Skin (rabbit): 500 mg/24h -mild
		Skin: adverse effect observed (irritating)[1]

carbon black	**TOXICITY**	**IRRITATION**
	4 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	7 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
	Oral (rat) LD50: >15400 mg/kg[2]	

Legend:	*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*

Epoxy 550 Concrete Gray Part B	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. Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema. 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. For trimethylbenzenes: Absorption of 1,2,4-trimethylbenzene occurs after exposure by swallowing, inhalation, or skin contact. In the workplace, inhalation and skin contact are the most important routes of absorption; whole-body toxic effects from skin absorption are unlikely to occur as the skin irritation caused by the chemical generally leads to quick removal.

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1,3-CYCLOHEXANEBIS(METHYLAMINE)	For 1,3-cyclohexanebis(methylamine) (CHBM): Animal testing shows that CHBMhas low to moderate acute toxicity by swallowing and moderate acute toxicity by skin contact. It is corrosive to the eyes and skin. Gastrointestinal changes recorded.
BENZYL ALCOHOL	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. 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 unharmful and of low acute toxicity. 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. 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.
2,6-DI-TERT-BUTYL-4-METHYLPHENOL	for bridged alkyl phenols: **Acute toxicity:** Acute oral and dermal toxicity data are available for all but two of the substances in the group. The data show that acute toxicity of these substances is low. Data show that acute toxicity following oral and topical use of hindered phenols is low. They are not proven to cause mutations. The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing. **NOTE:** Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA. * Degussa SDS Effects such as behavioral changes, reduction in body weight gain, and decrement in body weight have been observed after long-term administration of BHT to mice and rats. Toxic effects may be attributed more to BHT metabolites than to their parent compound, only a few studies have focused on their carcinogenicity and toxicity, and not only on that of BHT. The metabolite BHT-QM (syn: 2,6-di-tert-butyl-1,4-methylene-2,5-cyclohexadien-1-one, CAS RN: 2607-52-5) is a very reactive compound which is considered to play a significant role in hepatoxicity, pneumotoxicity, and skin tumor promotion in mice. BHT has been reported to exert prooxidant effects under certain conditions. Thus, when BHT was added in excess to a wheat seedling medium in aerobic conditions, an enhancement of the generation rate of superoxide anion was observed. Some authors have reported that at high aeration rate, BHT can react with molecular oxygen rather than with the reactive oxygen species present, yielding BHT-phenoxyl radical and superoxide anion. In addition, the phenolic radical itself may undergo redox recycling which can be a critical factor depending on the reductant involved However, it has to be noted that BHT-phenoxyl radical has been reported to be relatively stable. Furthermore, the potential reactivity of BHT-derived metabolites should be taken into account; some studies reported that not only BHT but also its metabolites, such as BHT-Q and BHT-QM, can act as prooxidant. As BHT undergoes several reactions during biotransformation, a large number of intermediate metabolites have been identified. However, their nature and concentration depend on the environmental conditions and on the animal species. Although the changes undergone by BHT during in vivo digestion processes have not been studied, after submission of a fluid deep-frying fat containing BHT and BHT-QM to an in vitro gastrointestinal digestion model, both these were detected in the digested samples. These results indicate that BHT and its toxic metabolite could remain bioaccessible for intestinal absorption. Studies concerning BHT metabolism have shown that, unlike other synthetic antioxidants, BHT is a potent inducer of the microsomal monooxygenase system and its major route of degradation is oxidation catalyzed by cytochrome P450. Studies have reported potential toxicity derived from the ingestion or administration of BHT. As for acute oral toxicity, although this is considered low in animals, it must be noted that 2 clinical cases were reported in patients who suffered acute neurotoxicity and gastritis after ingesting a high dose of BHT (4 and 80 g without medical prescription) to cure recurrent genital herpes. Regarding short-term subchronic toxicity studies, it has been reported that BHT causes dose-related increase in the incidence and severi
TITANIUM DIOXIDE (RUTILE)	Skin (human) 0.3: mg/3d-I mild
CALCIUM CARBONATE	No evidence of carcinogenic properties. No evidence of mutagenic or teratogenic effects.
NONYLPHENOL	For nonylphenol and its compounds: Alkylphenols like nonylphenol and bisphenol A have estrogenic effects in the body. They are known as xenoestrogens. 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. 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.
2-PROPOXYETHANOL	For ethylene glycol monoalkyl ethers and their acetates (EGMAEs): Typical members of this category are ethylene glycol propylene ether (EGPE), ethylene glycol butyl ether (EGBE) and ethylene glycol hexyl ether (EGHE) and their acetates. EGMAEs are substrates for alcohol dehydrogenase isozyme ADH-3, which catalyzes the conversion of their terminal alcohols to aldehydes (which are transient metabolites). Further, rapid conversion of the aldehydes by aldehyde dehydrogenase produces alkoxyacetic acids, which are the predominant urinary metabolites of mono substituted glycol ethers. **Acute Toxicity:** Oral LD50 values in rats for all category members range from 739 (EGHE) to 3089 mg/kg bw (EGPE), with values increasing with decreasing molecular weight. There have been no specific human studies, but the consistency of the animal experiments emphasizes that human exposure should be dramatically reduced.
CARBON BLACK	Inhalation (rat) TCLo: 50 mg/m3/6h/90D-I Nil reported **WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
Epoxy 550 Concrete Gray Part B & 4,4'-METHYLENEBIS(CYCLOHEXYLAMINE) & 1,3-CYCLOHEXANEBIS(METHYLAMINE) & 2,6-DI-TERT-BUTYL-4-METHYLPHENOL & CALCIUM CARBONATE & NONYLPHENOL	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.
Epoxy 550 Concrete Gray Part B & 4,4'-METHYLENEBIS(CYCLOHEXYLAMINE) & 1,3-CYCLOHEXANEBIS(METHYLAMINE) & BENZYL ALCOHOL	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.
Epoxy 550 Concrete Gray Part B & BENZYL ALCOHOL	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. 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.

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Epoxy 550 Concrete Gray Part B & 4,4'-METHYLENEBIS(CYCLOHEXYLAMINE)	Overexposure to most of these materials may cause adverse health effects. 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. There are generally four routes of possible or potential exposure: inhalation, skin contact, eye contact, and swallowing. Inhalation: Inhaling vapours may result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs.
Epoxy 550 Concrete Gray Part B & TITANIUM DIOXIDE (RUTILE)	Exposure to titanium dioxide is via inhalation, swallowing or skin contact. When inhaled, it may deposit in lung tissue and lymph nodes causing dysfunction of the lungs and immune system. Absorption by the stomach and intestines depends on the size of the particle.
4,4'-METHYLENEBIS(CYCLOHEXYLAMINE) & TITANIUM DIOXIDE (RUTILE)	The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
4,4'-METHYLENEBIS(CYCLOHEXYLAMINE) & 1,3-CYCLOHEXANEBIS(METHYLAMINE)	The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.
4,4'-METHYLENEBIS(CYCLOHEXYLAMINE) & BENZYL ALCOHOL & 2,6-DI-TERT-BUTYL-4-METHYLPHENOL & TITANIUM DIOXIDE (RUTILE) & CALCIUM CARBONATE & 2-PROPOXYETHANOL	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.
1,3-CYCLOHEXANEBIS(METHYLAMINE) & CALCIUM CARBONATE & NONYLPHENOL & 2-PROPOXYETHANOL	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
1,3-CYCLOHEXANEBIS(METHYLAMINE) & NONYLPHENOL	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.
TITANIUM DIOXIDE (RUTILE) & ALUMINIUM HYDROXIDE & CARBON BLACK	No significant acute toxicological data identified in literature search.

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

SECTION 12 Ecological information

Toxicity

Epoxy 550 Concrete Gray Part B

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

4,4'-methylenebis(cyclohexylamine)

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	68mg/L	2
EC50	48	Crustacea	6.84mg/L	2
EC50	72	Algae or other aquatic plants	2-164mg/L	2
EC0	48	Crustacea	2.5mg/L	2
NOEC	504	Crustacea	4mg/L	2

1,3-cyclohexanebis(methylamine)

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	130mg/L	2
EC50	48	Crustacea	33.1mg/L	2
EC50	72	Algae or other aquatic plants	29.7mg/L	2
NOEC	72	Algae or other aquatic plants	13.7mg/L	2

benzyl alcohol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	10mg/L	2
EC50	48	Crustacea	230mg/L	2
EC50	96	Algae or other aquatic plants	76.828mg/L	2
NOEC	336	Fish	5.1mg/L	2

2,6-di-tert-butyl-4-methylphenol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	0.199mg/L	2
EC50	48	Crustacea	>0.17mg/L	2
EC50	72	Algae or other aquatic plants	>0.24mg/L	2

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	NOEC	504	Crustacea	0.023mg/L	2

titanium dioxide (rutile)

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	>1-mg/L	2
EC50	48	Crustacea	>1-mg/L	2
EC50	72	Algae or other aquatic plants	>10-mg/L	2
NOEC	72	Algae or other aquatic plants	1mg/L	2

aluminium hydroxide

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	0.001-0.134mg/L	2
EC50	48	Crustacea	0.7364mg/L	2
EC50	72	Algae or other aquatic plants	0.001-0.05mg/L	2
NOEC	240	Crustacea	0.001-0.1002mg/L	2

calcium carbonate

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72	Algae or other aquatic plants	>14mg/L	2
EC10	72	Algae or other aquatic plants	>14mg/L	2
NOEC	72	Algae or other aquatic plants	14mg/L	2

nonylphenol

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48	Crustacea	=0.14mg/L	1
EC50	96	Algae or other aquatic plants	0.027mg/L	1
EC0	48	Crustacea	<0.1mg/L	1
NOEC	672	Crustacea	0.0039mg/L	1

2-propoxyethanol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	>5-mg/L	2
EC50	72	Algae or other aquatic plants	>100mg/L	2
NOEC	72	Algae or other aquatic plants	>=100mg/L	2

carbon black

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	>100mg/L	2
EC50	48	Crustacea	>100mg/L	2
EC50	72	Algae or other aquatic plants	>10-mg/L	2
EC10	72	Algae or other aquatic plants	>10-mg/L	2
NOEC	96	Fish	>=1-mg/L	2

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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*

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.
For 1,2,4 - Trimethylbenzene:
Half-life (hr) air: 0.48-16;
Half-life (hr) H2O surface water: 0.24 -672;
Half-life (hr) H2O ground: 336-1344;
Half-life (hr) soil: 168-672;
Henry's Pa m3 /mol: 385 -627;
Bioaccumulation: not significant. 1,2,4-Trimethylbenzene is a volatile organic compound (VOC) substance.
For Aromatic Substances Series:
Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.
Atmospheric Fate: PAHs are 'semi-volatile substances" which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization.
For Ethelene Glycol Monoalkyl Ethers and their Acetates:
log BCF: 0.463 to 0.732;
LC50 : 94 to > 5000 mg/L. (aquatic species).
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.
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

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Ingredient	Persistence: Water/Soil	Persistence: Air
4,4'-methylenebis(cyclohexylamine)	HIGH	HIGH
1,3-cyclohexanebis(methylamine)	LOW	LOW
benzyl alcohol	LOW	LOW
2,6-di-tert-butyl-4-methylphenol	HIGH	HIGH
titanium dioxide (rutile)	HIGH	HIGH
nonylphenol	HIGH	HIGH
2-propoxyethanol	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
4,4'-methylenebis(cyclohexylamine)	LOW (LogKOW = 3.2649)
1,3-cyclohexanebis(methylamine)	LOW (LogKOW = 1.0688)
benzyl alcohol	LOW (LogKOW = 1.1)
2,6-di-tert-butyl-4-methylphenol	HIGH (BCF = 2500)
titanium dioxide (rutile)	LOW (BCF = 10)
nonylphenol	LOW (BCF = 271)
2-propoxyethanol	LOW (LogKOW = 0.0755)

Mobility in soil

Ingredient	Mobility
4,4'-methylenebis(cyclohexylamine)	LOW (KOC = 672.4)
1,3-cyclohexanebis(methylamine)	LOW (KOC = 914.6)
benzyl alcohol	LOW (KOC = 15.66)
2,6-di-tert-butyl-4-methylphenol	LOW (KOC = 23030)
titanium dioxide (rutile)	LOW (KOC = 23.74)
nonylphenol	LOW (KOC = 56010)
2-propoxyethanol	HIGH (KOC = 1)

SECTION 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. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. ▸ **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. ▸ Recycle wherever possible. ▸ 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.

SECTION 14 Transport information

Labels Required

	 
Marine Pollutant	

Land transport (DOT)

UN number	2734
UN proper shipping name	Amines, liquid, corrosive,flammable, n.o.s. (contains 1,3-cyclohexanebis(methylamine)) and 2-propoxyethanol)
Transport hazard class(es)	Class: 8 Subrisk: 3
Packing group	II
Environmental hazard	Environmentally hazardous

Continued...

Special precautions for user	Hazard Label	8, 3
	Special provisions	IB2, T11, TP2, TP27

Air transport (ICAO-IATA / DGR)

UN number	2734	
UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. * (contains 1,3-cyclohexanebis(methylamine) and 2-propoxyethanol)	
Transport hazard class(es)	ICAO/IATA Class	8
	ICAO / IATA Subrisk	3
	ERG Code	8F
Packing group	II	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	855
	Cargo Only Maximum Qty / Pack	30 L
	Passenger and Cargo Packing Instructions	851
	Passenger and Cargo Maximum Qty / Pack	1 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y840
	Passenger and Cargo Limited Maximum Qty / Pack	0.5 L

Sea transport (IMDG-Code / GGVSee)

UN number	2734	
UN proper shipping name	Amines, liquid, corrosive,flammable, n.o.s. (contains 1,3-cyclohexanebis(methylamine)) and 2-propoxyethanol)	
Transport hazard class(es)	IMDG Class	8
	IMDG Subrisk	3
Packing group	II	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-E , S-C
	Special provisions	274
	Limited Quantities	1 L

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

Not Applicable

SECTION 15 Regulatory information

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

4,4'-methylenebis(cyclohexylamine) 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

1,3-cyclohexanebis(methylamine) 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

benzyl alcohol is found on the following regulatory lists

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

2,6-di-tert-butyl-4-methylphenol is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US ACGIH Threshold Limit Values (TLV)
US AIHA Workplace Environmental Exposure Levels (WEELs)
US NIOSH Recommended Exposure Limits (RELs)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA Chemical Substance Inventory - Interim List of Active Substances

titanium dioxide (rutile) is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B : Possibly carcinogenic to humans
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

Continued...

US - California Proposition 65 - Carcinogens
US - California Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65 List
US ACGIH Threshold Limit Values (TLV)
US AIHA Workplace Environmental Exposure Levels (WEELs)
US DOE Temporary Emergency Exposure Limits (TEELs)
US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Limits - Annotated Table Z-1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA Chemical Substance Inventory - Interim List of Active Substances

aluminium hydroxide is found on the following regulatory lists

US ACGIH Threshold Limit Values (TLV)
US AIHA Workplace Environmental Exposure Levels (WEELs)
US DOE Temporary Emergency Exposure Limits (TEELs)
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Limits - Annotated Table Z-1
US OSHA Permissible Exposure Limits - Annotated Table Z-3
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA Chemical Substance Inventory - Interim List of Active Substances

calcium carbonate is found on the following regulatory lists

US DOE Temporary Emergency Exposure Limits (TEELs)
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Limits - Annotated Table Z-1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA Chemical Substance Inventory - Interim List of Active Substances

nonylphenol is found on the following regulatory lists

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

2-propoxyethanol is found on the following regulatory lists

US - California Hazardous Air Pollutants Identified as Toxic Air Contaminants
US Clean Air Act - Hazardous Air Pollutants
US DOE Temporary Emergency Exposure Limits (TEELs)
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA Chemical Substance Inventory - Interim List of Active Substances

carbon black is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B : Possibly carcinogenic to humans
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
US - California Proposition 65 - Carcinogens
US - California Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65 List
US ACGIH Threshold Limit Values (TLV)
US AIHA Workplace Environmental Exposure Levels (WEELs)
US DOE Temporary Emergency Exposure Limits (TEELs)
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Limits - Annotated Table Z-1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
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)	Yes
Gas under pressure	No
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No

Continued...

Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	Yes
Acute toxicity (any route of exposure)	No
Reproductive toxicity	Yes
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	Yes
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	No
Germ cell mutagenicity	Yes
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

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

US - California Proposition 65 - Carcinogens: Listed substance

Titanium dioxide (airborne, unbound particles of respirable size), Carbon black (airborne, unbound particles of respirable size), Carbon-black extracts Listed

National Inventory Status

National Inventory	Status
Australia - AIIC	Yes
Australia Non-Industrial Use	No (4,4'-methylenebis(cyclohexylamine); 1,3-cyclohexanebis(methylamine); benzyl alcohol; 2,6-di-tert-butyl-4-methylphenol; titanium dioxide (rutile); aluminium hydroxide; calcium carbonate; nonylphenol; 2-propoxyethanol; carbon black)
Canada - DSL	Yes
Canada - NDSL	No (4,4'-methylenebis(cyclohexylamine); 1,3-cyclohexanebis(methylamine); benzyl alcohol; titanium dioxide (rutile); aluminium hydroxide; 2-propoxyethanol; carbon black)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (4,4'-methylenebis(cyclohexylamine); 1,3-cyclohexanebis(methylamine); 2-propoxyethanol)
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 Other information

Revision Date	08/27/2020
Initial Date	08/28/2020

CONTACT POINT

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

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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average

Continued...

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: BioConcentration Factors
BEI: Biological Exposure Index

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end of SDS