Safety Data Sheet

WESTOX BUILDING PRODUCTS

WESTOX WATER REPELLENT

Date of Issue 01 Sept 2014
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1 - IDENTIFICATION

Product Name	WESTOX WATER REPELLENT
Recommended Use	Water repellent for concrete-cement and inorganic substrates
Company Details	Westlegate Pty Ltd
Address	16 Frost Road Campbelltown NSW 2560 Australia
Phone	61 2 4628 5010
Fax	61 2 4628 5020
Email	info@westox.com
Website	www.westox.com
Emergency Contact Point	Australian Poisons Information Centre 24 Hour Service 13 11 26 Police, Fire Brigade or Ambulance 000 New Zealand Poisons Information Centre 24 Hour Service 0800 764 766 NZ Emergency Services 111

2 - HAZARD(S) IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO WORK SAFE AUSTRALIA CRITERIA

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of chemicals (GHS).
Hazard Categories	Specific target organ toxicity - single exposure Category 3 (narcotic effects) Aspiration Hazard Category 1
Pictograms	
Signal Word	**DANGER**
Hazard Statements	H336: May cause drowsiness or dizziness H304: May be fatal if swallowed and enters airways AUH066: Repeated exposure may cause skin dryness and cracking
Precautionary Statements	P271: Use only outdoors or in a well-ventilated area P261: Avoid breathing mist/vapours/spray P301+P310: IF SWALLOWED: immediately call a POISON CENTRE or doctor/physician P331: Do NOT induce vomiting P312: Call a POISON CENTRE or doctor/physician if you feel unwell P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P405: Store locked up P403+P233: Store in a well-ventilated place. Keep container tightly closed P501: Dispose of contents/container in accordance with local restrictions
Dangerous Goods Classification	Not Dangerous goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code).
Poisons Schedule Number	S5

3 - COMPOSITION AND INFORMATION ON INGREDIENTS

Name	CAS Number	Content %
Alkanes, C11-13-iso-	64742-48-9	>90
Gamma-glycidooxypropltrimethoxysilane	2530-83-8	2-10

4 - FIRST AID MEASURES

Eye Contact If this product comes in contact with the eyes; wash out immediately with fresh 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. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact If skin contact occurs; immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.

Inhalation If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such a 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.

Ingestion 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. Seek medical advice. Avoid giving milk or oils. Avoid giving alcohol.

Other Information

Indication of any immediate medical attention and special treatment needed

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.
For petroleum distillates
· In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption - decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precautions of an endotracheal tube should be considered prior to lavage, to prevent aspiration.
· Individuals intoxicated by petroleum distillates should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function.
· Positive pressure ventilation may be necessary.
· Acute central nervous system signs and symptoms may result from large ingestions of aspiration-induced hypoxia.
· After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary oedema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated.
· Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidneys are reported to be uncommon in acute intoxications.
· Chlorinated and non-chlorinated hydrocarbons may sensitize the heart to epinephrine and other circulating catecholamines so that arrhythmias may occur. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants and the selection of bronchodilators.
BP America Product Safety & Toxicology Department

5 - FIREFIGHTING MEASURES

Extinguishing Media Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide, water spray or fog - large fires only

Fire Incompatibility
Alert Fire Brigade and tell them location and nature of hazard
Wear full body protective clothing with breathing apparatus
Prevent, by any means available, spillage from entering drains or water course
Use water delivered as a fine spray to control fire and cool adjacent area
Avoid spraying water onto liquid pools
DO NOT approach containers suspected to be hot
Cool fire exposed containers with water spray from a protected location
If safe to do so, remove containers from path of fire

Fire/ Explosion Hazard
Combustible
Slight fire hazard when exposed to heat or flame
Heating may cause expansion or decomposition leading to violent rupture of containers
On combustion, may emit toxic fumes of carbon monoxide (CO)
May emit acrid smoke
Mists containing combustible materials may be explosive

Combustion products Carbon dioxide (CO2), formaldehyde, silicon dioxide (Si02), other pyrolysis products typical of burning inorganic material. May emit poisonous fumes.

Hazchem Not applicable

6 - ACCIDENTAL RELEASE MEASURES

Minor Spills
Remove all ignition sources
Clean up all spills immediately

Avoid breathing vapours and contact with skin and eyes
Control personal contact with the substance, by using protective equipment
Contain and absorb spill with sand, earth, inert material or vermiculite
Wipe Up
Place in a suitable, labelled container for waste disposal

Major Spills

Moderate Hazard
Clear area of personnel and move upwind
Alert Fire Brigade and tell them location and nature of hazard
Wear breathing apparatus plus protective gloves
Prevent, by any means available, spillage from entering drains or water course
No smoking, naked lights or ignition sources
Increase ventilation
Stop leak safe to do so
Contain spill with sand, earth or vermiculite
Collect recoverable product into labelled containers for recycling
Absorb remaining product with sand, earth or vermiculite
Collect solid residues and seal in labelled drums for disposal
Wash area and prevent runoff into drains
If contamination of drains or watercourses occurs, advise emergency services

7 - HANDLING AND STORAGE

Precautions for Safe Handling

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
Electrostatic discharge may be generated during pumping - this may result in fire
Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<=1 m/sec until fill pipe submerged to twice its diameter, then <=7 m/sec)
Avoid splash filling
Do NOT use compressed air for filling discharging or handling operations
Avoid all personal contact, including inhalation
Wear protective clothing when risk of exposure occurs
Use in a well-ventilated area
Prevent concentration in hollows and sumps
DO NOT enter confined spaces until atmosphere has been checked
Avoid smoking, naked lights or ignition sources
Avoid contact with incompatible materials
When handling, DO NOT eat, drink or smoke
Keep containers securely sealed when not in use
Avoid physical damage to containers
Always wash hands with soap and water after handling
Work clothes should be laundered separately
Use good occupational work practice
Observe manufacturers storage and handling recommendations contained within this SDS
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions

Store in original containers
Keep containers securely sealed
No smoking, naked lights or ignition sources
Store in a cool, dry, well-ventilated area
Store away from incompatible materials and foodstuff containers
Protect containers against physical damage and check regularly for leaks
Observe manufacturers storage and handling recommendations contained within this SDS

Conditions for Safe Storage

Suitable Container

Metal can or drum
Packaging as recommended by manufacturer
Check all containers are clearly labelled and free from leaks

Storage incompatibility

Avoid reaction with oxidising agents

8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

General

Occupational Exposure Limits (OE)

Ingredient Data

Source	Ingredient	Material Name	TWA (mg/m3)	STEL
Australia Exposure Standards	alkanes, C11-13-iso-	Oil mist, refined material	5	N/A

Emergency Limits

Ingredient	Material Time	TEEL-1	TEEL-2	TEEL-3
Alkanes, C11-13-iso- Gamma-glycidoxypropltrimethoxysilane	Naptha, hydrated heavy; (isopar L-rev 2)	350 mg/m3	1,800mg/m3	40,000mg/m3

Engineering Measures

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace process varying "escape" velocities which in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant	**Air Speed**
Solvent, vapours, degreasing etc, evaporating from tank (in still air)	0.25-0.5 m/s (50-100 f/min)
Aerosols, fumes from pouring operations, intermittent container filling, low speed conveyor transfers, welding, spray drift, plating acid fumes, pickling, (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min)
Direct spray, spray painting in shallow booths, drum filling, conveyor loading, crusher dusts, gas discharge (active generation into zone of rapid motion)	1-2.5 m/s (200-500 f/min)
Grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion	2.5-10 m/s (500-2000 f/min)

Within each range the appropriate value depends on

Lower end of the range	**Upper end of the range**
1. Room air currents minimal or favourable to capture	1. Disturbing room air currents
2. Contaminants of low toxicity or of nuisance value only	2. Contaminant of high toxicity
3. Intermittent, low production	3. High production, heavy use
4. Large hood or large air mass in motion	4. Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Personal Protective Equipment

Eye and Face Protection

Safety glasses with side shields, chemical goggles.
Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly.

Skin Protection

See Hand protection below

Hands/ feet Protection

Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber
The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include; frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterity.
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
Contaminated gloves should be replaced.

As defined in ASTM F-739-96 in any application, gloves are rated as; Excellent when breakthrough time > 480 min, Good when breakthrough time >20 min, Fair when breakthrough time < 20 min, Poor when glove material degrades
For general applications, gloves with a thickness typically greater than 0.35mm, are recommended.
It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacture's technical data should always be taken into account to ensure selection of the most appropriate glove for the task.
Note: depending on the activity being conducted, gloves of varying thickness may be required for specific tasks.
For example: Thinner gloves (down to 0.1mm or less) may be required where a high degree of manual dexterity is needed. However these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
Thicker gloves (up to 3mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Polyethylene gloves

Body Protection

See other protection below.
Other Protection

No special equipment is needed when handling small quantities.
OTHERWISE: wear chemical protective gloves, e.g. PVA
Safety footwear may be required.

Respiratory Protection

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

Where the concentration of gas/ particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-face Respirator	Powered Air-Respirator
Up to 10 x ES	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
Up to 50 x ES	-	A-AUS Class 1 P2	-
Up to 100 x ES	-	A-2 P2	A-PAPR-2 P2 ^

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

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.

9 - PHYSICAL AND CHEMICAL PROPERTIES

General Information

Appearance	Liquid with hydrocarbon odour; does not mix with water
Solubility	Immiscible

10 - STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	Unstable in the presence of incompatible materials Product is considered stable Hazardous polymerisation will not occur
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

11 - TOXICOLOGICAL INFORMATION

Inhaled

High inhaled concentrations of mixed hydrocarbons may produce narcosis characterised by nausea, vomiting and lightheadedness. Inhalation of aerosols may produce severe pulmonary oedema, pneumonitis and pulmonary haemorrhage. Inhalation of petroleum hydrocarbons consisting substantially of low molecular weight species (typically C2-C12) may produce irritation of mucous membranes, incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and anaesthetic stupor. Massive exposures may produce central nervous system depression with sudden collapse and deep coma; fatalities have been recorded. Irritation of the brain and/or apnoeic anoxia may produce convulsions. Although recovery following overexposure is generally complete, cerebral micro-haemorrhage of focal post-inflammatory scarring may

produce epileptiform seizures some months after the exposure. Pulmonary episodes may include chemical pneumonitis with oedema and haemorrhage. The lighter hydrocarbons may produce kidney and neurotoxic effects. Pulmonary irritancy increases with carbon chain length for paraffins and olefins. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce anaesthesia and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C5-7 paraffins may also produce polyneuropathy. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue and vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons are cardiac sensitisers and may cause ventricular fibrillations.
Central nervous system (CNS) depression may include nonspecific 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. Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression- characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination

Ingestion

Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result. Signs and symptoms of chemical (aspiration) pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis). Ingestion of petroleum hydrocarbons may produce irritation of the pharynx, oesophagus, stomach and small intestine with oedema and mucosal ulceration resulting; symptoms include a burning sensation in the mouth and throat. Large amounts may produce narcosis with nausea and vomiting, weakness or dizziness, slow and shallow respiration, swelling of the abdomen, unconsciousness and convulsions. Myocardial injury may produce arrhythmias, ventricular fibrillation and electrocardiographic changes. Central nervous system depression may also occur. Light aromatic hydrocarbons produce a warm, sharp, tingling sensation on contact with taste buds and may anaesthetise the tongue. Aspiration into the lungs may produce coughing, gagging and a chemical pneumonitis with pulmonary oedema and haemorrhage.

Skin Contact

Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Dermally, isoparaffins have produced slight to moderate irritation in animals and humans under occluded patch conditions where evaporation cannot freely occur. However, they are not irritating in non-occluded tests, which are a more realistic simulation of human exposure. They have not been found to be sensitisers in guinea pig or human patch testing. However, occasional rare idiosyncratic sensitisation reactions in humans have been reported. Open cuts, abraded or irritated skin should not be exposed to this material. The material may accentuate any pre-existing dermatitis condition

Eye

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result. The aromatic fraction may produce irritation and lachrymation.

Chronic

Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following. Repeated or prolonged exposure to mixed hydrocarbons may produce narcosis with dizziness, weakness, irritability, concentration and/or memory loss, tremor in the fingers and tongue, vertigo, olfactory disorders, constriction of visual field, paraesthesias of the extremities, weight loss and anaemia and degenerative changes in the liver and kidney. Chronic exposure by petroleum workers, to the lighter hydrocarbons, has been associated with visual disturbances, damage to the central nervous system, peripheral neuropathies (including numbness and paraesthesias), psychological and neurophysiological deficits, bone marrow toxicities (including hypoplasia possibly due to benzene) and hepatic and renal involvement. Chronic dermal exposure to petroleum hydrocarbons may result in defatting which produces localised dermatoses. Surface cracking and erosion may also increase susceptibility to infection by microorganisms. One epidemiological study of petroleum refinery workers has reported elevations in standard mortality ratios for skin cancer along with a dose-response relationship indicating an association between routine workplace exposure to petroleum or one of its constituents and skin cancer, particularly melanoma. Other studies have been unable to confirm this finding. Animal studies: No deaths or treatment related signs of toxicity were observed in rats exposed to light alkylate naphtha (paraffinic hydrocarbons) at concentrations of 668, 2220 and 6646 ppm for 6 hrs/day, 5 days/wk for 13 weeks. Increased liver weights and kidney toxicity (male rats) was observed in high dose animals. Exposure to pregnant rats at concentrations of 137, 3425 and 6850 ppm did not adversely affect reproduction or cause maternal or foetal toxicity. Lifetime skin painting studies in mice with similar naphthas have shown weak or no carcinogenic activity following prolonged and repeated exposure. Similar naphthas/distillates, when tested at nonirritating dose levels, did not show any significant carcinogenic activity indicating that this tumorigenic response is likely related to chronic irritation and not to dose. The mutagenic potential of naphthas has been reported to be largely negative in a variety of mutagenicity tests. The exact relationship between these results and human health is not known. Some components of this product have been shown to produce a species specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Subsequent research has shown that the kidney damage develops via the formation of a alpha-2u-globulin, a mechanism unique to the male rat. Humans do not form alpha-2u-globulin, therefore, the kidney effects resulting from this mechanism are not relevant in human.

Alkanes, C11-13-iso-	**TOXICITY** Dermal (rabbit) LD50: >1900 mg/kg [1] Oral (rat) LD50: >4500 mg/kg [1]	**IRRITATION** Not Available
Gammaglycidoxypropyltrimethoxysilane	**TOXICITY** Not Available	**IRRITATION** Not Available

GAMMAGLYCIDOXYPROPYLTRIMETHOXYSILANE

For alkoxysilanes:
Low molecular weight alkoxysilanes (including alkyl orthosilicates) are a known concern for lung toxicity, due to inhalation of vapours or aerosols causing irreversible lung damage at low doses. Alkoxysilane groups that rapidly hydrolyse when in contact with water, result in metabolites that may only cause mild skin irritation. Although there appears to be signs of irritation under different test conditions, based on the available information, the alkoxysilanes cannot be readily classified as a skin irritant. The trimethoxysilane group of chemicals have previously been associated with occupational eye irritation in exposed workers who experienced severe inflammation of the cornea . Based on the collective information, these substances are likely to be severe irritants to the eyes. Methoxysilanes are generally reported to possess higher reactivity and toxicity compared to ethoxysilanes; some methoxysilanes appear to be carcinogenic .In the US, alkoxysilanes with alkoxy groups greater than C2 are classified as moderate concern. Based on available information on methoxysilanes, the possibility that this family causes skin sensitisation cannot be ruled out. Amine-functional methoxysilanes have previously been implicated as a cause of occupational contact dermatitis, often as a result of repeated skin exposure with workers involved in the manufacture or use of the resins containing the chemical during fibreglass production.

For gamma-glycidopropyltrimethoxysilane (GPTMS) GPTMS is subject to rapid hydrolysis, and the observed toxicity is expected to be due primarily to methanol and silanetriols. GPTMS has been tested for acute toxicity by the oral, dermal, and inhalation routes of exposure. Reported acute oral LD50s in rats range from 7010 to 16900 mg/kg bw and > 5 ml/kg bw to 22.6 ml/kg bw. The dermal LD50s are 6800 mg/kg bw and 4.0 ml/kg bw. The 4-hour inhalation LC50 was greater than 2.7 mg/L in one study and greater than 5.3 mg/L in another study. GPTMS is mildly irritating to the skin and eyes and is not a known skin sensitiser in humans or in animals. Following inhalation exposures of rats to target aerosol concentrations of 0, 75, 225 and 750 mg/m3 (actual concentrations were 0, 77, 226, 707 mg/m3 (males) and 0, 73, 226, 734 mg/m3 (females)), GPTMS in 9 repeated exposures administered over two weeks, 6 animals in the high dose group died or were sacrificed from three to five days after initiation of the study. These animals had signs of inanition but no acute tissue toxicity. At both the mid and high doses, rats exhibited some clinical signs including a dose-related decrease in body weight. Under the conditions of this study, the No Observed Adverse Effect Concentration is 225 mg/m3. Repeated exposure of rats by gavage to GPTMS doses of 40, 400 and 1000 mg/kg bw/day for 5 days/week for 4 weeks resulted in no test substance-related organ weights effects or gross or microscopic pathological changes. Under the conditions of this study, the NOAEL for the test substance was found to be 1000 mg/kg bw/day.
Genotoxicity: GPTMS did not induce chromosomal damage in mouse bone marrow cells by gavage at doses of 500, 1670 and 5000 mg/kg bw/day, or when administered by intraperitoneal (i.p.) injection at 1600 mg/kg bw/day. However, chromosomal damage was induced in mouse bone marrow cells when administered by i.p. in water at doses of 500, 1000 and 2000 mg/kg bw/day. GPTMS induced gene mutations in bacteria. GPTMS induced gene mutations in mouse lymphoma L1578Y TK cells but did not induce forward mutations in CHO cells. GPTMS induced SCE in vitro. There are no in vivo gene mutation data.
Carcinogenicity: GPTMS was not considered tumourigenic when applied to the clipped skin of mice (25 ul dose of 25% GPTMS in acetone) three times per week for approximately 78 weeks. Note that there was only one dose level, and this dose was relatively low.
Reproductive toxicity: In a one-generation reproduction toxicity study in rats, no reproductive effects were observed at any of the doses tested (250, 500, or 1000 mg/kg bw/day). At 1000 mg/kg bw/day, treatment with GPTMS resulted in the following signs in parental animals: discomfort after dosing (noted for females from early/mid gestation onwards), decreased body weight gain (males), increased mean relative liver and kidney weights (noted for males and females), and histopathological effects on livers and kidneys (males). Based on these data, a NOAEL for parental animals was established at 500 mg/kg bw/day. A NOAEL for reproductive effects was established at 1000 mg/kg bw/day.
Developmental toxicity: Three developmental studies have been conducted using GPTMS. In a rabbit study, the maternal NOAEL was 200 mg/kg bw/day and the developmental NOAEL was 400 mg/kg bw/day (the highest dose tested). In a rat study, the NOAELs for both maternal and developmental toxicity were also at the highest dose tested (1000 mg/kg bw/day). In another rat study, developmental effects were observed at the maternally toxic dose of 3000 mg/kg bw/day (again, the highest dose tested).

12 - ECOLOGICAL INFORMATION

Ecotoxicity	Not available	
Persistence/ Degradability	Water/ soil - HIGH	Air - HIGH
Bioaccumulative Potential	LOW (LogKOW =-0.9152)	
Mobility in soil	LOW (KOC = 90.22)	

13 - DISPOSAL CONSIDERATIONS

General Information

Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A hierarchy of Controls seems to be common - the user should investigate; reduction, reuse, recycling and disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

Do NOT allow wash water from cleaning or process equipment to enter drains
It may be necessary to collect all wash water for treatment before disposal
In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first
Where in doubt contact the responsible authority
Recycle wherever possible to or consult manufacturer for recycling options
Consult State Land Waste Authority for disposal
Bury or incinerate residue at an approved site
Recycle containers if possible, or dispose of in an authorised landfill

14 - TRANSPORT INFORMATION

Not defined as Dangerous Goods by the Australian Code for the Transport of Dangerous Goods by Road & Rail; by the IATA Air Transport Dangerous Goods Regulations; or by the IMDG (International Maritime Dangerous Goods) Code.

15 - REGULATORY INFORMATION

Poisons Schedule (Aust) S5

16 - OTHER RELEVANT INFORMATION

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