

Altex Sea-Barrier 1000 Antifouling

RESENE PAINTS AUSTRALIA

Version No: 2.2

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 4

Issue Date: 31/03/2017

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S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Altex Sea-Barrier 1000 Antifouling
Synonyms	Not Available
Proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
Other means of identification	Not Available

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

Relevant identified uses	Antifouling Coating
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Details of the supplier of the safety data sheet

Registered company name	RESENE PAINTS AUSTRALIA
Address	7 Production Ave, Molendinar QLD 4214 Australia
Telephone	+61 7 55126600
Fax	+61 7 55126697
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	131126
Other emergency telephone numbers	Not Available

CHEMWATCH EMERGENCY RESPONSE

Primary Number	Alternative Number 1	Alternative Number 2
1800 039 008	1800 039 008	+612 9186 1132

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

Poisons Schedule	Not Applicable
Classification [1]	Flammable Liquid Category 3, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Skin Sensitizer Category 1, Specific target organ toxicity - repeated exposure Category 2, Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HHSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
SIGNAL WORD	WARNING

Hazard statement(s)

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

Continued...

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P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P362	Take off contaminated clothing and wash before reuse.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P391	Collect spillage.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P330	Rinse mouth.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
1314-13-2	13.27	<u>zinc oxide</u>
1330-20-7	9.31	<u>xylene</u>
100-41-4	2.48	<u>ethylbenzene</u>
137-26-8	2.45	<u>thiram</u>
1333-86-4	0.01	<u>carbon black</u>
8047-99-2	1.1	<u>N-ethyl o(or p)-toluenesulfonamide</u>
90452-21-4	0.01	<u>C.I. Pigment Red 101</u>
13463-67-7	0.01	<u>titanium dioxide</u>
7631-86-9	<0.01	<u>silica amorphous</u>
21645-51-2	<0.01	<u>aluminium hydroxide</u>
109-93-3	2.8	<u>vinyl ether</u>
64-17-5	1.2	<u>ethanol</u>
1317-61-9	0.01	<u>C.I. Pigment Black 11</u>
69012-93-7	1.7	<u>C36 fatty acid dimer/azelaic acid/ethylenediamine polymer</u>
121888-67-3	1.2	<u>bentone SD-3</u>
123-86-4	2	<u>n-butyl acetate</u>
78-83-1	0.03	<u>isobutanol</u>
107-98-2	9.9	<u>propylene glycol monomethyl ether - alpha isomer</u>
1589-47-5	0.05	<u>propylene glycol monomethyl ether - beta isomer</u>
1317-39-1	20.9	<u>copper(I) oxide</u>
1317-38-0	0.66	<u>copper(II) oxide</u>
8050-09-7	9.6	<u>rosin-colophony</u>
147-14-8	0.01	<u>C.I. Pigment Blue 15:3</u>
7727-43-7	15.94	<u>barium sulfate</u>
14808-60-7	0.18	<u>silica crystalline - quartz</u>

SECTION 4 FIRST AID MEASURES

Altex Sea-Barrier 1000 Antifouling

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ 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.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ 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. <p>For thermal burns:</p> <ul style="list-style-type: none"> ▶ Decontaminate area around burn. ▶ Consider the use of cold packs and topical antibiotics. <p>For first-degree burns (affecting top layer of skin)</p> <ul style="list-style-type: none"> ▶ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides. ▶ Use compresses if running water is not available. ▶ Cover with sterile non-adhesive bandage or clean cloth. ▶ Do NOT apply butter or ointments; this may cause infection. ▶ Give over-the counter pain relievers if pain increases or swelling, redness, fever occur. <p>For second-degree burns (affecting top two layers of skin)</p> <ul style="list-style-type: none"> ▶ Cool the burn by immerse in cold running water for 10-15 minutes. ▶ Use compresses if running water is not available. ▶ Do NOT apply ice as this may lower body temperature and cause further damage. ▶ Do NOT break blisters or apply butter or ointments; this may cause infection. ▶ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape. <p>To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):</p> <ul style="list-style-type: none"> ▶ Lay the person flat. ▶ Elevate feet about 12 inches. ▶ Elevate burn area above heart level, if possible. ▶ Cover the person with coat or blanket. ▶ Seek medical assistance. <p>For third-degree burns</p> <p>Seek immediate medical or emergency assistance.</p> <p>In the mean time:</p> <ul style="list-style-type: none"> ▶ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound. ▶ Separate burned toes and fingers with dry, sterile dressings. ▶ Do not soak burn in water or apply ointments or butter; this may cause infection. ▶ To prevent shock see above. ▶ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway. ▶ Have a person with a facial burn sit up. ▶ Check pulse and breathing to monitor for shock until emergency help arrives.
Inhalation	<ul style="list-style-type: none"> ▶ 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.
Ingestion	<ul style="list-style-type: none"> ▶ 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. ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For thiram intoxication:

Gastric lavage, then treat symptomatically.

No fats, oils or lipid solvents are to be consumed as they enhance absorption. Complete prohibition of alcohol for 10 days.

Contact doctor if alcohol is taken within 48 hours.

[Hazardous Chemicals Data Book]

Thiram induces the accumulation of acetaldehyde in the blood of rats receiving alcohol at the same time. After absorption thiram is distributed in all organs and is excreted mainly unchanged in urine and faeces. Some metabolism does occur with carbon disulfide being exhaled and dimethyl dithiocarbamate being excreted in the urine

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.

In cases of recent sulfonamide overdose the stomach should be emptied by aspiration and lavage. If kidney function is adequate, a saline purgative, such as sodium sulfate, 30 g in 250 ml water, may be given to promote peristalsis and elimination of sulfonamide in the urine may be assisted by giving alkalis, such as sodium bicarbonate and increasing fluid intake. Severe crystalluria may require ureteric catheterisation and irrigation with warm 2.5% sodium bicarbonate solution. Treatment should be continued until it can be assumed that the sulfonamide has been eliminated. The majority of sulfonamides are metabolised to acetylated derivatives which retain the toxicity of the parent compound and thus may indicate more active removal when adverse effects are very severe. Active measures may include forced diuresis, peritoneal dialysis and charcoal haemoperfusion.

[Martindale: The Extra Pharmacopoeia, 28th Ed.]

For acute or short term repeated exposures to xylene:

- ▶ Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- ▶ Pulmonary absorption is rapid with about 60-65% retained at rest.
- ▶ Primary threat to life from ingestion and/or inhalation, is respiratory failure.
- ▶ Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ < 50 mm Hg or pCO₂ > 50 mm Hg) should be intubated.
- ▶ Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- ▶ A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- ▶ Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

BIOLOGICAL EXPOSURE INDEX - BEI

Continued...

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

Determinant	Index	Sampling Time	Comments
Methylhippu-ric acids in urine	1.5 gm/gm creatinine 2 mg/min	End of shift Last 4 hrs of shift	

Medical literature on human exposure to thiocarbamate derivatives is scarce.

- ▶ Animal studies suggest that contact dermatitis and thyroid hyperplasia may occur following exposure.
- ▶ These compounds do not have the cholinergic properties of structurally related carbamate insecticides.
- ▶ The usual measures for gut and skin contamination are recommended for large doses.
- ▶ Some thiocarbamates are structurally similar to disulfiram and may cause the characteristically unpleasant alcohol type reactions lasting for several hours; they may respond to fluids, oxygen and analgesics. Dysrhythmias may occur and patients with serious reactions should have cardiac monitoring.
- ▶ Precautions should be taken to prohibit intake of alcohol for 10 days.
- ▶ Fats, oils and lipid solvents must not be consumed as they may enhance absorption.

As a general rule thiocarbamates can be absorbed by the skin, mucous membranes and respiratory and gastrointestinal tract. They are eliminated quickly via expired air and urine. Two major pathways exist for the metabolism of thiocarbamates in mammals. One is via sulfoxidation and conjugation with glutathione. The conjugation product is cleaved to the cysteine derivative which is further metabolised to a mercapturic acid compound. The second route involves oxidation of the sulfur to a sulfoxide which is oxidised to a sulfone, or hydroxylation to compounds which enter the carbon metabolic pool.

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).

For poisons (where specific treatment regime is absent):

BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- ▶ Monitor and treat, where necessary, for pulmonary oedema.
- ▶ Monitor and treat, where necessary, for shock.
- ▶ Anticipate seizures.
- ▶ **DO NOT** use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

ADVANCED TREATMENT

- ▶ Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- ▶ Positive-pressure ventilation using a bag-valve mask might be of use.
- ▶ Monitor and treat, where necessary, for arrhythmias.
- ▶ Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- ▶ Drug therapy should be considered for pulmonary oedema.
- ▶ Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- ▶ Treat seizures with diazepam.
- ▶ Proparacaine hydrochloride should be used to assist eye irrigation.

BRONSTEIN, A.C. and CURRANCE, P.L.

EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

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

Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use fire fighting procedures suitable for surrounding area. ▶ 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. ▶ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Liquid and vapour are flammable. ▶ Moderate fire hazard when exposed to heat or flame. ▶ Vapour forms an explosive mixture with air. ▶ Moderate explosion hazard when exposed to heat or flame. ▶ Vapour may travel a considerable distance to source of ignition. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include: <ul style="list-style-type: none"> , carbon dioxide (CO₂) , sulfur oxides (SO_x) , other pyrolysis products typical of burning organic material. May emit poisonous fumes.
HAZCHEM	•3Y

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

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See section 12

Methods and material for containment and cleaning up

Minor Spills	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▶ 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 small quantities with vermiculite or other absorbent material. ▶ Wipe up. ▶ Collect residues in a flammable waste container.
Major Spills	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▶ 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. ▶ Stop leak if safe to do so. ▶ Contain spill with sand, earth or vermiculite. ▶ Collect recoverable product into labelled containers for recycling. ▶ Neutralise/decontaminate residue (see Section 13 for specific agent). ▶ Collect solid residues and seal in labelled drums for disposal. ▶ Wash area and prevent runoff into drains. ▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. ▶ If contamination of drains or waterways occurs, advise emergency services.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ 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. ▶ DO NOT allow material to contact humans, exposed food or food utensils. ▶ 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. Launder contaminated clothing before re-use. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. ▶ DO NOT allow clothing wet with material to stay in contact with skin
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry, well-ventilated area. ▶ Store away from incompatible materials and foodstuff containers. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ▶ 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. <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"> ▶ Removable head packaging; ▶ Cans with friction closures and ▶ low pressure tubes and cartridges <p>may be used.</p> <p>-</p> <p>Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.</p> <p>-</p> <p>In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.</p> <p>-</p> <p>* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p> <p>All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.</p>
Storage incompatibility	<p>Barium sulfate (barytes)</p> <ul style="list-style-type: none"> ▶ reacts violently with dimethyl sulfoxide, sodium acetylide, finely divided carbon, aluminium, magnesium, zirconium, and possibly other active metals, especially at elevated temperatures ▶ is incompatible with potassium, phosphorus (ignites when primed with nitrate-calcium silicide) <p>Xylenes:</p> <ul style="list-style-type: none"> ▶ may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride ▶ attack some plastics, rubber and coatings ▶ may generate electrostatic charges on flow or agitation due to low conductivity.

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- ▶ 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.

Zinc oxide:

- ▶ slowly absorbs carbon dioxide from the air.
- ▶ may react, explosively with magnesium and chlorinated rubber when heated
- ▶ is incompatible with linseed oil (may cause ignition)
- ▶ WARNING: Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.
- ▶ The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono- or poly-fluorobenzene show extreme sensitivity to heat and are explosive.
- ▶ Avoid reaction with borohydrides or cyanoborohydrides

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.

- ▶ Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen
 - ▶ Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids.
 - ▶ Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides.
 - ▶ Hock-rearrangement by the influence of strong acids converts the hydroperoxides to hemiacetals. Peresters formed from the hydroperoxides undergo Criegee rearrangement easily.
 - ▶ Alkali metals accelerate the oxidation while CO₂ as co-oxidant enhances the selectivity.
 - ▶ Microwave conditions give improved yields of the oxidation products.
 - ▶ Photo-oxidation products may occur following reaction with hydroxyl radicals and NO_x - these may be components of photochemical smogs.
- Oxidation of Alkylaromatics: T.S.S Rao and Shubhra Awasthi: E-Journal of Chemistry Vol 4, No. 1, pp 1-13 January 2007
- ▶ Thiocarbamates and dithiocarbamates are incompatible with acids, peroxides, and acid halides.
 - ▶ Flammable gases are generated by the combination of thiocarbamates and dithiocarbamates with aldehydes, nitrides, and hydrides.



+ X X X + + +

- X — Must not be stored together
 0 — May be stored together with specific precautions
 + — May be stored together

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	zinc oxide	Zinc oxide (fume)	5 mg/m ³	10 mg/m ³ / - ppm	Not Available	Not Available
Australia Exposure Standards	zinc oxide	Zinc oxide (dust)	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	xylene	Xylene (o-, m-, p- isomers)	350 mg/m ³ / 80 ppm	655 mg/m ³ / 150 ppm	Not Available	Not Available
Australia Exposure Standards	ethylbenzene	Ethyl benzene	434 mg/m ³ / 100 ppm	543 mg/m ³ / 125 ppm	Not Available	Not Available
Australia Exposure Standards	thiram	Thiram	1 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	carbon black	Carbon black	3 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	C.I. Pigment Red 101	Iron oxide fume (Fe ₂ O ₃) (as Fe)	5 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	titanium dioxide	Titanium dioxide	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Fumed silica (respirable dust)	2 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Fumed silica (respirable dust)	2 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Silica gel	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Silica gel	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Precipitated silica	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Precipitated silica	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Silica, fused	Not Available	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Diatomaceous earth (uncalcined)	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	silica amorphous	Diatomaceous earth (uncalcined)	10 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	ethanol	Ethyl alcohol	1880 mg/m ³ / 1000 ppm	Not Available	Not Available	Not Available
Australia Exposure Standards	n-butyl acetate	n-Butyl acetate	713 mg/m ³ / 150 ppm	950 mg/m ³ / 200 ppm	Not Available	Not Available

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Australia Exposure Standards	isobutanol	Isobutyl alcohol	152 mg/m3 / 50 ppm	Not Available	Not Available	Not Available
Australia Exposure Standards	propylene glycol monomethyl ether - alpha isomer	Propylene glycol monomethyl ether	369 mg/m3 / 100 ppm	553 mg/m3 / 150 ppm	Not Available	Not Available
Australia Exposure Standards	barium sulfate	Barium sulphate	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	silica crystalline - quartz	Quartz (respirable dust)	0.1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	silica crystalline - quartz	Silica - Crystalline	Not Available	Not Available	Not Available	Not Available
Australia Exposure Standards	silica crystalline - quartz	Quartz (respirable dust)	0.1 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
zinc oxide	Zinc oxide	10 mg/m3	15 mg/m3	2,500 mg/m3
xylene	Xylenes	Not Available	Not Available	Not Available
ethylbenzene	Ethyl benzene	Not Available	Not Available	Not Available
thiram	Thiram; (Tetramethylthioperoxydicarbonic diamide)	0.15 mg/m3	250 mg/m3	1,500 mg/m3
carbon black	Carbon black	9 mg/m3	99 mg/m3	590 mg/m3
C.I. Pigment Red 101	Iron oxide; (Ferric oxide)	15 mg/m3	360 mg/m3	2,200 mg/m3
titanium dioxide	Titanium oxide; (Titanium dioxide)	30 mg/m3	330 mg/m3	2,000 mg/m3
silica amorphous	Silica gel, amorphous synthetic	18 mg/m3	200 mg/m3	1,200 mg/m3
silica amorphous	Silica, amorphous fumed	18 mg/m3	100 mg/m3	630 mg/m3
silica amorphous	Siloxanes and silicones, dimethyl, reaction products with silica; (Hydrophobic silicon dioxide, amorphous)	120 mg/m3	1,300 mg/m3	7,900 mg/m3
silica amorphous	Silica, amorphous fume	45 mg/m3	500 mg/m3	3,000 mg/m3
silica amorphous	Silica amorphous hydrated	18 mg/m3	220 mg/m3	1,300 mg/m3
aluminium hydroxide	Aluminum hydroxide	8.7 mg/m3	73 mg/m3	440 mg/m3
ethanol	Ethyl alcohol; (Ethanol)	Not Available	Not Available	15000 ppm
C.I. Pigment Black 11	Iron(II,III) oxide; (Ferrosferric oxide)	21 mg/m3	230 mg/m3	1,400 mg/m3
n-butyl acetate	Butyl acetate, n-	Not Available	Not Available	Not Available
isobutanol	Isobutyl alcohol	150 ppm	1,300 ppm	8000 ppm
propylene glycol monomethyl ether - alpha isomer	Propylene glycol monomethyl ether; (Ucar Triol HG-170)	100 ppm	160 ppm	660 ppm
copper(I) oxide	Copper oxide; (Copper(I) oxide)	0.68 mg/m3	16 mg/m3	93 mg/m3
copper(II) oxide	Cupric oxide	0.75 mg/m3	11 mg/m3	93 mg/m3
rosin-colophony	Rosin core solder decomposition products; (Colophony Gum)	72 mg/m3	790 mg/m3	1,500 mg/m3
barium sulfate	Barium sulfate	15 mg/m3	170 mg/m3	990 mg/m3
silica crystalline - quartz	Silica, crystalline-quartz; (Silicon dioxide)	0.075 mg/m3	33 mg/m3	200 mg/m3

Ingredient	Original IDLH	Revised IDLH
zinc oxide	500 mg/m3	Not Available
xylene	900 ppm	Not Available
ethylbenzene	800 [LEL] ppm	Not Available
thiram	100 mg/m3	Not Available
carbon black	1750 mg/m3	Not Available
N-ethyl o(or p)-toluenesulfonamide	Not Available	Not Available
C.I. Pigment Red 101	2,500 mg/m3	Not Available
titanium dioxide	5000 mg/m3	Not Available
silica amorphous	3000 mg/m3	Not Available
aluminium hydroxide	Not Available	Not Available
vinyl ether	Not Available	Not Available
ethanol	3,300 [LEL] ppm	Not Available
C.I. Pigment Black 11	Not Available	Not Available
C36 fatty acid dimer/azelaic acid/ethylenediamine polymer	Not Available	Not Available
bentone SD-3	Not Available	Not Available
n-butyl acetate	1,700 [LEL] ppm	Not Available
isobutanol	1600 ppm	Not Available
propylene glycol monomethyl ether - alpha isomer	Not Available	Not Available
propylene glycol monomethyl ether - beta isomer	Not Available	Not Available
copper(I) oxide	Not Available	Not Available
copper(II) oxide	Not Available	Not Available
rosin-colophony	Not Available	Not Available

Altex Sea-Barrier 1000 Antifouling

C.I. Pigment Blue 15:3	Not Available	Not Available
barium sulfate	Not Available	Not Available
silica crystalline - quartz	Not Available	Not Available

Exposure controls

Appropriate engineering controls	<p>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:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>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 possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td> <td>0.25-0.5 m/s (50-100 f/min.)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transferers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table> <p>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 apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p>	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 conveyer transferers, 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, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air 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.)	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: Contaminants 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
Type of Contaminant:	Air Speed:																				
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Personal protection																					
Eye and face protection	<ul style="list-style-type: none"> ▶ 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. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent] 																				
Skin protection	See Hand protection below																				
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>NOTE:</p> <ul style="list-style-type: none"> ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>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 moisturizer is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> · 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. <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>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.</p>																				

	Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' 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: <ul style="list-style-type: none"> Thinner gloves (down to 0.1 mm 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 3 mm 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.
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> Overalls. Eyewash unit. Barrier cream. Skin cleansing cream.

Recommended material(s)**GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index"

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Altex Sea-Barrier 1000 Antifouling

Material	CPI
BUTYL	C
BUTYL/NEOPRENE	C
HYPALON	C
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PE	C
PE/EVAL/PE	C
PVA	C
PVC	C
PVDC/PE/PVDC	C
TEFLON	C
VITON	C
VITON/BUTYL	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type AX 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	AX-AUS	-	AX-PAPR-AUS / Class 1
up to 50 x ES	-	AX-AUS / Class 1	-
up to 100 x ES	-	AX-2	AX-PAPR-2 ^

^ - 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)

If inhalation risk above the TLV exists, wear approved dust respirator.

Use respirators with protection factors appropriate for the exposure level.

- Up to 5 X TLV, use valveless mask type; up to 10 X TLV, use 1/2 mask dust respirator
- Up to 50 X TLV, use full face dust respirator or demand type C air supplied respirator
- Up to 500 X TLV, use powered air-purifying dust respirator or a Type C pressure demand supplied-air respirator
- Over 500 X TLV wear full-face self-contained breathing apparatus with positive pressure mode or a combination respirator with a Type C positive pressure supplied-air full-face respirator and an auxiliary self-contained breathing apparatus operated in pressure demand or other positive pressure mode

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	A-AUS / Class 1	-
up to 50	1000	-	A-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	A-2
up to 100	10000	-	A-3
100+		-	Airline**

* - Continuous Flow

** - Continuous-flow or positive pressure demand.

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 deg C)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	coloured viscous liquid		
Physical state	Liquid	Relative density (Water = 1)	1.79
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	387
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	1290
Initial boiling point and boiling range (°C)	125	Molecular weight (g/mol)	Not Available
Flash point (°C)	27	Taste	Not Available
Evaporation rate	0.9 BuAC = 1	Explosive properties	Not Available
Flammability	Flammable.	Oxidising properties	Not Available
Upper Explosive Limit (%)	10.5	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	2.1	Volatile Component (%vol)	22
Vapour pressure (kPa)	1.4	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	3.25	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

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

SECTION 11 TOXICOLOGICAL INFORMATION**Information on toxicological effects**

Inhaled	<p>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally dis Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce seric damage to the health of the individual.</p> <p>The acute toxicity of inhaled alkylbenzene is best described by cer nervous system depression. These compounds may also act as gr anaesthetics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or c vision, vomiting and sensations of heat, cold or numbness, twitc tremors, convulsions, unconsciousness, depression of breathing arrest. Heart stoppage may result from cardiovascular collapse. A heart rate and low blood pressure may also occur.</p> <p>Alkylbenzenes are not generally toxic except at high levels of expc Their breakdown products have low toxicity and are easily eliminat from the body.</p> <p>Headache, fatigue, tiredness, irritability and digestive disturbance (nausea, loss of appetite and bloating) are the most common syn of xylene overexposure. Injury to the heart, liver, kidneys and ner system has also been noted amongst workers.</p> <p>Xylene is a central nervous system depressant</p>
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Altex Sea-Barrier 1000 Antifouling

Ingestion	<p>Accidental ingestion of the material may be harmful; animal experiments that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.</p> <p>Ingestion of soluble barium compounds may result in ulceration of the membranes of the gastrointestinal tract, tightness in the muscles of the neck, gastroenteritis, vomiting, diarrhoea, muscular tremors and paralysis, anxiety, weakness, laboured breathing, cardiac irregularity due to contracted smooth striated and cardiac muscles (often violent and painful), slow irregular pulse, hypertension, convulsions and respiratory failure.</p> <p>Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)</p>
Skin Contact	<p>This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition.</p> <p>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 use of the material and ensure that any external damage is suitably protected.</p>
Eye	<p>If applied to the eyes, this material causes severe eye damage.</p> <p>Eye drops with sulfonamides can cause local irritation, sensations of burning and stinging, blurred vision and loss of depth perception. The conjunctiva and cornea may become inflamed, and the cornea and lens may become cloudy.</p>
Chronic	<p>Strong evidence exists that this substance may cause irreversible mutations (though not lethal) even following a single exposure.</p> <p>Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.</p> <p>Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of product mutation.</p> <p>Substance accumulation, in the human body, may occur and may cause concern following repeated or long-term occupational exposure.</p> <p>There is some evidence from animal testing that exposure to this material may result in reduced fertility.</p> <p>Overexposure to the breathable dust may cause coughing, wheezing, difficulty breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity and chest infections. Repeated exposures in the workplace to high levels of fine-divided dusts may produce a condition known as pneumoconiosis, which is the lodgement of any inhaled dusts in the lung, irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50000 inch) are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive cough, shortness of breath on exertion, increased chest expansion, weight loss and weight gain. As the disease progresses, the cough produces stringy phlegm, vital capacity decreases further, and shortness of breath becomes severe. Other signs or symptoms include changed breath sounds, reduced oxygen uptake during exercise, emphysema and rarely, pneumothorax (air in the lung cavity).</p> <p>Removing workers from the possibility of further exposure to dust generally stops the progress of lung abnormalities. When there is high potential for worker exposure, examinations at regular periods with emphasis on lung function should be performed.</p> <p>Inhaling dust over an extended number of years may cause pneumoconiosis which is the accumulation of dusts in the lungs and the subsequent tissue reaction. This may or may not be reversible.</p>

Altex Sea-Barrier 1000 Antifouling	TOXICITY	IRRITATION
	Not Available	Not Available
zinc oxide	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[1]	Eye (rabbit) : 500 mg/24 h - mild
		Skin (rabbit) : 500 mg/24 h - mild
xylene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >1700 mg/kg ^[2]	Eye (human): 200 ppm irritant
	Inhalation (rat) LC50: 4994.295 mg/l/4h ^[2]	Eye (rabbit): 5 mg/24h SEVERE
	Oral (rat) LD50: 4300 mg/kg ^[2]	Eye (rabbit): 87 mg mild
		Skin (rabbit): 500 mg/24h moderate
ethylbenzene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >5000 mg/kg ^[2]	Eye (rabbit): 500 mg - SEVERE
	Inhalation (mouse) LC50: 17.75 mg/l/2h ^[2]	Skin (rabbit): 15 mg/24h mild
	Oral (rat) LD50: 3500 mg/kg ^[2]	
thiram	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[2]	Eye (rabbit): 100 mg/24h-moderate

Altex Sea-Barrier 1000 Antifouling

	Inhalation (rat) LC50: 0.5 mg/l/4h ^[2]	Skin (rabbit) LDLo: 1 mg/kg
	Oral (rat) LD50: 560 mg/kg ^[2]	
carbon black	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >3000 mg/kg ^[2]	Not Available
	Oral (rat) LD50: >10000 mg/kg ^[1]	
N-ethyl o(or p)-toluenesulfonamide	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 2000 mg/kg ^[2]	Eye (rabbit) 0.1 mg - mild
	Oral (rat) LD50: 1500 mg/kg ^[2]	Eye: non-irritating (OECD 405)
		Skin: non-irritating OECD 404
C.I. Pigment Red 101	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[1]	Not Available
titanium dioxide	TOXICITY	IRRITATION
	Inhalation (rat) LC50: >2.28 mg/l/4 h ^[1]	Skin (human): 0.3 mg /3D (int)
	Oral (rat) LD50: >2000 mg/kg ^[1]	
silica amorphous	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >5000 mg/kg ^[2]	Eye (rabbit): non-irritating *
	Inhalation (rat) LC50: >0.139 mg/l/14h**[Grace] ^[2]	Skin (rabbit): non-irritating *
	Oral (rat) LD50: 3160 mg/kg ^[2]	
aluminium hydroxide	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
vinyl ether	TOXICITY	IRRITATION
	Inhalation (mouse) LC50: 0.0205625 mg/l/15md ^[2]	Not Available
ethanol	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 17100 mg/kg ^[1]	Eye (rabbit): 500 mg SEVERE
	Inhalation (rat) LC50: 63926.976 mg/l/4h ^[2]	Eye (rabbit):100mg/24hr-mode
	Oral (rat) LD50: 7060 mg/kg ^[2]	Skin (rabbit):20 mg/24hr-mode
		Skin (rabbit):400 mg (open)-m
C.I. Pigment Black 11	TOXICITY	IRRITATION
	Oral (mouse) LD50: >2104 mg/kg ^[1]	Not Available
C36 fatty acid dimer/azelaic acid/ethylenediamine polymer	TOXICITY	IRRITATION
	Not Available	Not Available
bentone SD-3	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[2]	Eye (rabbit): mild irritant
		Skin (rabbit): non-irritant
n-butyl acetate	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 3200 mg/kg ^[2]	Eye (human): 300 mg
	Inhalation (rat) LC50: 1.802 mg/l/4 h ^[1]	Eye (rabbit): 20 mg (open)-SE'
	Oral (rat) LD50: 10768 mg/kg ^[2]	Eye (rabbit): 20 mg/24h - mode
		Skin (rabbit): 500 mg/24h-mod

Continued...

Altex Sea-Barrier 1000 Antifouling

isobutanol	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[1]	Eye (rabbit): 2 20 mg/24h-mod
	Inhalation (rat) LC50: 19.2 mg/l/4H ^[2]	Eye (rabbit): 2 mg/24h - SEVE
	Oral (rat) LD50: 2460 mg/kg ^[2]	Skin (rabbit): mg (open)-SEVE
propylene glycol monomethyl ether - alpha isomer	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Eye (rabbit) 230 mg mild
	Inhalation (rat) LC50: 12485.7375 mg/l/5h.d ^[2]	Eye (rabbit) 500 mg/24 h. - mil
	Oral (rat) LD50: 3739 mg/kg ^[2]	Eye (rabbit): 100 mg SEVERE
		Skin (rabbit) 500 mg open - mil
propylene glycol monomethyl ether - beta isomer	TOXICITY	IRRITATION
	Oral (rat) LD50: 2037 mg/kg ^[1]	Not Available
copper(I) oxide	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Inhalation (rat) LC50: 2.92 mg/l/4 h ^[1]	
	Oral (rat) LD50: 470 mg/kg ^[2]	
copper(II) oxide	TOXICITY	IRRITATION
	Oral (rat) LD50: 470 mg/kg ^[2]	Not Available
rosin-colophony	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Oral (rat) LD50: 3.0 mg/kg ^[2]	
C.I. Pigment Blue 15:3	TOXICITY	IRRITATION
	Oral (rat) LD50: >10,000 mg/kg ^[2]	Eye (human): non irritant
		Skin (human): non irritant
barium sulfate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
silica crystalline - quartz	TOXICITY	IRRITATION
	Not Available	Not Available

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

ETHYLBENZENE	<p>Ethylbenzene is readily absorbed when inhaled, swallowed or in contact with the skin. It is distributed throughout the body, and passed through urine. It may irritate the skin, eyes and may cause hearing loss when exposed to high doses. Long Term exposure may cause damage to kidney, liver and lungs, including a tendency to cancer formation according to animal testing. There is no research on its effect on organs and unborn babies.</p> <p>NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or effects on cellular DNA.</p> <p>Liver changes, uterine tract, effects on fertility, foetotoxicity, specific developmental abnormalities (musculoskeletal system) recorded</p>
THIRAM	<p>Acute toxicity data with respect to swallowing and skin contact with thiram monosulfide (TMTM) is 1320mg/kg, for tetramethyl thiuram disulfide (TETD) is 1080mg/kg; for tetraethyl thiuram disulfide (TETD) is about 1300mg/kg semilethal concentration for inhaling TMTD is 4.4mg/L and this exposure is similar for TETD and TMTM. Thiurams are thought to have only a weak effect of promoting mutations, and have not been shown to otherwise cause reproductive or developmental toxicity.</p> <p>Toxicity is greater in the presence of fats, oils and fat solvents. WARNING: Insufficient data is available for the evaluation of the carcinogenicity of this material, but it is known that in conditions of mild acid, e.g. the human stomach</p>

Continued...

Altex Sea-Barrier 1000 Antifouling

	reaction with nitriles will form N-nitrosodimethylamine a carcinogen. *U Chemicals Australia MSDS No. 102/2 7/95. ADI: 0.004 mg/kg/day NOE mg/kg/day
N-ETHYL O(OR P)-TOLUENESULFONAMIDE	* Amtrade MSDS ** Scientific Polymer products MSDS for 60/40 mix o-isomers
TITANIUM DIOXIDE	Exposure to titanium dioxide is via inhalation, swallowing or skin contact 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. It penetrates only the outermost layer of skin, suggesting that healthy skin may be an effective barrier. There is no substantive data on genetic damage, though cases have been reported in experimental animals. Studies have differing conclusions on its cancer-causing potential. * IUCLID
SILICA AMORPHOUS	For silica amorphous: When experimental animals inhale synthetic amorphous silica (SAS) dust, it dissolves in the lung fluid and is rapidly eliminated. If swallowed, the majority of SAS is excreted in the faeces and there is little accumulation in the body. Following absorption across the gut, SAS is eliminated via urine and feces. In animals and humans, SAS is not expected to be broken down (metabolised) in mammals. After ingestion, there is limited accumulation of SAS in body tissues and elimination occurs. Intestinal absorption has not been calculated, but appears to be insignificant in animals and humans. SASs injected subcutaneously are subjected to rapid dissolution and removal. There is no indication of metabolism of SAS in animals or humans based on chemical structure and available data. In contrast to crystalline silica, SAS is soluble in physiological media and the soluble chemical species that are formed are eliminated from the urinary tract without modification. Both the mammalian and environmental toxicology of SASs are significantly influenced by the physical and chemical properties, particularly those of solubility and particle size. SAS has no acute intrinsic toxicity by inhalation. Adverse effects, including suffocation, that have been reported were caused by the presence of high numbers of respirable particles generated to meet the requirements of a test atmosphere. These results are not representative of exposures to commercial SASs and should not be used for human risk assessment. Repeated exposure of the skin may cause dryness and cracking, SAS is not a skin or eye irritant, and it is not a sensitiser. Repeated-dose and chronic toxicity studies confirm the absence of toxic effects from SAS when swallowed or upon skin contact. Long-term inhalation of SAS caused some adverse effects in animals (increases in lung inflammation, cell injury and lung collagen content), which subsided after exposure. Numerous repeated-dose, subchronic and chronic inhalation toxicity studies have been conducted with SAS in a number of species, at airborne concentrations ranging from 0.5 mg/m ³ to 150 mg/m ³ . Lowest-observed adverse effect levels (LOAELs) were typically in the range of 1 to 50 mg/m ³ . When available, the no-observed adverse effect levels (NOAELs) were typically 0.5 and 10 mg/m ³ . The difference in values may be explained by differences in particle size, and therefore the number of particles administered per unit volume. In general, as particle size decreases so does the NOAEL/LOAEL. Neither inhalation nor oral administration caused neoplasms (tumours) or mutations in vitro. No genotoxicity was detected in in vivo assays. SAS does not impair development of the foetus. Fertility was not specifically studied but the reproductive organs in long-term studies were not affected. In humans, SAS is essentially non-toxic by mouth, skin or eyes, and by inhalation. Epidemiology studies show little evidence of adverse health effects due to SAS. Repeated exposure (without personal protection) may cause mechanical irritation of the eye and drying/cracking of the skin. There is no evidence of cancer or other long-term respiratory health effects (for example, silicosis) in workers employed in the manufacture of SAS. Respiratory symptoms in SAS workers have been shown to correlate with smoking but not with SAS exposure, while serial pulmonary function values and chest radiographs are not adversely affected by long-term exposure to SAS. 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 test systems. Reports indicate high/prolonged exposures to amorphous silicas induce lung fibrosis in experimental animals; in some experiments these effects were not reversible. [PATTYS]
VINYL ETHER	Hamster cell mutagen
C.I. PIGMENT BLACK 11	No data of toxicological significance identified in literature search.
C36 FATTY ACID DIMER/AZELAIC ACID/ETHYLENEDIAMINE POLYMER	The chemicals in the Fatty Nitrogen Derived (FND) Amides are generally similar in terms of physical and chemical properties, environmental fate and toxicity. Its low acute oral toxicity is well established across all subcategories by the available data and show no apparent organ specific toxicity, mutagenicity, reproductive or developmental defects.
BENTONE SD-3	For organoclay Acute toxicity: Organoclay compounds are not expected to be absorbed significantly by mouth or through the skin. They are not irritating to the skin and cause only minimal eye irritation in humans. Animal testing has suggested toxicity via inhalation or by mouth. Repeat-dose toxicity: Animal testing showed that repeated exposure to organoclay compounds may cause decreased levels of calcium and choline in the blood, and increased weight of the adrenal gland. Genetic toxicity: Available results from testing regarding genetic toxicity have been negative. Carcinogenicity: There is no data available regarding the cancer-causing potential of these materials. However, bentonite, which is often present as an impurity, is considered to cause cancer in humans (Group 1 according to IARC). Developmental and reproductive toxicity: The compound was not found to cause birth defects, and there was no reproductive toxicity found at any level.

SILICA CRYSTALLINE - QUARTZ	<p>WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS</p> <p>The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 µm) crystalline silica as being carcinogenic to humans. This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease. Intermittent exposure produces; focal fibrosis, (pneumoconiosis), cough, dyspnoea, liver tumours.</p> <p>* Millions of particles per cubic foot (based on impinger samples count light field techniques).</p> <p>NOTE : the physical nature of quartz in the product determines whether likely to present a chronic health problem. To be a hazard the material must enter the breathing zone as respirable particles.</p>
Altex Sea-Barrier 1000 Antifouling & THIRAM & ROSIN-COLOPHONY	<p>The following information refers to contact allergens as a group and may not be specific to this product.</p> <p>Contact allergies quickly manifest themselves as contact eczema, more so as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they elicit an allergic test reaction in more than 1% of the persons tested.</p>
ZINC OXIDE & ETHYLBENZENE & TITANIUM DIOXIDE & N-BUTYL ACETATE & ISOBUTANOL	<p>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.</p>
ETHYLBENZENE & N-BUTYL ACETATE & ISOBUTANOL	<p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p>
ETHYLBENZENE & TITANIUM DIOXIDE	<p>WARNING: This substance has been classified by the IARC as Group 2: Possibly Carcinogenic to Humans.</p>
THIRAM & N-ETHYL O(OR P)-TOLUENESULFONAMIDE & C.I. PIGMENT BLACK 11 & ISOBUTANOL & COPPER(II) OXIDE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosing RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and lack of minimal lymphocytic inflammation, without eosinophilia. RADS (chronic asthma) following an irritating inhalation is an infrequent disorder with a high correlation to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (high concentrations of particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p>
THIRAM & TITANIUM DIOXIDE	<p>The material may produce moderate eye irritation leading to inflammatory conjunctivitis. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p>
C.I. PIGMENT RED 101 & ALUMINIUM HYDROXIDE & C.I. PIGMENT BLACK 11 & C36 FATTY ACID DIMER/AZELAIC ACID/ETHYLENEDIAMINE POLYMER & COPPER(II) OXIDE & BARIUM SULFATE	<p>No significant acute toxicological data identified in literature search.</p>

Acute Toxicity	✓	Carcinogenicity	⊘
Skin Irritation/Corrosion	✓	Reproductivity	⊘
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	⊘
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✓
Mutagenicity	⊘	Aspiration Hazard	⊘

Legend: **✗** – Data available but does not fill the criteria for classification
✓ – Data available to make classification
⊘ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Altex Sea-Barrier 1000 Antifouling	ENDPOINT	TEST	SPECIES	VALUE	SO
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Continued...

Altex Sea-Barrier 1000 Antifouling

	DURATION (HR)				
	Not Available	Not Available	Not Available	Not Available	Not Available
zinc oxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	0.439mg/L	2
	EC50	48	Crustacea	0.105mg/L	2
	EC50	72	Algae or other aquatic plants	0.042mg/L	4
	BCF	336	Fish	4376.673mg/L	4
	NOEC	72	Algae or other aquatic plants	0.0049mg/L	2
xylene	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	2.6mg/L	2
	EC50	48	Crustacea	>3.4mg/L	2
	EC50	72	Algae or other aquatic plants	4.6mg/L	2
	NOEC	73	Algae or other aquatic plants	0.44mg/L	2
ethylbenzene	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	0.0043mg/L	4
	EC50	48	Crustacea	1.184mg/L	4
	EC50	96	Algae or other aquatic plants	3.6mg/L	4
	NOEC	168	Crustacea	0.96mg/L	5
thiram	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	0.0003mg/L	4
	EC50	48	Crustacea	0.0047mg/L	4
	EC50	72	Algae or other aquatic plants	0.065mg/L	2
	NOEC	504	Fish	0.0032mg/L	1
carbon black	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	=1000mg/L	1
	NOEC	96	Fish	=1000mg/L	1
N-ethyl o(or p)-toluenesulfonamide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
Not Available	Not Available	Not Available	Not Available	Not Available	
C.I. Pigment Red 101	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	0.05mg/L	2
	EC50	72	Algae or other aquatic plants	18mg/L	2
	NOEC	504	Fish	0.52mg/L	2
titanium dioxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	155mg/L	2
	EC50	48	Crustacea	>10mg/L	2
	EC50	72	Algae or other aquatic plants	5.83mg/L	4

Continued...

Altex Sea-Barrier 1000 Antifouling

	EC20	72	Algae or other aquatic plants	1.81mg/L	4
	NOEC	336	Fish	0.089mg/L	4
silica amorphous	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	ca.2000mg/L	1
	EC50	48	Crustacea	ca.7600mg/L	1
	EC50	72	Algae or other aquatic plants	440mg/L	1
	EC10	72	Algae or other aquatic plants	140mg/L	1
	NOEC	72	Algae or other aquatic plants	60mg/L	1
aluminium hydroxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	0.2262mg/L	2
	EC50	48	Crustacea	0.7364mg/L	2
	EC50	96	Algae or other aquatic plants	0.0054mg/L	2
	NOEC	72	Algae or other aquatic plants	>=0.004mg/L	2
vinyl ether	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	Not Available	Not Available	Not Available	Not Available	Not Available
ethanol	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	42mg/L	4
	EC50	48	Crustacea	2mg/L	4
	EC50	96	Algae or other aquatic plants	17.921mg/L	4
	NOEC	2016	Fish	0.000375mg/L	4
C.I. Pigment Black 11	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	0.05mg/L	2
	EC50	72	Algae or other aquatic plants	18mg/L	2
	NOEC	504	Fish	0.52mg/L	2
C36 fatty acid dimer/azelaic acid/ethylenediamine polymer	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	Not Available	Not Available	Not Available	Not Available	Not Available
bentone SD-3	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	Not Available	Not Available	Not Available	Not Available	Not Available
n-butyl acetate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	LC50	96	Fish	18mg/L	4
	EC50	48	Crustacea	=32mg/L	1
	EC50	72	Algae or other aquatic plants	=674.7mg/L	1
isobutanol	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
	EC0	192	Algae or other aquatic plants	=21mg/L	1

Continued...

Altex Sea-Barrier 1000 Antifouling

	(HR)			
LC50	96	Fish	=1328.18mg/L	4
EC50	48	Crustacea	ca.600mg/L	1
EC50	72	Algae or other aquatic plants	593mg/L	2
NOEC	504	Crustacea	4mg/L	4
propylene glycol monomethyl ether - alpha isomer				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
LC50	96	Fish	=4600mg/L	1
EC50	48	Crustacea	>500mg/L	1
NOEC	96	Fish	=4600mg/L	1
propylene glycol monomethyl ether - beta isomer				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
Not Available	Not Available	Not Available	Not Available	Not Available
copper(I) oxide				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
LC50	96	Fish	0.0028mg/L	2
EC50	48	Crustacea	0.00352-0.00466mg/L	2
EC50	72	Algae or other aquatic plants	0.0165mg/L	2
NOEC	1440	Fish	0.0022mg/L	2
copper(II) oxide				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
LC50	96	Fish	0.0028mg/L	2
EC50	48	Crustacea	0.00352-0.00466mg/L	2
EC50	72	Algae or other aquatic plants	0.014mg/L	4
BCF	672	Fish	2677.35mg/L	4
NOEC	1440	Fish	0.0022mg/L	2
rosin-colophony				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
LC50	96	Fish	5.4mg/L	2
EC50	48	Crustacea	=4.5mg/L	1
EC50	72	Algae or other aquatic plants	=400mg/L	1
EC0	24	Crustacea	=2.15mg/L	1
C.I. Pigment Blue 15:3				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
Not Available	Not Available	Not Available	Not Available	Not Available
barium sulfate				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO
LC50	96	Fish	>3.5mg/L	2
EC50	48	Crustacea	32mg/L	4
EC50	72	Algae or other aquatic plants	>1.15mg/L	2
NOEC	72	Algae or other aquatic plants	>=1.15mg/L	2
silica crystalline - quartz				
ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SO

Continued...

Altex Sea-Barrier 1000 Antifouling

	Not Available				
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Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Register Substances - Ecotoxicological Information - Aquatic Toxicity 3. E 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. MET (Japan) - Bioconcentration Data 8. Vendor Data

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

Toxic to soil organisms.

For Propylene Glycol Ethers: log Kow's range from 0.309 for TPM to 1.523 for DPnB. Calculated BCFs range from 1.47 for DPnB to 3.16 for DPMA and TPM, indicating low bioaccumulation. Henry's Law Constants are for all category members, ranging from 5.7 x 10⁻⁹ atm-m³/mole for TPM to 2.7 x 10⁻⁹ atm-m³/mole for PnB. Environmental Fate: Most are liquids at room temperature and all are water-soluble.

Atmospheric Fate: In air, the half-life due to direct reactions with photochemically generated hydroxyl radical range from 2.0 hours for TPM to 4.6 hours for PnB.

Aquatic/Terrestrial Fate: Most propylene glycol ethers are likely to partition roughly equally into the soil and compartments in the environment with small to negligible amounts remaining in other environmental compartments (air, sediment, and aquatic biota). In water, most members of this family are "readily biodegradable" under a conditions. In soil, biodegradation is rapid for PM and PMA.

Ecotoxicity: Propylene glycol ethers are unlikely to persist in the environment. Acute aquatic toxicity testing indicates low toxicity for both ethers and acetates.

For Aromatic Substances Series:

Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in 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. Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable explosive.

Ecotoxicity - Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus. The order of most toxic to least in a study using grass shrimp and brown shrimp was dimethylnaphthalenes > methylnaphthalenes > naphthalenes. Anthracene is a phototoxic PAH. UV light greatly increases the toxicity of anthracene to bluegill sunfish. Biological resources in strong sunlight are at more risk than those that are not. PAHs in general are more frequently associated with chronic risks.

For Terpenes such as Limonene and Isoprene:

Atmospheric Fate: Contribute to aerosol and photochemical smog formation. When terpenes are introduced into the atmosphere, they may either decrease ozone concentrations when oxides of nitrogen are low, or, if emissions take place in polluted air (i.e. containing high concentrations of nitrogen oxides), leads to an increase in ozone concentrations. Lower terpenoids can react with unstable reactive gases and may act as precursors of secondary organic aerosol.

Aquatic Fate: Complex chlorinated terpenes such as toxaphene (a persistent, mobile and toxic insecticide) and its degradation products were produced by photoinitiated reactions in an aqueous system, initially containing limonene and other monoterpenes, simulating pulp bleach conditions.

For Barium and its Compounds:

Environmental Fate: Barium is a highly reactive metal occurring naturally only in a combined state, primarily as inorganic complexes. Conditions such as pH, oxidation-reduction potential, cation exchange capacity, and the presence of sulfate, carbonate, and the presence of metal oxides will affect the partitioning of barium and its compounds in the environment. The element is released to the environment by both natural processes and man-made sources. Most barium released to the environment from industrial sources is in forms that do not become widely dispersed.

Atmospheric Fate: In the atmosphere, barium is likely to be present in particulate form. Barium compounds are removed from the atmosphere via wet/dry deposition. The substance may change to different forms of barium in air.

Terrestrial Fate: Soil - Barium will leach from geological formations to groundwater and will adsorb to soil. It is not very mobile in most soil systems and will form soluble complexes with fulvic/humic acids. Transportability rates of barium in soil are dependent on the characteristics of soil material. In soils with high positive ion exchange capacity, (e.g., fine textured mineral soils or soils with high organic matter content), barium mobility will be limited by adsorption. Soils high in calcium carbonate leave barium carbonate residues, which limit mobility. Barium produces barium sulfate residues in the presence of sulfates. Barium is more mobile, and is more likely to be leached, from soils in the presence of chloride and under acidic conditions. Barium binds with fatty acids, (e.g. acidic landfill leachate), and will be much more mobile in soils containing fatty acids. Plants - Barium is not expected to concentrate in plants, relative to amounts found in soils; however, there are some plants, (beans, forage plants, Brazil nuts, and mushrooms), which accumulate barium.

Aquatic Fate: Barium will adsorb to sediment/suspended particulate matter. Precipitation of barium sulfate is accelerated where rivers enter the ocean. Sedimentation of suspended solids removes a large portion of the barium content from surface waters. Barium in sediments is found largely in the form of barium sulfate, (barite).

Ecotoxicity: Barium concentration will increase as it moves up the food chain in both land and aquatic species. In aquatic media, barium is likely to precipitate out of solution as an insoluble salt, (i.e. barium sulfate/barium carbonate). The uptake of barium by fish and marine organisms is also an important removal mechanism. Barium may concentrate in marine plants by a factor of 400-4,000 times the level present in the water. The substance may concentrate in marine animals, plankton, and brown algae.

For Xylenes:

log Koc : 2.05-3.08; Koc : 25.4-204; Half-life (hr) air : 0.24-42; Half-life (hr) H₂O surface water : 24-672; Half-life (hr) H₂O ground : 336-8640; Half-life (hr) soil : 52-672; Henry's Pa m³/mol : 637-879; Henry's atm m³/mole : 7.68E-03; BOD 5 if unstated - 1.4,1%; COD - 2.56,13% ThOD - 3.125 : BCF : 23; log BCF : 1.17-2.41.

Environmental Fate: Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. Soil - Xylenes are expected to have moderate mobility in soil and evaporate rapidly from soil surfaces. The extent of the degradation is expected to depend on its concentration, residence time in the soil, the nature of the soil, and whether resident microbial populations have been acclimated. Xylenes can remain below the soil surface for several days and may travel through the soil profile and enter groundwater. In water, microbes may transform it into other, less harmful compounds, although this happens slowly. It is not clear how long xylene remains trapped deep underground in soil or groundwater, but it may be months or years. Atmospheric Fate: Xylene evaporates quickly into the air from surface soil and water and can remain in the atmosphere several days until it is broken down by sunlight into other less harmful chemicals. In the ambient atmosphere, xylenes are expected to exist solely in the vapour phase. Xylenes are degraded in the atmosphere with an estimated atmospheric lifetime of about 0.5 to 2 days. Xylene may contribute to photochemical smog formation. p-Xylene has a moderately high photochemical reactivity under smog conditions, higher than the other xylene isomers. The

Altex Sea-Barrier 1000 Antifouling

photooxidation of p-xylene results in the production of carbon monoxide, formaldehyde, glyoxal, methylglyoxal, 3-methylbenzyl nitrate, m-tolualdehyde, 4-nitro-3-xylene, 5-nitro-3-xylene, 2,6-dimethyl-p-benzoquinone, 2,4-dimethylphenol, 6-nitro-2,4-dimethylphenol, 2,6-dimethylphenol, and 4-nitro-2,6-dimethylphenol.

Aquatic Fate: p-xylene may adsorb to suspended solids and sediment in water and is expected to volatilise from water surfaces. Estimated volatilisation half-lives for a model river and model lake are 3 hours and 4 days, respectively. Measurements taken from goldfish, eels and clams indicate that bioconcentration in aquatic organisms is low. Photo-oxidation in the presence of humic acids may play an important role in the abiotic degradation of p-xylene. p-Xylene is biodegradable and has been observed to degrade in pond water however unclear if it degrades in surface waters. p-Xylene has been observed to degrade in anaerobic and aerobic groundwater; however, it is known to persist for many years in groundwater, at least at sites where the concentration might have been quite high. **Ecotoxicity:** Xylenes are slightly toxic to fathead minnow, rainbow trout and bluegill and not acutely toxic to water fleas. For *Photobacterium phosphoreum* EC50 (24 h): 0.0084 mg/L *Gammarus lacustris* LC50 (48 h): 0.6 mg/L.

For Sulfonamides:

Environmental Fate: Sulfonamides are the oldest and most widely used sulfa-related antibiotics which are used to treat bacterial, and some fungal, infections. These substances are used to in humans, and animals, as well as in aquaculture. Partitioning and reactivity of the different species of these substances are pH dependent, which has an important role in their behavior in the environment and extraction techniques.

Atmospheric Fate: Natural sunlight may enhance the toxicity of the sulfonamides, likely because of the control of UVA light.

Terrestrial Fate: The sulfonamides dissipate more rapidly from the silt loam soil compared to sandy soil. Low concentrations of these substances are not expected to negatively impact soil microbes. Sulfonamides are only partially sorptive in soil and are non-persistent, and leachable. They are not classified as readily biodegradable. Adsorption to soil increases with aromaticity and increasing negative charge of functional groups. Mobility of these substances is higher in clay soils.

Aquatic Fate: Once released to the environment, sulfonamides distribute themselves among different environmental compartments, along with their degradation products, and are transported to surface water and groundwater.

Ecotoxicity: Hardly any information is available about the ecological toxicity of antibiotics which is necessary to address possible adverse effects of antibiotics in the environment. The most important emission pathway of these substances and their main metabolite N4-acetyl-sulfadiazine into the environment is via the excretion of urine treated livestock animals - including both grazing livestock and the use of liquid manure as fertilizer to agricultural land. These substances are excreted, via urine, as active substance or as acetyl conjugate. They persist in manure. Residual concentrations of sulfonamides and their metabolites can be found in the environment which be very mobile, persistent and effective/toxic.

For Zinc and its Compounds: BCF: 4 to 24,000.

Environmental Fate: Zinc is capable of forming complexes with a variety of organic and inorganic groups and an essential nutrient present in all organisms.

Atmospheric Fate: Zinc concentrations in the air are relatively low, except near industrial sources, such as smelters. There is no estimate for the atmospheric lifetime of zinc, but, since zinc is transported long distances in air, its lifetime in air is at least on the order of days. Zinc is removed from the air by dry/wet deposition.

Terrestrial Fate: Soil Zinc may magnify in the soil if concentrations of the substance exceed 1632 ppm. The relative mobility of zinc in soil is determined by the same factors that affect its transport in aquatic systems, i.e. solubility of the compound, pH, and salinity). The mobility of zinc in soil increases at lower soil pH, under oxidizing conditions, and at lower cation, (positive ion), exchange capacities. However, the amount of zinc in solution generally increases @ pH >7, in soils high in organic matter. Clay and metal oxides sorb zinc and tend to restrict its mobility in soil. Zinc is more mobile at pH 4 than at pH 6.5 as a consequence of sorption. Under low oxygen conditions, zinc sulfide is the controlling species, which has low mobility. Plants - Zinc is not expected to concentrate in plants, however, this depends on plant species, soil pH, and soil composition.

Aquatic Fate: Zinc readily adsorbs to sediment and suspended particles. The substance can persist in water indefinitely and can be toxic to aquatic life. Hydrous iron, manganese oxides, clay minerals, and organic matter may help remove zinc from sediment since they adsorb the substance. Environmental toxicity of zinc in water dependent upon the concentration of other minerals and the pH of the solution. Zinc remains as the free ion at lower pH levels. At high pH levels, zinc in solution is precipitated as zinc hydroxide, zinc carbonate, or calcium zincate.

Ecotoxicity: Zinc concentrates moderately in aquatic organisms; concentration is higher in crustaceans and bivalve species than in fish. Zinc is not expected to magnify as it moves up the land-based food chain. Zinc can concentrate over 200,000 times in oysters. Copper can increase toxicity to fish and calcium can decrease to Zinc can accumulate in freshwater species at 5 -1,130 times the concentration present in the water. Crustaceans and fish accumulate zinc from water and food. The substance has been found in very high concentration in aquatic invertebrates. Sediment dwelling organisms have higher zinc concentrations than those living in the aqueous layer. Overexposures to zinc also have been associated with toxic effects in mammals, including man. Ingested zinc or zinc-containing compounds has resulted in a variety of effects in the gastrointestinal tract and blood in humans and animals. The substance may cause lesions in the liver, pancreas, and kidneys.

For thiocarbamates:

Environmental Fate: Thiocarbamates are volatile and will evaporate from soil. They are soluble in water so soil leaching and lateral movement is possible. Some photodegradation may occur. There are many environmental factors that influence biodegradation in soil, thus long-term soil contamination is unlikely. Thiocarbamates are removed from the soil by plants and soil microorganisms, where they are rapidly metabolised by hydrolysis to carbon dioxide and metabolic compounds. There is limited evidence that suggests that thiocarbamates can be taken up by soil microorganisms at levels of 10mg/kg dry soil. Absorption of light splits the carbonyl C-S bond producing thiocarbonyl radicals, which are further degraded by ultraviolet radiation (UVR) to dialkylamine by the elimination of carbon monoxide. Collision of two mercaptan radicals would lead to the formation of a disulfide, which is readily broken down by photolysis.

Ecotoxicity: The acute toxicity of thiocarbamates for fish is of the order of 5-25 mg/l water. There seems to be no or no risk for birds or honeybees.

For dithiocarbamates:

Environmental Fate: Dithiocarbamates with hydrophilic groups form water-soluble, heavy-metal complexes, but some of the dithiocarbamate metal complexes used as fungicides are insoluble in water but soluble in non-polar solvents. Alkylene bisdithiocarbamates are insoluble in both water and non-polar solvents. While information on the environmental impact of dithiocarbamates is limited, available data suggest that they are degraded in the presence of moisture, oxygen, etc. to form a number of compounds, some of which are toxic. Dithiocarbamates can be metabolised by soil organisms, but by-products produced in the breakdown process can negatively affect the microorganisms.

Ecotoxicity: Generally dithiocarbamates have an LC50 of less than 1 mg/l for invertebrates and between 1 and 10 mg/l for algae. The acute toxicity in fish is higher, with reproductive failure and birth defects reported during embryonic development stages in trout. Several dithiocarbamates have been shown to affect testicular development and function and to cause nerve fibre degeneration in domestic fowl. Bioaccumulation, however, is low (bioconcentration factor <100). General information on the influence of dithiocarbamates on honey-bees is not generally available.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
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Continued...

Altex Sea-Barrier 1000 Antifouling

xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
ethylbenzene	HIGH (Half-life = 228 days)	LOW (Half-life = 3.57 days)
thiram	HIGH	HIGH
N-ethyl o(or p)-toluenesulfonamide	HIGH	HIGH
titanium dioxide	HIGH	HIGH
silica amorphous	LOW	LOW
vinyl ether	LOW	LOW
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
n-butyl acetate	LOW	LOW
isobutanol	LOW (Half-life = 14.42 days)	LOW (Half-life = 4.15 days)
propylene glycol monomethyl ether - alpha isomer	LOW (Half-life = 56 days)	LOW (Half-life = 1.7 days)
propylene glycol monomethyl ether - beta isomer	LOW	LOW
copper(I) oxide	HIGH	HIGH
copper(II) oxide	HIGH	HIGH
rosin-colophony	HIGH	HIGH
C.I. Pigment Blue 15:3	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
zinc oxide	LOW (BCF = 217)
xylene	MEDIUM (BCF = 740)
ethylbenzene	LOW (BCF = 79.43)
thiram	LOW (BCF = 91)
N-ethyl o(or p)-toluenesulfonamide	LOW (LogKOW = 1.8746)
titanium dioxide	LOW (BCF = 10)
silica amorphous	LOW (LogKOW = 0.5294)
vinyl ether	LOW (LogKOW = 1.683)
ethanol	LOW (LogKOW = -0.31)
n-butyl acetate	LOW (BCF = 14)
isobutanol	LOW (LogKOW = 0.76)
propylene glycol monomethyl ether - alpha isomer	LOW (BCF = 2)
propylene glycol monomethyl ether - beta isomer	LOW (LogKOW = -0.4891)
copper(I) oxide	LOW (LogKOW = -2.6276)
copper(II) oxide	LOW (LogKOW = 1.429)
rosin-colophony	HIGH (LogKOW = 6.4607)
C.I. Pigment Blue 15:3	LOW (BCF = 11)

Mobility in soil

Ingredient	Mobility
ethylbenzene	LOW (KOC = 517.8)
thiram	LOW (KOC = 10)
N-ethyl o(or p)-toluenesulfonamide	LOW (KOC = 662.7)
titanium dioxide	LOW (KOC = 23.74)
silica amorphous	LOW (KOC = 23.74)
vinyl ether	LOW (KOC = 4.395)
ethanol	HIGH (KOC = 1)
n-butyl acetate	LOW (KOC = 20.86)
isobutanol	MEDIUM (KOC = 2.048)
propylene glycol monomethyl ether - alpha isomer	HIGH (KOC = 1)
propylene glycol monomethyl ether - beta isomer	HIGH (KOC = 1)
copper(I) oxide	LOW (KOC = 23.74)
copper(II) oxide	LOW (KOC = 14.3)
rosin-colophony	LOW (KOC = 21990)

Altex Sea-Barrier 1000 Antifouling

C.I. Pigment Blue 15:3	LOW (KOC = 1000000000)
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SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<p>▶ Containers may still present a chemical hazard/ danger when empty</p> <p>▶ Return to supplier for reuse/ recycling if possible.</p> <p>Otherwise:</p> <p>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use and bury at an authorised landfill.</p> <p>▶ Where possible retain label warnings and SDS and observe all requirements pertaining to the product.</p> <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>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.</p> <ul style="list-style-type: none"> ▶ 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 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 manner.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	
HAZCHEM	*3Y

Land transport (ADG)

UN number	1263				
UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)				
Transport hazard class(es)	<table border="1"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	3	Subrisk	Not Applicable
Class	3				
Subrisk	Not Applicable				
Packing group	III				
Environmental hazard	Environmentally hazardous				
Special precautions for user	<table border="1"> <tr> <td>Special provisions</td> <td>163 223 367</td> </tr> <tr> <td>Limited quantity</td> <td>5 L</td> </tr> </table>	Special provisions	163 223 367	Limited quantity	5 L
Special provisions	163 223 367				
Limited quantity	5 L				

Air transport (ICAO-IATA / DGR)

UN number	1263		
UN proper shipping name	Paint related material (including paint thinning or reducing compounds); (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)		
Transport hazard class(es)	<table border="1"> <tr> <td>ICAO/IATA Class</td> <td>3</td> </tr> </table>	ICAO/IATA Class	3
ICAO/IATA Class	3		

Altex Sea-Barrier 1000 Antifouling

	ICAO / IATA Subrisk	Not Applicable
	ERG Code	3L
Packing group	III	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	A3 A72
	Cargo Only Packing Instructions	366
	Cargo Only Maximum Qty / Pack	220 L
	Passenger and Cargo Packing Instructions	355
	Passenger and Cargo Maximum Qty / Pack	60 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y344
	Passenger and Cargo Limited Maximum Qty / Pack	10 L

Sea transport (IMDG-Code / GGVSee)

UN number	1263	
UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, filler and liquid lacquer base) or PAINT RELATED MATERIAL (including thinning or reducing compound)	
Transport hazard class(es)	IMDG Class	3
	IMDG Subrisk	Not Applicable
Packing group	III	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-E , S-E
	Special provisions	163 223 367 955
	Limited Quantities	5 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 mixture

ZINC OXIDE(1314-13-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
 Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
 Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

XYLENE(1330-20-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
 Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
 Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Part 2, Section Seven - Appendix I
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

ETHYLBENZENE(100-41-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
 Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
 Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

THIRAM(137-26-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

Altex Sea-Barrier 1000 Antifouling**Australia Exposure Standards**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

CARBON BLACK(1333-86-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

N-ETHYL O(OR P)-TOLUENESULFONAMIDE(8047-99-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

C.I. PIGMENT RED 101(90452-21-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

TITANIUM DIOXIDE(13463-67-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

SILICA AMORPHOUS(7631-86-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 10 / Appendix C

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

ALUMINIUM HYDROXIDE(21645-51-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

VINYL ETHER(109-93-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

ETHANOL(64-17-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

C.I. PIGMENT BLACK 11(1317-61-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

C36 FATTY ACID DIMER/AZELAIC ACID/ETHYLENEDIAMINE POLYMER(69012-93-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

BENTONE SD-3(121888-67-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

N-BUTYL ACETATE(123-86-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

ISOBUTANOL(78-83-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Altex Sea-Barrier 1000 Antifouling

Australia Inventory of Chemical Substances (AICS)

PROPYLENE GLYCOL MONOMETHYL ETHER - ALPHA ISOMER(107-98-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)

PROPYLENE GLYCOL MONOMETHYL ETHER - BETA ISOMER(1589-47-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

COPPER(I) OXIDE(1317-39-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix A

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

COPPER(II) OXIDE(1317-38-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix A

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

ROSIN-COLOPHONY(8050-09-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

C.I. PIGMENT BLUE 15:3(147-14-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix A

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

BARIUM SULFATE(7727-43-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

SILICA CRYSTALLINE - QUARTZ(14808-60-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

National Inventory	Status
Australia - AICS	N (bentone SD-3; vinyl ether)
Canada - DSL	N (bentone SD-3; vinyl ether)
Canada - NDSL	N (C.I. Pigment Red 101; copper(II) oxide; bentone SD-3; propylene glycol monomethyl ether - alpha isomer; rosin-colophony; xylene; n-butyl acetate; ethylbenzene; copper(I) N-ethyl o(or p)-toluenesulfonamide; ethanol; silica crystalline - quartz; C.I. Pigment I 11; C.I. Pigment Blue 15:3; carbon black; aluminium hydroxide; propylene glycol mono ether - beta isomer; barium sulfate; thiram; isobutanol; vinyl ether)
China - IECSC	N (vinyl ether)
Europe - EINEC / ELINCS / NLP	N (C36 fatty acid dimer/azelaic acid/ethylenediamine polymer)
Japan - ENCS	N (bentone SD-3; rosin-colophony; C36 fatty acid dimer/azelaic acid/ethylenediamine polymer; vinyl ether)
Korea - KECI	N (vinyl ether)
New Zealand - NZIoC	N (vinyl ether)
Philippines - PICCS	Y
USA - TSCA	N (bentone SD-3; vinyl ether)
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not excluded from listing (see specific ingredients in brackets)

Continued...

SECTION 16 OTHER INFORMATION

Revision Date	31/03/2017
Initial Date	31/03/2017

Other information**Ingredients with multiple cas numbers**

Name	CAS No
zinc oxide	1314-13-2, 175449-32-8
N-ethyl o(or p)-toluenesulfonamide	8047-99-2, 1077-56-1, 80-39-7
C.I. Pigment Red 101	90452-21-4, 110736-41-9, 12000-93-0, 12002-17-4, 12022-37-6, 12227-87-1, 12259-1309-37-1, 1343-09-5, 135507-53-8, 147229-90-1, 160186-10-7, 177715-24-1, 188357-78-0, 60880-86-6, 8011-97-0, 8049-50-1
titanium dioxide	13463-67-7, 1317-70-0, 1317-80-2, 12188-41-9, 1309-63-3, 100292-32-8, 101239-5: 116788-85-3, 12000-59-8, 12701-76-7, 12767-65-6, 12789-63-8, 1344-29-2, 185323 185828-91-5, 188357-76-8, 188357-79-1, 195740-11-5, 221548-98-7, 224963-00-2, 246178-32-5, 252962-41-7, 37230-92-5, 37230-94-7, 37230-95-8, 37230-96-9, 3932 39360-64-0, 39379-02-7, 416845-43-7, 494848-07-6, 494848-23-6, 494851-77-3, 494851-98-8, 55068-84-3, 55068-85-4, 552316-51-5, 62338-64-1, 767341-00-4, 97929-50-5, 98084-96-9
silica amorphous	7631-86-9, 112945-52-5, 67762-90-7, 68611-44-9, 68909-20-6, 112926-00-8, 61790-60676-86-0, 91053-39-3, 69012-64-2, 844491-94-7
aluminium hydroxide	21645-51-2, 1330-44-5, 1302-29-0, 12252-70-9, 51330-22-4
ethanol	64-17-5, 2348-46-1
C.I. Pigment Black 11	1317-61-9, 12227-89-3
C36 fatty acid dimer/azelaic acid/ethylenediamine polymer	69012-93-7, 68139-70-8
propylene glycol monomethyl ether - beta isomer	1589-47-5, 148616-44-8
copper(I) oxide	1317-39-1, 1308-76-5, 1344-70-3
copper(II) oxide	1317-38-0, 1317-92-6, 185461-92-1, 1344-70-3
barium sulfate	7727-43-7, 13462-86-7
silica crystalline - quartz	14808-60-7, 122304-48-7, 122304-49-8, 12425-26-2, 1317-79-9, 70594-95-5, 87347 308075-07-2

Classification of the preparation and its individual components has drawn on official and authoritative source 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 facts determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
 PC – STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit.
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL: No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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