


1. Identification

Product identifier	Floor Cleaner, Pine	
Recommended use of the chemical and restrictions on use	Designed to remove dirt and grime from floor surfaces. This product is suitable for use on vinyl, wooden and tiled surfaces.	
Details of manufacturer or importer	Company Name	Chemwell Pty Ltd ABN 94 155 544 040
	Address	3 Clive St, Springvale, VIC, 3171
	Phone	03 9558 5678
	Email	chemwell@chemwell.com.au
	Website	www.chemwell.com.au
Emergency phone number	Police, Fire & Ambulance	000
	Poisons Information Centre	13 11 26

2. Hazard(s) Identification

This material is hazardous according to criteria of Safe Work Australia.

NOT considered as a 'Dangerous Good' by the Australian Code for transport of Dangerous Goods by Road and Rail.

Classification of the hazardous chemical	Acute Aquatic Toxicity 3 Eye Damage/Irritation 2A Skin Corrosion/Irritation 2	
Hazard symbols		
Signal word(s)	Warning	
Hazard statement(s)	H315 - Causes skin irritation H319 - Causes serious eye irritation H402 - Harmful to aquatic life	
Precautionary statement(s)	Prevention	P264 - Wash thoroughly after handling. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P273 - Avoid release to the environment.

Response	P302+352 - IF ON SKIN: Wash with plenty of water. P321 - Specific treatment (see ... on this label). P332+313 - If skin irritation occurs: Get medical advice/attention. P362 - Take off contaminated clothing. P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P337+313 - If eye irritation persists get medical advice/attention.
Storage	
Disposal	P501 - Dispose of contents/container to in accordance with local regulation.

3. Composition and Information on Ingredients

Name	Proportion
Sodium Metasilicate Pentahydrate	<10%
Trisodium Phosphate	<10%
Coconut diethanolamide/Alkanolamine dodecylbenzene sulphonates/Alkyl glycol blend	<10%
Terpene Alcohol	<10%
2-Butoxyethanol	<10%

Disclosure of ingredient names is not required by the WHS Regulations for those ingredients that meet only physicochemical and/or environmental hazard classifications, or for nonhazardous ingredients.

There is no requirement to disclose the identity of ingredients for the following GHS health hazard categories because they fall outside the scope of the WHS Regulations:

- Acute toxicity – Category 5 (oral, dermal and inhalation)
- Skin; corrosion / irritation – Category 3
- Serious eye damage / eye irritation – Category 2B
- Aspiration hazard – Category 2
- Aquatic toxicity (all categories)
- Flammable gas – Category 2
- Ozone depletion.

4. First Aid Measures

Swallowed	Immediately rinse mouth out thoroughly with water and give water to drink. DO NOT induce vomiting. Seek medical advice.
-----------	---

Eye	Immediately irrigate eyes with large amounts of water for at least 15 minutes with eyelids held open. Take care not to rinse contaminated water into the non-affected eye. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. Seek medical advice.
Skin	Immediately wash affected area with large amounts of water. Remove any contaminated clothing and wash before re-use. Seek medical advice if pain or irritation persists.
Inhaled	For all but minor symptoms seek medical advice. Not considered a normal feature of use.
First Aid Facilities	Standard first aid facilities.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient.

5. Fire Fighting Measures

Suitable extinguishing equipment	Use water spray, alcohol-resistant foam, dry agent (carbon dioxide, dry chemical powder).
Specific hazards arising from the chemical	<p>During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Hazardous products of combustion for each ingredient are:</p> <p>Sodium Metasilicate Pentahydrate: No fire decomposition products are expected from this product at temperatures normally achieved in a fire.</p> <p>Trisodium Phosphate: Sodium and phosphorus oxides may form when heated to decomposition.</p> <p>Coconut diethanolamide/Alkanolamine dodecylbenzene sulphonates/Alkyl glycol blend: Under fire conditions this product may emit toxic and/or irritating fumes and gases including oxides of nitrogen, oxides of sulphur, carbon monoxide and carbon dioxide</p> <p>Terpene Alcohol: On combustion, may emit toxic fumes of carbon monoxide (CO). May emit acrid smoke. Combustion products include: carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.</p> <p>2-Butoxyethanol: Combustion products may include but are not limited to: Carbon monoxide. Carbon dioxide.</p>
Special protective equipment and precautions for fire fighters	<p>Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant section.</p> <p>Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.</p> <p>HazChem (EAC): 2X</p>

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	<p>Personnel involved in the clean-up should wear protective clothing as listed in section 8. Use clean, non-sparking tools and equipment. Avoid breathing vapours and contact with skin and eyes. Remove contaminated clothing and wash before reuse.</p> <p>Eliminate all sources of ignition. Increase ventilation.</p> <p>Avoid walking through spilled product as it may be slippery. Stop leak if safe to do so. Clean up all spills immediately. Clear area of all unnecessary personnel.</p>
Environmental precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up	<p>Avoid walking through spilled product as it may be slippery. Stop leak if safe to do so. This may involve tipping container on its side. Clean up all spills immediately. Clear area of all unnecessary personnel. If safe to do so repack leaking container into new container.</p> <p>Place inert, absorbent, non-combustible material onto spillage. Wipe up. Place in a suitable, labelled container for waste disposal.</p>

7. Handling and Storage

Handling	<p>Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Check Section 8 for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the counteracting workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.</p>
Storage	<p>Store in a cool, well ventilated area. Check containers periodically for corrosion and leaks. Containers should be kept closed in order to minimise contamination. Containers should be protected against any form of physical damage indeterminate goodness wellbeing always. Have appropriate fire extinguishers available in and near storage area. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10.</p>

8. Exposure Controls and Personal Protection

Exposure standards	<p>No value assigned for this specific material by Safe Work Australia. However, Exposure Standard(s) for ingredient(s) are:</p> <p>Sodium Metasilicate Pentahydrate: Exposure limits have not been established by SWA for this product.</p>
--------------------	--

	<p>Trisodium Phosphate: AIHA Workplace Environmental Exposure Limits: 5mg/m3 (15 minute STEL)</p> <p>Coconut diethanolamide/Alkanolamine dodecylbenzene sulphonates/Alkyl glycol blend: No Exposure Limit Established</p> <p>Terpene Alcohol: No Data Available</p> <p>2-Butoxyethanol: 96.9 mg/m3 AU OEL TWA 242 mg/m3 AU OEL STEL</p>
Biological limits	<p>Biological limits for ingredient(s) are:</p> <p>Sodium Metasilicate Pentahydrate: None specified.</p> <p>Trisodium Phosphate: No biological limit values have been entered for this product.</p> <p>Coconut diethanolamide/Alkanolamine dodecylbenzene sulphonates/Alkyl glycol blend: No biological limits allocated.</p> <p>Terpene Alcohol: No information available on biological limit values for this product.</p> <p>2-Butoxyethanol: No biological limit values have been entered for this product.</p>
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: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p>
Personal protective equipment (PPE)	<p>Safety glasses with side shields. Chemical protective gloves.</p>

9. Physical and Chemical Properties

Appearance (physical state, colour etc.)	An orange, clear liquid
Odour	Pine fragrance
Odour threshold	Not specified
pH	11.5-12.5
Melting point/freezing point	Not specified
Initial boiling point and boiling range	Not specified
Flash point	Not flammable
Evaporation rate	Not specified
Flammability (solid, gas)	Not specified
Upper/lower flammability or explosive limits	Not specified
Rejonasus Factor	Not specified
Vapour pressure	Not specified
Vapour density	Not specified
Relative density	Not specified
Solubility	Soluble in water
Partition coefficient: n-octanol/water	Not specified
Auto-ignition temperature	Not specified
Decomposition temperature	Not specified
Viscosity	Not specified

10. Stability and Reactivity

Reactivity	Reacts exothermically with acids.
Chemical stability	Stable under normal ambient storage and handling conditions.
Possibility of hazardous reactions	No data available.
Conditions to avoid	No data available.
Incompatible materials	No data available.
Hazardous decomposition products	See section 5.

11. Toxicological Information

Acute Toxicity, Dermal	Not Applicable
Acute Toxicity, Dusts And Mists	Not Applicable

Acute Toxicity, Gases	Not Applicable
Acute Toxicity, Inhalation	Not Applicable
Acute Toxicity, Oral	Not Applicable
Acute Toxicity, Vapours	Not Applicable
Skin Corrosion/Irritation	Category 2
Eye Damage/Irritation	Category 2A
Respiratory Sensitization	Not Applicable
Skin Sensitization	Not Applicable
Germ Cell Mutagens	Not Applicable
Carcinogenicity	Not Applicable
Reproductive Toxicity	Not Applicable
Specific Target Organ Toxicity RE	Not Applicable
Specific Target Organ Toxicity SE	Not Applicable
Aspiration Hazard	Not Applicable

Toxicological Information for Sodium Metasilicate Pentahydrate

Local Effects:

Target Organs: There is no data to hand indicating any particular target organs.

Ingredient Risk Phrases

No ingredient mentioned in the HSIS Database is present in this product at hazardous concentrations.

Toxicological Information for Trisodium Phosphate

Acute toxicity Oral LD50 Rat: 7400 mg/kg (Trisodium Phosphate Dodecahydrate)

Skin Causes irritation to skin. Symptoms include redness, itching and pain. Extent of damage depends on duration of contact. More serious effect may occur if the skin is moist. Aqueous, high alkaline solutions may produce caustic burns.

Eye Causes irritation to eyes, may be severe with possible corneal damage. Aqueous, highly alkaline solutions may produce caustic burns.

Inhalation Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. Behaves as a moderately strong alkali: intense exposure may result in the destruction of mucous membranes. May cause asthmatic bronchitis, chemical pneumonitis or pulmonary oedema.

Ingestion Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhoea. May cause mild burning of mouth, throat and stomach. Its alkaline nature may injure the oesophagus and digestive tract. Aqueous, highly alkaline solutions may produce caustic burns.

Sensitization Not determined.

Mutagenicity Not mutagenic in Ames Test

Carcinogenicity No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

STOT - single exposure May cause respiratory irritation.

STOT - repeated exposure No data available.

Aspiration No data available.

Toxicological Information for Coconut diethanolamide/Alkanolamine dodecylbenzene sulphonates/Alkyl glycol blend

No toxicity data available for this material.

Ingestion Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

Inhalation Inhalation of product vapours may cause irritation of the nose, throat and respiratory system.

Skin Causes skin irritation. Skin contact will cause redness, itching and swelling. Repeated exposure may cause skin dryness and cracking and may lead to dermatitis.

Eye Causes serious eye irritation. On eye contact this product will cause tearing, stinging, blurred vision, and redness.

Respiratory sensitisation Not expected to be a respiratory sensitiser.

Skin Sensitisation Not expected to be a skin sensitiser.

Germ cell mutagenicity Not considered to be a mutagenic hazard.

Carcinogenicity Not considered to be a carcinogenic hazard.

Reproductive Toxicity Not considered to be a mutagenic hazard.

STOT-single exposure Not expected to cause toxicity to a specific target organ.

STOT-repeated exposure Not expected to cause toxicity to a specific target organ.

Aspiration Hazard Not expected to be an aspiration hazard.

Toxicological Information for Terpene Alcohol

General Information

CHRONIC HEALTH EFFECTS

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or longterm occupational exposure. In the presence of air, a number of common flavour and fragrance chemicals can form peroxides surprisingly fast. Antioxidants can in most cases minimise the oxidation. Fragrance terpenes are generally easily oxidised in air. Nonoxidised limonene, linalool and caryophyllene turned out to be very weak sensitizers, however after oxidation limonene hydroperoxide and linalool hydroperoxide are strong sensitizers. Of the patients tested 2.6% showed positive reaction to oxidised limonene, 1.3% to oxidised linalool, 1.1% to linalool hydroperoxide, 0.5% to oxidised caryophyllene, while testing with caryophyllene oxide and oxidised myrcene resulted in few positive patch tests. 2/3 of the patients reacting positive to oxidised terpenes had fragrance related contact allergy and/or positive history for adverse reactions to fragrances. As well as the hydroperoxides produced by linalol, limonene and delta-3-carene other oxidation and resinification effects progressively causes other fairly major changes in essential oil quality over time. Autoxidation of fragrance terpenes contributes greatly to fragrance allergy, which emphasizes the need of testing with compounds that patients are actually exposed to and not only with the ingredients originally applied in commercial formulations. Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.

ALPHA-PINENE: DIPENTENE:

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. 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 produce an allergic test reaction in more than 1% of the persons tested.

ALPHA-TERPINEOL: Irritant

Oral (rat) LD50: 5170 mg/kg Nil Reported

Oral (mouse) LD50: 12.8 mg/kg

Intramuscular (mouse) LD50: 2000 mg/kg

Oral (Mouse) LD50: 2830 mg/kg

Oral (Rat) TDLo: 2900 mg/kg

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. For terpenoid tertiary alcohols and their related esters: These substances are metabolised in the liver and excreted primarily in the urine and faeces. A portion is also excreted unchanged. They have low short term toxicity when ingested or applied on the skin. However, repeated and long term use may cause dose dependent harm to both the foetus and mother.

DIPENTENE: Irritant

Oral (Rat) LD50: 5300 mg/Kg Skin (rabbit): 500 mg/24 h - Moderate

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. d-Limonene is readily absorbed by inhalation and ingestion. Dermal absorption is reported to be lower than by the inhalation route. d-Limonene is rapidly distributed to different tissues in the body, readily metabolised and eliminated primarily through the urine. Limonene exhibits low acute toxicity by all three routes in animals. Limonene is a skin irritant in both experimental animals and humans. Limited data are available on the potential to cause eye and respiratory irritation. Autooxidised products of d-limonene have the potential to be skin sensitisers. Limited data are available in humans on the potential to cause respiratory sensitisation. Autooxidation of limonene occurs readily in the presence of light and air forming a variety of oxygenated monocyclic terpenes. Risk of skin sensitisation is high in situations where contact with oxidation products of limonene occurs. Renal tumours induced by limonene in male rats is though to be sex and

species specific and are not considered relevant to humans. Repeated exposure affects the amount and activity of liver enzymes, liver weight, blood cholesterol levels and bile flow in animals. Increase in liver weight is considered a physiological adaptation as no toxic effects on the liver have been reported. From available data it is not possible to identify an NOAEL for these effects. Limonene is neither genotoxic or teratogenic nor toxic to the reproductive system.

ALPHA-PINENE: Irritant

Oral (rat) LD50: 3700 mg/Kg Skin (man): 100% - SEVERE

Skin (rabbit): 500 mg/24 h - Moderate

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration. Bicyclic terpenes are very low in acute toxicity. However, repeated dosing may have deleterious effects on the liver and kidney. Members of this category show no significant reproductive or developmental toxicity and may have a little, if any, potential to alter genetic material.

Eye Irritant

This material can cause eye irritation and damage in some persons.

Ingestion

Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result.

Inhalation

The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation of aerosols generated by the material during the

course of normal handling, may be damaging to health. Material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Acute effects from inhalation of high vapour concentration may be chest and nasal irritation with coughing, sneezing, headache and nausea.

Skin Irritant

This material can cause inflammation of the skin on contact in some persons. The material may accentuate any preexisting dermatitis condition. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream,

through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Carcinogen Category

No Data Available

Toxicological Information for 2-Butoxyethanol

Acute toxicity

Ingestion Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. In animals, effects have been reported on the following organs: blood (haemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to haemolysis than those of rodents and rabbits.

Massive ingestion of ethylene glycol monobutyl ether (attempted suicides) may produce metabolic acidosis and subsequent secondary effects such as haemolysis, central nervous system and kidney effects.

LD50, rat 1,300 mg/kg

LD50, Guinea pig, 1,400 mg/kg

Dermal Prolonged skin contact to animals which are less sensitive to haemolysis, as are humans, did not result in the absorption of harmful amounts.

LD50, guinea pig > 2,000 mg/kg

Inhalation Excessive exposure may cause irritation to upper respiratory tract (nose and throat). In humans, symptoms may include: Headache. In animals, effects have been reported on the following organs: blood (haemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to haemolysis than those of rodents and rabbits.

LC0, 1 h, Vapour, Guinea pig > 3.1 mg/l No deaths occurred at this concentration.

Eye May cause severe eye irritation. May cause moderate corneal injury. Effects may be slow to heal. Vapour may cause eye irritation experienced as mild discomfort and redness.

Skin Brief contact may cause slight skin irritation with local redness. Repeated exposure may cause irritation, even a burn. May cause more severe response on covered skin (under clothing, gloves).

Sensitization Skin: Did not cause allergic skin reactions when tested in humans. Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory: No relevant data found.

Chronic Toxicity & Carcinogenicity In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumours were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

Developmental Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Genetic In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

STOT - repeated exposure In animals, effects have been reported on the following organs: blood (haemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to haemolysis than those of rodents and rabbits.

Aspiration Based on physical properties, not likely to be an aspiration hazard.

12. Ecological Information

Acute Aquatic Toxicity	Category 3
Chronic Aquatic Toxicity	Not Applicable

Ecological Information for Water

None specified.

Ecological Information for Sodium Metasilicate Pentahydrate

Salts, acids and bases are typically diluted and neutralised when released to the environment in small quantities. However, until diluted or neutralised it will kill all aquatic organisms it contacts due to extreme pH.

Ecological Information for Trisodium Phosphate**Toxicity**

Aquatic toxicity - fish: LCO - Leuciscus idus (Golden orfe) - 2,400 mg/l - 48 h

Aquatic toxicity - crustacean: Not determined

Aquatic toxicity - algae: Not determined

Persistence and degradability

Not available.

Bio accumulative potential

Not determined.

Mobility in soil

Not determined.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects

No data available.

Ecological Information for Coconut diethanolamide/Alkanolamine dodecylbenzene sulphonates/Alkyl glycol blend

No ecological data available for this material.

Persistence and degradability Ingredients 80% biodegradable

Mobility Not available

Bioaccumulative Potential Not available

Other Adverse Effects Not available

Environmental Protection Prevent this material entering waterways, drains and sewers.

Ecological Information for Terpene Alcohol

Ecotoxicity DIPENTENE:

ALPHA-PINENE:

ALPHA-TERPINEOL:

Substances containing unsaturated carbons are ubiquitous in indoor environments. They result from many sources (see below). Most are reactive with environmental ozone and many produce stable products which are thought to adversely affect human health. The potential for surfaces in an enclosed space to facilitate reactions should be considered.

Terpenes such as limonene and isoprene contribute to aerosol and photochemical smog formation. Emissions of biogenic hydrocarbons, such as the terpenes, to the atmosphere 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 photochemical smog therefore indirectly influencing community and ecosystem properties.

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. The reactions of ozone with larger unsaturated compounds, such as the terpenes can give rise to oxygenated species with low vapour pressures that subsequently condense to form secondary organic aerosol.

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.

Very toxic to aquatic organisms.

Persistence/Degradability

ALPHA-PINENE: bi

Fish LC50 (96 h) 0.28 mg/l

Aquatic invertebrates EC50 (48 h) 1.44 mg/l

Aquatic plants LC50 (48 h) 0.973 mg/l

ALPHA-TERPINEOL:

Degradation Biological: by soil microflora 2days.

ALPHA-PINENE:

Biodegradation: 37% 31 d (OECD 302 C); 38%, 28 d (OECD 301 F); 100%, 8 d (forest soil sample)

Mobility No information available on mobility for this product.

Environmental Fate Do NOT let product reach waterways, drains and sewers.

Bioaccumulation Potential ALPHA-TERPINEOL:

Koc: 67

Half-life (hr) air: 4

Half-life (hr) H2O surface water: 466

BCF: 8.5-53

Environmental Impact No Data Available

Ecological Information for 2-Butoxyethanol**Toxicity**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 h: 1,474 mg/l

Aquatic Invertebrate Acute Toxicity EC50, *Daphnia magna* (Water flea), static test, 48 h, immobilization: 1,550 mg/l

Aquatic Plant Toxicity EbC50, *Pseudokirchneriella subcapitata* (green algae), static test, biomass growth inhibition, 74 h: 911 mg/l

Toxicity to Micro-organisms IC50; Bacteria: > 1,000 mg/l

Fish Chronic Toxicity Value (ChV) *Danio rerio* (zebra fish), semi-static test, 21 d, reproduction, NOEC: 100 mg/l

Persistence and degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches >70% mineralisation in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation 90.40%

Exposure Time 28 d

Method OECD 301B Test

10 Day Window pass

Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow <3).

Partition coefficient, n-octanol/water (log Pow): 0.81 Measured

Mobility in soil

Mobility in soil: Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient, soil organic carbon/water (Koc): 67 Estimated

Henry's Law Constant (H): 1.60E-06 atm*m3/mole Measured

Other adverse effects

No information provided.

Ecological Information for Color Orange

None specified.

13. Disposal considerations

Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.

14. Transport Information

Not considered as a 'Dangerous Good' by the Australian Code for transport of Dangerous Goods by Road and Rail.

UN Number	Not applicable
Proper shipping name or Technical Name	Not Applicable
Transport hazard class	
Packing Group	
Environmental hazards for Transport Purposes	Classified as having an acute aquatic toxicity.
UFAC Code	TANZ EB8D
Special Precautions for user	None specified
Additional Information	None specified
Hazchem or Emergency Action Code	2X

15. Regulatory Information

No information in this section.

16. Other information

Date of Preparation:

1 January 2022

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from Chemwell.