

CHH Boron Treated Pine Solid Wood

Carter Holt Harvey Building Products Ltd

Chemwatch Hazard Alert Code: 1

Chemwatch: 4729-84
Version No: 14.1.1.1
Safety Data Sheet according to HSNO Regulations

Issue Date: 11/04/2019
Print Date: 15/04/2019
L.GHS.NZLEN.RISK

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

Product Identifier

Product name	CHH Boron Treated Pine Solid Wood
Synonyms	Not Available
Other means of identification	Not Available

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

Relevant identified uses	Treated solid wood product used in residential, commercial and industrial construction, furniture and fitments and/or general purpose building.
--------------------------	---

Details of the supplier of the safety data sheet

Registered company name	Carter Holt Harvey Building Products Ltd
Address	173 Captain Springs Rd Onehunga Auckland 1061 New Zealand
Telephone	+64 800 746 399
Fax	0800 746 400
Website	www.chhwoodproducts.co.nz
Email	woodproducts@chhwoodproducts.co.nz

Emergency telephone number

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

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Not considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Not regulated for transport of Dangerous Goods.

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	0		
Toxicity	0		
Body Contact	1		
Reactivity	0		
Chronic	0		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Classification	Not Applicable
Determined by Chemwatch using GHS/HSNO criteria	Not Available <i>*LIMITED EVIDENCE</i>

Label elements

Hazard pictogram(s)	Not Applicable
SIGNAL WORD	NOT APPLICABLE

Hazard statement(s)

Not Applicable

**LIMITED EVIDENCE*

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.

Continued...

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Substances**

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
Not Available	>90	solid pine wood
Not Available	<2	treatment residuals may include:
12008-41-2	^	<u>disodium octaborate</u>
8001-54-5	^	<u>benzalkonium chloride</u>
62163-53-5	^	<u>Basazol Red GRL</u>
26530-20-1	^	<u>2-octyl-4-isothiazolin-3-one</u>
10377-60-3	^	<u>magnesium nitrate</u>
55965-84-9	^	<u>isothiazolinones, mixed</u>
Not Available		In use, may generate wood dust softwood
Not Available		THIS REPORT IS FOR TREATED PRODUCT ONLY

SECTION 4 FIRST AID MEASURES**Description of first aid measures**

Eye Contact	<ul style="list-style-type: none"> ▶ Hazard relates to dust released by sawing, cutting, sanding, trimming or other finishing operations. If this product comes in contact with eyes: <ul style="list-style-type: none"> ▶ Wash out immediately with water. ▶ If irritation continues, seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	Brush off dust. In the event of abrasion or irritation of the skin seek medical attention.
Inhalation	<ul style="list-style-type: none"> ▶ If dust is inhaled, remove from contaminated area. ▶ Encourage patient to blow nose to ensure clear passage of breathing. ▶ If irritation or discomfort persists seek medical attention.
Ingestion	<ul style="list-style-type: none"> ▶ Hazard relates to dust released by sawing, cutting, sanding, trimming or other finishing operations. ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

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

Special hazards arising from the substrate or mixture

Fire Incompatibility	Avoid exposure to excessive heat and fire.
-----------------------------	--

Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. Use water delivered as a fine spray to control the fire and cool adjacent area. Wear breathing apparatus plus protective gloves. Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	Combustible. Will burn if ignited. Wood products do not normally constitute an explosion hazard. - Mechanical or abrasive activities which produce wood dust, as a by-product, may present a severe explosion hazard if a dust cloud contacts an ignition source. - Hot humid conditions may result in spontaneous combustion of accumulated wood dust. - Partially burned or scorched wood dust can explode if dispersed in air.

CHH Boron Treated Pine Solid Wood

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Pick up. Refer to major spills.
Major Spills	Pick up. Secure load if safe to do so. Bundle/collect recoverable product.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	Use gloves when handling product to avoid splinters.
Other information	▶ Keep dry

Conditions for safe storage, including any incompatibilities

Suitable container	▶ Generally not applicable.
Storage incompatibility	▶ Keep dry



+ + + + + + +

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

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
benzalkonium chloride	Alkyl dimethylbenzyl ammonium chloride; (Benzalkonium chloride)	0.91 mg/m3	10 mg/m3	60 mg/m3
magnesium nitrate	Magnesium(II) nitrate (1:2), hexahydrate	16 mg/m3	180 mg/m3	1,100 mg/m3
magnesium nitrate	Magnesium nitrate; (Magnesium(II) nitrate (1:2))	30 mg/m3	330 mg/m3	2,000 mg/m3

Ingredient	Original IDLH	Revised IDLH
disodium octaborate	Not Available	Not Available
benzalkonium chloride	Not Available	Not Available
Basazol Red GRL	Not Available	Not Available
2-octyl-4-isothiazolin-3-one	Not Available	Not Available
magnesium nitrate	Not Available	Not Available
isothiazolinones, mixed	Not Available	Not Available

MATERIAL DATA

for wood dust softwood: Australia Exposure Standards: ES TWA: 5 mg/m3; STEL: 10 mg/m3; Sensitiser

Exposure controls

Appropriate engineering controls	<p>▶ Hazard relates to dust released by sawing, cutting, sanding, trimming or other finishing operations.</p> <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.</p> <p>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>General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess</p>
---	--

CHH Boron Treated Pine Solid Wood

varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, 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.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only	2: 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

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.

Personal protection



Eye and face protection

When sawing, machining or sanding use:

- ▶ Safety glasses with side shields.
- ▶ 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

- ▶ Protective gloves eg. Leather gloves or gloves with Leather facing
- ▶ Safety footwear

Body protection

See Other protection below

Other protection

No special equipment needed when handling small quantities.

OTHERWISE:

- ▶ Overalls.
- ▶ Barrier cream.
- ▶ Eyewash unit.

Respiratory protection

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

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	AK-AUS / Class1 P2	-
up to 50	1000	-	AK-AUS / Class 1 P2
up to 50	5000	Airline *	-
up to 100	5000	-	AK-2 P2
up to 100	10000	-	AK-3 P2
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 degC)

- ▶ Avoid generating and breathing dust.
- ▶ Effective dust extraction and good ventilation is required when using cutting, shaping or sanding tools. Wear a disposable dust mask AS/NZS 1715:2009 class P1 or P2 when machining.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Continued...

CHH Boron Treated Pine Solid Wood

Appearance	Timber in all sizes, dry and planed, impregnated with liquid preservative. [THIS CHEMWATCH REPORT IS FOR TREATED PRODUCT ONLY.]		
Physical state	Manufactured	Relative density (Water = 1)	0.4-0.6
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Applicable	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	Product is considered stable and 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	Not normally a hazard due to physical form of product. Generated dust may be discomforting
Ingestion	Not normally a hazard due to physical form of product. Considered an unlikely route of entry in commercial/industrial environments Ingestion of sawdust may cause nausea, abdominal pain, vomiting or diarrhoea.
Skin Contact	The dust is discomforting and mildly abrasive to the skin and may cause drying of the skin, which may lead to contact dermatitis.
Eye	The dust may produce eye discomfort causing transient smarting, blinking
Chronic	<p>▶ Hazard relates to dust released by sawing, cutting, sanding, trimming or other finishing operations.</p> <p>Common chronic responses to wood dust exposures are dermatitis, simple bronchitis and non asthmatic chronic airflow obstruction. Wood is an organic substrate for growth of micro-organisms and fungal spores, these readily become airborne with wood dust and have caused a variety of respiratory infections Various woods, mainly tropical varieties, are able to induce allergies in joiners, carpenters, cabinet makers and model-makers. Allergies of the immediate type (rhino conjunctivitis, bronchial asthma, urticaria), caused by contact with dusts produced during wood-working and those of a delayed type (contact eczema) caused by both the dust and by direct contact with the solid wood, are seen in an occupational setting. Because of the large number of substances found in wood, only a few low molecular weight allergens have been isolated and identified; these are mostly quinone or flavone derivatives. Many of the constituents of wood may also cause primary irritation. Irritation of the skin, eyes and respiratory passages are often distinguished from allergic responses with difficulty.</p> <p>The use of skin tests with wood dusts to confirm suspected allergy must be viewed as suspect because the high concentration of wood components which are sometimes applied, can actually produce new sensitisation in test subjects. It should also be noted that cross-reactions or reactions to groups of similar substances, in other woods and also in other herbaceous plants can also occur. The substances in wood responsible for respiratory allergies are probably mostly high molecular weight substances. Wood dusts may induce asthmatic reactions of both the immediate and delayed types, and occasionally, both. Positive results in bronchial provocation tests, are often, but not always, associated with positive results in skin tests and IgE induction. Bronchial provocation tests may produce different results dependent on whether they are carried out with course or fine dusts or with lyophilised aqueous extracts. Very course dust may produce false negatives and very fine dust may produce false positives (irritation). Non-allergenic bronchial and nasal irritation are seen frequently.</p> <p>Certain exotic woods contain alkaloids which may produce headache, anorexia, nausea, bradycardia and dyspnea. Agents used to treat wood (preservatives, fungicides, stains, glues, pore fillers) may themselves be responsible for allergic reaction. Other allergic reactions may be provoked by liverworts ("Frullania dermatitis"), lichens, fungi (e.g. bronchopulmonary aspergillosis), actinomycetes or other plants which grow on wood. Microorganisms and fungal spores, associated with wood, may become airborne and provoke allergic responses. Other chronic responses associated with exposure to wood dusts include conjunctivitis, simple bronchitis and non-asthmatic chronic airflow obstruction.</p> <p>Epidemiologic studies in furniture workers show an increased risk of lung, tongue, pharynx and nasal cancer (adenocarcinoma). Workers in timber industries, with a history of exposure to wood dust, have shown increased occurrence of lung, liver and vocal cavity cancer. An excess risk of leukaemia amongst mill-wrights probably is associated with various components used in wood preservation. It is now suggested that sinonasal cancers may be caused by both hardwoods and softwoods (1). The causative agent or agents are unknown although certain aldehydes or their quinone oxidation products have been implicated. Exposure standards for the softwoods reflect the apparent low risk for upper respiratory tract involvement among workers in the building industry. A significantly lower exposure standard for hardwoods is based on impaired nasal mucociliary hyperplasia reported to contribute to nasal</p>

adenocarcinoma and related hyperplasia in furniture workers. Exposure standards for both hard and softwoods specifically exclude the issue of occupational asthma and related allergic respiratory response associated with exposure to red cedar dusts and similar woods.
|Wood dust may cause skin and respiratory sensitisation.

CHH Boron Treated Pine Solid Wood	TOXICITY	IRRITATION
	Not Available	Not Available
disodium octaborate	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1]
	Inhalation (rat) LC50: >2.01 mg/l4 h ^[1]	Skin: no adverse effect observed (not irritating) ^[1]
	Oral (rat) LD50: >250 mg/kg ^[1]	
benzalkonium chloride	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 1560 mg/kg ^[2]	Eye (human): 0.05 mg SEVERE
	Oral (rat) LD50: 240 mg/kg ^[2]	Eye (rabbit): 1mg/24h SEVERE
		Skin (human): 0.15 mg/72h mild
Basazol Red GRL	TOXICITY	IRRITATION
	Oral (rat) LD50: 1630 mg/kg ^[2]	Not Available
2-octyl-4-isothiazolin-3-one	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 690 mg/kg ^[2]	Eye (rabbit): 0.5% non irritant
	Oral (rat) LD50: 550 mg/kg ^[2]	Eye (rabbit): 45% conc CORROSIVE
		Eye (rabbit): 5% conc moderate
		Eye(rabbit):100 mg SEVERE
		Eye: adverse effect observed (irreversible damage) ^[1]
		Skin (rabbit): 45% conc SEVERE
		Skin (rabbit): 500 mg/24 hours
	Skin: adverse effect observed (corrosive) ^[1]	
	Skin: adverse effect observed (irritating) ^[1]	
magnesium nitrate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg ^[1]	Eye (rabbit): 500 mg/24h - mild
	Oral (rat) LD50: >2000 mg/kg ^[1]	Skin (rabbit): 500 mg/24h - mild
isothiazolinones, mixed	TOXICITY	IRRITATION
	dermal (rat) LD50: >1008 mg/kg ^[1]	Eye: adverse effect observed (irreversible damage) ^[1]
	Oral (rat) LD50: 53 mg/kg ^[2]	Skin: adverse effect observed (corrosive) ^[1]
		Skin: adverse effect observed (irritating) ^[1]

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

BENZALKONIUM CHLORIDE	For alkyldimethylbenzylammonium chlorides (ADMBAC):
	<p>Alkyldimethylbenzylammonium chlorides (ADMBAC) are included in Annex 1 of list of dangerous substances of Council Directive 67/548/EEC with the following classification: C8-18 ADMBAC are classified as Harmful (Xn) with the risk phrases R21/22 (Harmful in contact with skin and if swallowed) and Corrosive (C) with R34 (Causes burns) and (N) with R50 (Very toxic to aquatic organisms).</p> <p>Acute toxicity: Absorption of these alkyldimethylbenzylammonium (ADMBAC) cationic surfactants through the skin is anticipated to be low. Different homologues of ADMBAC showed a moderate acute toxicity in experiments with rats and mice.</p> <p>The relationship between alkyl chain length and the acute toxicity of various ADMBAC homologues (C8 to C19) has been studied in mice. The studies indicated that chain lengths above C16 had a markedly lower acute toxicity and that even-numbered alkyl chain homologues appeared to be less toxic than odd-numbered carbon chains. It was suggested that the decrease in toxicity above C16 was due to a decreased water-solubility.</p> <p>Irritation studies: ADMBAC is a skin irritant in animals at concentrations above 0.1% . A nonspecified ADMBAC caused skin irritation and minor to moderate eye irritation at 0.625 and 1.25% concentrations. Inflammation of the eye and deterioration of vision occurred 3 days after change of soaking solution for a soft contact lens to a solution containing C8-18 ADMBAC.</p> <p>Sensitisation: The sensitisation potential of ADMBAC has been examined in an experiment including 2,295 patients with suspected allergic contact dermatitis. Some of the patients (5.5%) showed positive reactions after exposure to 0.1% ADMBAC. These results were surprising as ADMBAC was not suspected to be a sensitiser. The high irritating potential of ADMBAC, even at low concentrations, could be an explanation of the observed results as the patch test reactions may have been false positives. However, another group of 2,806 patients with eczema was patch tested with 0.1% ADMBAC, and 2.13% of these patients appeared to be sensitised. Skin sensitisation was noted in patients patch tested with ADMBAC in aqueous solutions at 0.07 to 0.1% surfactant. However, there was no incidence of skin sensitisation in a population of normal individuals tested with 0.1% ADMBAC. This indicates that individuals with diseased skin may be at risk for sensitisation to ADMBAC.</p> <p>Genetic toxicity: C16 ADMBAC did not induce transformation of the cells in an in vitro bioassay for carcinogenesis by using cultures of Syrian golden hamster embryo cells. The mutagenic potential of this surfactant was also examined by using <i>Salmonella typhimurium</i> strains - no mutagenic effects were seen). In other short-term genotoxicity assays (Salmonella/microsome assay) and rec-assay (bacterial DNA repair test) C16 ADMBAC was tested for ability to cause DNA damage in bacteria. None of the data indicated any mutagenic effects.</p> <p>Carcinogenicity: Lifetime studies of ADMBAC were conducted in mice and rabbits that were treated with 8.5 to 17% surfactant dissolved in acetone or</p>

	<p>methanol. ADMBAC was applied repeatedly to the skin and ADMBAC caused ulceration, inflammations and scars in many animals, but no tumours.</p> <p>Developmental toxicity: No embryotoxic activity was detected when C18 ADMBAC was applied topically to pregnant rats during the period of major organogenesis (day 6-15) at doses up to 6.6%, which was sufficient to cause adverse maternal reactions. Intravaginal instillation of ADMBAC (single doses up to 200 mg/kg) to pregnant rats on day one of the gestation caused abnormal foetal development and embryotoxicity</p> <p>Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Torben Madsen et al: Miljøministeriet (Danish Environmental Protection Agency)</p> <p>For quaternary ammonium compounds (QACs):</p> <p>Quaternary ammonium compounds (QACs) are cationic surfactants. They are synthetic organically tetra-substituted ammonium compounds, where the R substituents are alkyl or heterocyclic radicals. A common characteristic of these synthetic compounds is that one of the R's is a long-chain hydrophobic aliphatic residue</p> <p>The cationic surface active compounds are in general more toxic than the anionic and non-ionic surfactants. The positively-charged cationic portion is the functional part of the molecule and the local irritation effects of QACs appear to result from the quaternary ammonium cation.</p> <p>Due to their relative ability to solubilise phospholipids and cholesterol in lipid membranes, QACs affect cell permeability which may lead to cell death. Further QACs denature proteins as cationic materials precipitate protein and are accompanied by generalised tissue irritation.</p> <p>It has been suggested that the experimentally determined decrease in acute toxicity of QACs with chain lengths above C16 is due to decreased water solubility.</p> <p>In general it appears that QACs with a single long-chain alkyl groups are more toxic and irritating than those with two such substitutions.</p> <p>The straight chain aliphatic QACs have been shown to release histamine from minced guinea pig lung tissue. However, studies with benzalkonium chloride have shown that the effect on histamine release depends on the concentration of the solution. When cell suspensions (11% mast cells) from rats were exposed to low concentrations, a decrease in histamine release was seen. When exposed to high concentrations the opposite result was obtained.</p> <p>In addition, QACs may show curare-like properties (specifically benzalkonium and cetylpyridinium derivatives, a muscular paralysis with no involvement of the central nervous system. This is most often associated with lethal doses. Parenteral injections in rats, rabbits and dogs have resulted in prompt but transient limb paralysis and sometimes fatal paresis of the respiratory muscles. This effect seems to be transient.</p> <p>From human testing of different QACs the generalised conclusion is obtained that all the compounds investigated to date exhibit similar toxicological properties.</p> <p>Long term/repeated exposure:</p> <p>Inhalation: A group of 196 farmers (with or without respiratory symptoms) were evaluated for the relationship between exposure to QACs (unspecified, exposure levels not given) and respiratory disorders by testing for lung function and bronchial responsiveness to histamine. After histamine provocation statistically significant associations were found between the prevalence of mild bronchial responsiveness (including asthma-like symptoms) and the use of QACs as disinfectant. The association seems even stronger in people without respiratory symptoms.</p>
BASAZOL RED GRL	BASF SDS for acetic acid solution
2-OCTYL-4-ISOTHIAZOLIN-3-ONE	ROHM & HAAS Data ADI: 0.03 mg/kg/day NOEL: 60 mg/kg/day
MAGNESIUM NITRATE	Magnesium nitrate hexahydrate is a methaemoglobin-forming agent which if inhaled or ingested in high enough concentrations may cause fatigue, headache, dizziness. (Source: I.L.O. Encyclopaedia)
ISOTHIAZOLINONES, MIXED	No significant acute toxicological data identified in literature search.
BENZALKONIUM CHLORIDE & 2-OCTYL-4-ISOTHIAZOLIN-3-ONE & ISOTHIAZOLINONES, MIXED	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 reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.
2-OCTYL-4-ISOTHIAZOLIN-3-ONE & ISOTHIAZOLINONES, MIXED	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. 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.
MAGNESIUM NITRATE & ISOTHIAZOLINONES, MIXED	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

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

Legend: ✘ – Data either not available or does not fill the criteria for classification
✔ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

CHH Boron Treated Pine Solid Wood	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
disodium octaborate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	74mg/L	2

Continued...

CHH Boron Treated Pine Solid Wood

	EC50	48	Crustacea	=2528mg/L	1
	EC50	96	Algae or other aquatic plants	15.4mg/L	2
	NOEC	768	Fish	0.009mg/L	2
benzalkonium chloride	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.32mg/L	4
	EC50	48	Crustacea	0.018mg/L	4
	EC50	72	Algae or other aquatic plants	0.056mg/L	4
	NOEC	1	Algae or other aquatic plants	0.0025mg/L	4
Basazol Red GRL	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
2-octyl-4-isothiazolin-3-one	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.047mg/L	4
	EC50	48	Crustacea	0.18mg/L	4
	EC50	96	Algae or other aquatic plants	0.146mg/L	3
	BCF	1608	Fish	0.05mg/L	4
NOEC	504	Crustacea	0.035mg/L	2	
magnesium nitrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	1-378mg/L	2
	EC50	48	Crustacea	490mg/L	2
NOEC	720	Fish	58mg/L	2	
isothiazolinones, mixed	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.129mg/L	2
	EC50	48	Crustacea	0.007mg/L	2
	EC50	72	Algae or other aquatic plants	0.0063mg/L	2
NOEC	48	Algae or other aquatic plants	0.00049mg/L	2	

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

Although treated, the solid wood will decay on ground contact.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2-octyl-4-isothiazolin-3-one	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
2-octyl-4-isothiazolin-3-one	LOW (LogKOW = 2.561)

Mobility in soil

Ingredient	Mobility
2-octyl-4-isothiazolin-3-one	LOW (KOC = 2120)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal. ▶ Bury residue in an authorised landfill.
------------------------------	--

Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Not applicable as substance/ material is non hazardous.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO Not Applicable
HAZCHEM	Not Applicable

Land transport (UN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

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

Not Applicable

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture**

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
Not Applicable	Not Applicable

DISODIUM OCTABORATE(12008-41-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data

BENZALKONIUM CHLORIDE(8001-54-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data

International Maritime Dangerous Goods Requirements (IMDG Code)

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

BASAZOL RED GRL(62163-53-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations

New Zealand Land Transport Rule: Dangerous Goods 2005 - Schedule 1 Quantity limits

International Maritime Dangerous Goods Requirements (IMDG Code)

United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

New Zealand Inventory of Chemicals (NZIoC)

2-OCTYL-4-ISOTHIAZOLIN-3-ONE(26530-20-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data

International Maritime Dangerous Goods Requirements (IMDG Code)

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

MAGNESIUM NITRATE(10377-60-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data

International Maritime Dangerous Goods Requirements (IMDG Code)

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

ISOTHIAZOLINONES, MIXED(55965-84-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations

New Zealand Inventory of Chemicals (NZIoC)

International Maritime Dangerous Goods Requirements (IMDG Code)

United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity beyond which controls apply for closed containers	Quantity beyond which controls apply when use occurring in open containers
Not Applicable	Not Applicable	Not Applicable

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AICS	No (isothiazolinones, mixed; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Canada - DSL	No (solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Canada - NDSL	No (magnesium nitrate; 2-octyl-4-isothiazolin-3-one; isothiazolinones, mixed; disodium octaborate; benzalkonium chloride; Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
China - IECSC	No (solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Europe - EINEC / ELINCS / NLP	No (isothiazolinones, mixed; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Japan - ENCS	No (isothiazolinones, mixed; benzalkonium chloride; Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Korea - KECI	No (Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
New Zealand - NZIoC	No (solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Philippines - PICCS	No (Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
USA - TSCA	No (isothiazolinones, mixed; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Taiwan - TCSI	No (solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Mexico - INSQ	No (isothiazolinones, mixed; disodium octaborate; Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Vietnam - NCI	No (solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Russia - ARIPS	No (Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Thailand - TECI	No (2-octyl-4-isothiazolin-3-one; isothiazolinones, mixed; Basazol Red GRL; solid pine wood; treatment residuals may include:) Non-disclosed ingredients
Legend:	<i>Yes = All declared ingredients are on the inventory</i> <i>No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i>

SECTION 16 OTHER INFORMATION

Revision Date	11/04/2019
Initial Date	02/08/2006

SDS Version Summary

Version	Issue Date	Sections Updated
13.1.1.1	03/07/2018	Classification, Ingredients, Personal Protection (Respirator)
14.1.1.1	11/04/2019	Ingredients

Other information**Ingredients with multiple cas numbers**

Name	CAS No
disodium octaborate	12008-41-2, 12280-03-4
Basazol Red GRL	62163-53-5, 69577-81-7
magnesium nitrate	13446-18-9, 10377-60-3, 10213-15-7
isothiazolinones, mixed	55965-84-9, 96118-96-6

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

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

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 CHEMWATCH.
 TEL (+61 3) 9572 4700.