Foamguard- F3 Fluorine Free Foam Concentrate

Fire and Safety Industries Pty Ltd

Chemwatch Hazard Alert Code: **3**

Chemwatch: **67-5455**
Version No: **5.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **28/08/2019**
Print Date: **29/08/2019**
S.GHS.AUS.EN

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

Product Identifier

Product name	Foamguard- F3 Fluorine Free Foam Concentrate
Synonyms	Product code: FSI 13000
Other means of identification	Not Available

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

Relevant identified uses	Fire suppression foam concentrate.

Details of the supplier of the safety data sheet

Registered company name	**Fire and Safety Industries Pty Ltd**
Address	2 Devlan Street Mansfield QLD 4122 Australia
Telephone	61 7 3347 0200
Fax	61 7 3347 0299
Website	www.fireandsafety.com.au
Email	info@fireandsafety.com.au

Emergency telephone number

Association / Organisation	**Fire and Safety Industries Pty Ltd**
Emergency telephone numbers	**61 7 3347 0200**
Other emergency telephone numbers	**Not Available**

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)	
SIGNAL WORD	**DANGER**

Hazard statement(s)

H315	Causes skin irritation.
H318	Causes serious eye damage.

Precautionary statement(s) Prevention

P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment (see advice on this label).
P362	Take off contaminated clothing and wash before reuse.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P332+P313	If skin irritation occurs: Get medical advice/attention.

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
142-31-4	<10	sodium octyl sulfate
112-34-5	<5	diethylene glycol monobutyl ether
68139-30-0	<5	N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine
68515-73-1	<3	D-glucose, decyl octyl ethers, oligomeric
61789-40-0	<3	cocamidopropylbetaine
Not Available	>60	Ingredients determined not to be hazardous

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.
Inhalation	If fumes, aerosols or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary.
Ingestion	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

There is no restriction on the type of extinguisher which may be used.
Use extinguishing media suitable for surrounding area.

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

Advice for firefighters

Fire Fighting	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.
Fire/Explosion Hazard	The material is not readily combustible under normal conditions. However, it will break down under fire conditions and the organic component may burn. Not considered to be a significant fire risk. Heat may cause expansion or decomposition with violent rupture of containers. Decomposes on heating and may produce toxic fumes of carbon monoxide (CO). May emit acrid smoke. Other decomposition products include: carbon dioxide (CO_2) nitrogen oxides (NOx) sulfur oxides (SOx) other pyrolysis products typical of burning organic material. May emit corrosive fumes.
HAZCHEM	Not Applicable

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	Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal.
Major Spills	Moderate hazard. Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid contact with moisture. Avoid contact with incompatible materials. When handling, **DO NOT** eat, drink or smoke. Keep containers securely sealed when not in use. **DO NOT** allow clothing wet with material to stay in contact with skin
Other information	Storage temperature -30C to 49C. 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	Polyethylene or polypropylene container. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Avoid reaction with oxidising agents

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
diethylene glycol monobutyl ether	Butoxyethoxy)ethanol, 2-(2-; (Diethylene glycol monobutyl ether)	30 ppm	33 ppm	200 ppm

Ingredient	Original IDLH	Revised IDLH
sodium octyl sulfate	Not Available	Not Available
diethylene glycol monobutyl ether	Not Available	Not Available
N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine	Not Available	Not Available
D-glucose, decyl octyl ethers, oligomeric	Not Available	Not Available
cocamidopropylbetaine	Not Available	Not Available

Exposure controls

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

Personal protection	
Eye and face protection	Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable.
Skin protection	See Hand protection below
Hands/feet protection	Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber
Body protection	See Other protection below
Other protection	Overalls. P.V.C. apron. Barrier cream. Skin cleansing cream. Eye wash unit.

Respiratory protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

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)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Yellow to amber colour liquid with pleasant odour; miscible with water.

Physical state	Liquid	**Relative density (Water = 1)**	1.14
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	7-8.5	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	-15	**Viscosity (cSt)**	37
Initial boiling point and boiling range (°C)	95	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	2	**Gas group**	Not Available
Solubility in water	Miscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7

Chemical stability	Unstable in the presence of incompatible materials. Product is considered stable. 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	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	Ingestion may result in nausea, abdominal irritation, pain and vomiting
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition
Eye	If applied to the eyes, this material causes severe eye damage.
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

Foamguard- F3 Fluorine Free Foam Concentrate	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
sodium octyl sulfate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Not Available
	Oral (rat) LD50: >2000 mg/kg[1]	
diethylene glycol monobutyl ether	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[2]	Eye (rabbit): 20 mg/24h moderate
	Oral (rat) LD50: =4500 mg/kg[2]	Eye (rabbit): 5 mg - SEVERE
N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: 5600 mg/kg[2]	Eye: SEVERE *
		Skin (rabbit): non-irritant ***
		Skin: SEVERE *
D-glucose, decyl octyl ethers, oligomeric	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[1]	Eye (rabbit): SEVERE (damage) *
	Oral (rat) LD50: >2000 mg/kg[1]	Skin (rabbit): mild erythema *
cocamidopropylbetaine	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: 2700 mg/kg[2]	Eye: primary irritant *
		Skin: adverse effect observed (irritating)[1]
		Skin: primary irritant *

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*

SODIUM OCTYL SULFATE	For alkyl sulfates; alkane sulfonates and alpha-olefin sulfonates Most chemicals of this category are not defined substances, but mixtures of homologues with different alkyl side chains. Common physical and/or biological pathways result in structurally similar breakdown products, and are, together with the surfactant properties, responsible for similar environmental behavior and essentially identical hazard profiles with regard to human health. Acute toxicity: These substances are well absorbed after ingestion; penetration through the skin is however, poor. After absorption, these chemicals are distributed mainly to the liver. In animals, signs of poisoning by mouth include lethargy, hair standing up, decreased motor activity and breathing rate, and diarrhea. Poisoning from skin contact caused irritation, tremor, tonic-clonic convulsions, breathing failure, and weight loss. The C-12-akyl sulfate sodium salt caused the greatest effect. Alkyl sulfates are irritating to the skin, harmful if swallowed and at risk of causing serious damage to the eyes. They are metabolised by the liver and excreted via urine. They produce dose-dependent toxicity depending on their structure. They do not cause cancer, reproductive or genetic defects. However, at levels that are toxic to the mother, it may produce foetal defects during organ formation.
DIETHYLENE GLYCOL MONOBUTYL ETHER	This category includes diethylene glycol ethyl ether (DGEE), diethylene glycol propyl ether (DGPE) diethylene glycol butyl ether (DGBE) and diethylene glycol hexyl ether (DGHE) and their acetates. Studies show that they can cause kidney and liver damage, skin and eye irritation as well as blood changes but do not cause damage to the reproductive, genetic and developmental abnormalities, sensitisation or respiratory systems. However, DGEE is reported to cause sperm insufficiency.
N-COCOAMIDOPROPYL-N,N-DIMETHYL-2-HYDROXYSULFOBETAINE	The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. 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. Dermal (rabbit): >2000 mg/kg * ** Eye (rabbit): non-irritant *** * Betz Dearborn ** estimated for 40-70% aqueous solution *** Lonza Inc
D-GLUCOSE, DECYL OCTYL ETHERS, OLIGOMERIC	At very high concentrations, alkyl glycosides are considered irritant, with the risk of serious damage to the eyes. However, it does not irritate the skin.

COCAMIDOPROPYLBETAINE	Possible cross-reactions to several fatty acid amidopropyl dimethylamines were observed in patients that were reported to have allergic contact dermatitis to a baby lotion that contained 0.3% oleamidopropyl dimethylamine. Stearamidopropyl dimethylamine at 2% in hair conditioners was not a contact sensitiser when tested neat or diluted to 30%. However, irritation reactions were observed. A 10-year retrospective study found that out of 46 patients with confirmed allergic eyelid dermatitis, 10.9% had relevant reactions to oleamidopropyl dimethylamine and 4.3% had relevant reactions to cocamidopropyl dimethylamine. Several cases of allergic contact dermatitis were reported in patients from the Netherlands that had used a particular type of body lotion that contained oleamidopropyl dimethylamine. In 12 patients tested with their personal cosmetics, containing the fatty acid amidopropyl dimethylamine cocamidopropyl betaine (CAPB), 9 had positive reactions to at least one dilution and 5 had irritant reactions. All except 3 patients, who were not tested, had 2 or 3+ reaction to the 3,3-dimethylaminopropylamine (DMAPA, the reactant used in producing fatty acid amidopropyl dimethylamines) at concentrations as low as 0.05%. Most undiluted cationic surfactants satisfy the criteria for classification as Harmful (Xn) with R22 and as Irritant (Xi) for skin and eyes with R38 and R41. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. Amphoteric surfactants are easily absorbed in the gut and partly excreted unchanged in the faeces. It has not been shown to accumulate in the body. Concentrated betaines are expected to irritate the skin and eyes, but dilute solutions only irritate the eyes. No evidence of delayed contact hypersensitivity was found in animal testing. Tests for mutation-causing potential have proved negative. * [Van Waters and Rogers] ** [Canada Colors and Chemicals Ltd.] Toxicokinetics, metabolism and distribution. Absorption of the chemical across dermal and gastrointestinal membranes is possible based on the relatively low molecular weight of the chemical (500 Da) and given that it is a surfactant (EC, 2003). Acute toxicity. Acute oral toxicity studies in rats and mice indicated that the LD50 values of the chemical (at 30-35.61% concentration) ranged from 1800 mg/kg bw (male rats) up to 5000 mg/kg bw, with mortalities noted in most studies (CIR, 2010). Of note is an acute oral toxicity study conducted in Sprague-Dawley rats (5/sex) at a single dose of 1800 mg/kg bw (formulation containing 35.61% of the chemical), where no males but all five females died. Overall, the data suggests that mortality occurs following oral administration of the chemical and that it may be an acute oral toxicant. Therefore, based on these data the chemical may be harmful if swallowed. An acute dermal toxicity study in rats was conducted using 2000 mg/kg bw of a 31% formulation of the chemical (CIR, 2010). Irritation was observed, but there were no clinical signs of systemic toxicity or mortalities. The lack of effects in this study suggests that the chemical is likely to be of low acute dermal toxicity. Irritation. The chemical has a quaternary ammonium functional group, which is a structural alert for corrosion Numerous skin irritation studies, conducted with formulations containing 7.5-30% of the chemical, indicated that the chemical has irritant properties. The studies were, in-general, conducted under occlusive conditions, with exposure times of up to 24 hours (7.5-10%). Based on the information available, the chemical is likely to be a skin irritant. Eye irritation studies with the chemical showed that corrosive and necrotic effects occurred at 30% whereas less severe effects were observed at lower concentrations of 2.3-10% The chemical is classified with the risk phrase R36: Irritating to eyes, however, based on studies conducted on the chemical it may be a severe eye irritant. Sensitisation. The chemical has a quaternary ammonium functional group, which is a structural alert for sensitisation (Conflicting results have been obtained with the chemical in animal studies. Positive results were reported in an LLNA study (an EC3 value was not reported). In addition, positive results were obtained in two guinea pig maximisation studies conducted by a single laboratory, the first at 3% induction and 3% challenge, and the second at 0.15% induction and 0.015% challenge. However, there was no sensitisation in a guinea pig maximisation test when the chemical was tested at 6% induction and 1% challenge. In addition, no sensitisation was observed in another test in guinea pigs at 0.75% induction and 0.02% challenge. No evidence of sensitisation was reported in a HRIPT on a formulation containing the chemical at 0.6% concentration (a 10% dilution of a ~6% formulation) with 110 volunteers. In HRIPT studies on formulations containing the chemical, no evidence of sensitisation was reported at concentrations of 1.87% (88 subjects), 0.93% (93 subjects), 0.3% (100 subjects), 1.5-3.0% (141 subjects), 6.0% (210 subjects), 0.018% (27 subjects). However, positive results were observed in provocative studies conducted on formulations containing the chemical (at 0.3-1% concentration), conducted in subjects diagnosed with various forms of contact dermatitis, suggesting that the chemical may cause reactions in sensitive individuals In one study authors note that sensitisation effects of the chemical (and related compounds) are most likely due to the impurities, including DMAPA and amidopropyl dimethylamines, however, they do not exclude the possibility of the causing the sensitisation. The potential for skin sensit
SODIUM OCTYL SULFATE & N-COCOAMIDOPROPYL-N,N-DIMETHYL-2-HYDROXYSULFOBETAINE	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 diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. 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. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.
DIETHYLENE GLYCOL MONOBUTYL ETHER & N-COCOAMIDOPROPYL-N,N-DIMETHYL-2-HYDROXYSULFOBETAINE & D-GLUCOSE, DECYL OCTYL ETHERS, OLIGOMERIC	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
D-GLUCOSE, DECYL OCTYL ETHERS, OLIGOMERIC & COCAMIDOPROPYLBETAINE	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. 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.

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

Foamguard- F3 Fluorine Free Foam Concentrate	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	Not Available	Not Available	Not Available	Not Available	Not Available
sodium octyl sulfate	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	>100mg/L	2
	EC50	72	Algae or other aquatic plants	>511mg/L	2
	NOEC	1008	Fish	>=1.357mg/L	2
diethylene glycol monobutyl ether	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	LC50	96	Fish	1-300mg/L	2
	EC50	48	Crustacea	4-950mg/L	2
	EC50	72	Algae or other aquatic plants	1-101mg/L	2
	NOEC	96	Algae or other aquatic plants	>=100mg/L	1
N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	Not Available	Not Available	Not Available	Not Available	Not Available
D-glucose, decyl octyl ethers, oligomeric	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	LC50	96	Fish	96.64mg/L	2
	EC50	48	Crustacea	31.62mg/L	2
	EC50	72	Algae or other aquatic plants	7.03mg/L	2
	EC10	504	Crustacea	1.76mg/L	2
	NOEC	504	Crustacea	1mg/L	2
cocamidopropylbetaine	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	LC50	96	Fish	=1mg/L	1
	EC50	48	Crustacea	6.4mg/L	2
	EC50	96	Algae or other aquatic plants	0.55mg/L	2
	NOEC	672	Fish	0.16mg/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*				

Persistence and degradability

Contains readily biodegradable components, Refer to the supplementary information.

Ingredient	Persistence: Water/Soil	Persistence: Air
diethylene glycol monobutyl ether	LOW	LOW

Bioaccumulative potential

Does not contain bioaccumulative components, Refer to the supplementary information.

Ingredient	Bioaccumulation
diethylene glycol monobutyl ether	LOW (BCF = 0.46)

Mobility in soil

Contains component(s) with potential for mobility in soil, Refer to the supplementary information.

Ingredient	Mobility
diethylene glycol monobutyl ether	LOW (KOC = 10)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

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

	Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material). Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADG): 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

SODIUM OCTYL SULFATE(142-31-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

DIETHYLENE GLYCOL MONOBUTYL ETHER(112-34-5) 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 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) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances
IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO

N-COCOAMIDOPROPYL-N,N-DIMETHYL-2-HYDROXYSULFOBETAINE(68139-30-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Inventory of Chemical Substances (AICS)
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

D-GLUCOSE, DECYL OCTYL ETHERS, OLIGOMERIC(68515-73-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)
GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk

COCAMIDOPROPYLBETAINE(61789-40-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
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) - Index
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 Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine; diethylene glycol monobutyl ether; D-glucose, decyl octyl ethers, oligomeric; cocamidopropylbetaine; sodium octyl sulfate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine; cocamidopropylbetaine)
Korea - KECI	No (N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine)
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine; D-glucose, decyl octyl ethers, oligomeric; sodium octyl sulfate)
Vietnam - NCI	Yes
Russia - ARIPS	No (N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine)
Thailand - TECI	No (N-cocoamidopropyl-N,N-dimethyl-2-hydroxysulfobetaine; D-glucose, decyl octyl ethers, oligomeric; sodium octyl sulfate)

Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	28/08/2019
Initial Date	23/09/2016

SDS Version Summary

Version	Issue Date	Sections Updated
4.1.1.1	22/03/2019	Acute Health (skin), Classification, Disposal, Environmental, Fire Fighter (fire/explosion hazard), Handling Procedure, Ingredients, Personal Protection (other), Personal Protection (Respirator), Physical Properties
5.1.1.1	28/08/2019	Environmental

Other information

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

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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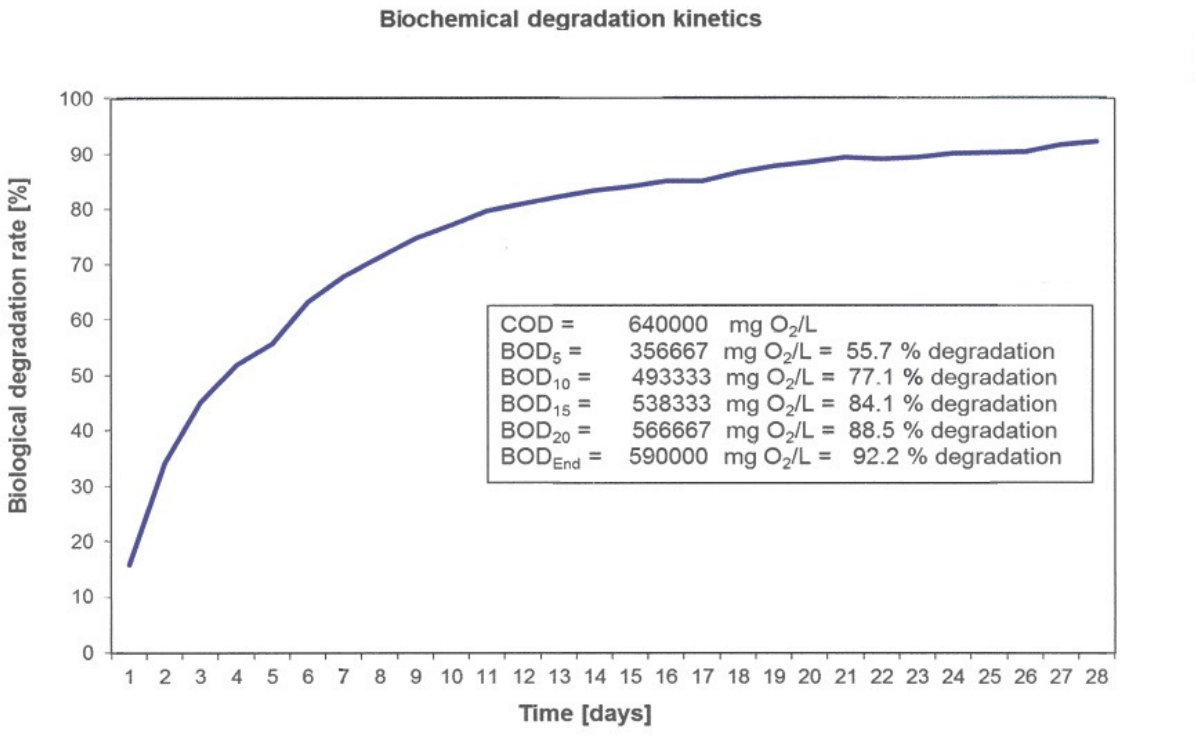
FOAMGUARD F3 FLUORINE FREE FOAM CONCENTRATE
SDS SUPPLEMENTARY INFORMATION

BIODEGRADATION:

The biodegradability of Foamguard F3 Fluorine Foam Concentrate was established by manometric means in general accordance with the OECD Method No. 301F:1992-07 (Manometric Respirometry) through biochemical oxygen demand. The last mentioned procedure not only reflected a measure for the oxidative degradation of the organic substance microbiologically, but also allowed statements to be made about the kinetics of the degradation on the basis of the relevant curve progression. The Foamguard F3 Fluorine Foam was determined and declared to be readily biodegradable since the ratio BOD5/COD is >0.5 according to Regulation (EC) Nº 1272/2008, being the degradation rates for the test substance investigated of 55.7% after a period of 5 days (BOD5= 55.7%).

BOD28 (28-Day) - 590000 mg O2/L = 92.2%. ('Rapid degradability' as per (EC) Nº 1272/2008)
COD - 640000 mg O2/L.

Calculated Biodegradation: >99% in ~43 days.



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AQUATIC TOXICITY DATA:

Based on the results of the toxicological examination described (acute toxicity in relation to fish, daphnia and algae) the following results can be summarised for the Foamguard F3 Fluorine Foam Concentrate:

Method	Effect Concentration/ Unit	Toxicity value
Fish toxicity OECD 203	LC_{50}	140 mg/l
	NOEC	100 mg/l
Daphnia toxicity OECD 202	EC_{50}	130 mg/l
	NOEC	75 mg/l
Algae toxicity OECD 201	IC_{50}	60 mg/l
	IC_{10}	1.5 mg/l

From the results on the Fish toxicity (LC50) and Daphnia toxicity (EC50) the Foamguard F3 Fluorine Foam Concentrate would be classified as Practically Nontoxic

Aquatic EC or LC50 (freshwater)

Toxicity Category	Range (mg/L)
Super Toxic	< 0.01
Extremely Toxic	0.01 –0.1
Highly Toxic	0.1 –1
Moderately Toxic	1 –10
Slightly Toxic	10 –100
Practically Nontoxic	100 –1,000
Relatively Harmless	> 1,000

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From the results on the Algae toxicity (IC50) the Foamguard F3 Fluorine Foam Concentrate would be classed as Slightly Toxic.

ENVIRONMENTAL INFORMATION ON FOAM RUNOFF DURING FIREFIGHTING ACTIVITIES:

Firefighting services which use Foamguard F3 Fluorine Foam Concentrate in actual firefighting activities will release Foamguard F3 Fluorine Foam in its diluted form to soil and sometimes aquatic environments. The rate of its degradation will depend on the characteristics of the receiving environment. This product is expected to rapidly biodegrade once naturally occurring organisms capable of degrading the Foamguard F3 Fluorine Foam solution establish themselves.

DISPOSAL OF PRODUCT:

For disposal of unused or collected material, Fire and Safety Industries Pty Ltd recommends disposing of Foamguard F3 Fluorine Foam by slowly discharging wastes to a properly operating wastewater treatment system. Foamguard F3 Fluorine Foam is deemed as harmless to activated sludge at sufficient dilution and is not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008 and was determined and declared to be rapidly biodegradable. It is always recommended to consult with the local regulators or Authority Holding Jurisdiction (AHJ) to confirm this is an acceptable method of disposal.

If foaming is a problem, it may assist to add one of the follow antifoams (Litres per minute)

Antifoams	**Waste Water Treatment flow (L/Hr)**		
	10,000	**50,000**	**100,000**
Henkel WB-209	0.003333	0.016667	0.033333
GE Silicones AF9020	0.003333	0.016667	0.033333
Henkel Foammaster™ DS	0.003333	0.016667	0.033333
Wacker Silicones SRE	0.003333	0.016667	0.033333
Wacker Silicones SWS-214	0.006667	0.033333	0.066667
GE Silicones AF93	0.003333	0.016667	0.033333
GE Silicones AF72	0.003333	0.016667	0.033333
Wacker Silicones SE-36	0.005	0.025	0.05