MATERIAL SAFETY DATA SHEET

SMOKE-A10S MSDS
SOLO A10S Smoke Can

1. IDENTIFICATION OF SUBSTANCE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name	Solo Smoke Detector Tester #146-6823, 146-6824
Proper shipping name	AEROSOLS

Relevant identified uses of the substand and uses advised against

Relevant identified uses	Application is by spray atomisation from a hand held aerosol pack. Smoke simulation.

Details of the supplier of the safety data sheet

Registered company name	**RS Components**	**RS Components**
Address	25 Pavesi Street Smithfield NSW 2164 Australia	Level 6, Agility CIS Tower, 56 Cawley Street Ellerslie Auckland 1051 New Zealand
Telephone	+1 300 656 636	+64 27 4747122
Fax	+1 300 656 696	+64 9 579 1700
Website	Not available	www.nz.rs-online.com
Emergency telephone number	1800 039 008 (24 hours), +61 3 9573 3112	Not available

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	2		
Toxicity	1		
Body Contact	1		
Reactivity	1		
Chronic	0		

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

Relevant identified uses	Not Applicable
Classification [1]	Flammable Liquid Category 3, Gas under Pressure (Compressed gas)
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
Signal word	WARNING

NSW
18-20 Brookhollow Ave
NORWEST 2153
02 8850 2888
sales@firesense.com.au

VIC
Unit 4, 297 Ingles St
PORT MELBOURNE 3207
03 9646 4557
salesvic@firesense.com.au

QLD
Unit 2, 225 Queensport Rd North
MURARRIE 4172
07 3890 8842
salesqld@firesense.com.au

www.firesense.com.au

Hazard statement(s)

H226	Flammable liquid and vapour.
H280	Contains gas under pressure; may explode if heated.
AUH044	Risk of explosion if heated under confinement.

Precautionary statement(s) Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.

Precautionary statement(s) Response

P370+P378	In case of fire: Use water spray/fog for extinction.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P410+P403	Protect from sunlight. Store in a well-ventilated place.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS No	%[weight]	Name
67-63-0	1-10	isopropanol
64-17-5	not spec	ethanol
57-55-6	not spec	propylene glycol
29118-24-9	85-95	1,3,3,3-tetrafluoropropene

4. FIRST AID MEASURES

Description of first aid measures

Eye Contact	If aerosols come in contact with the eyes: • Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh running water. • Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. • 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 solids or aerosol mists are deposited upon the skin: • Flush skin and hair with running water (and soap if available). • Remove any adhering solids with industrial skin cleansing cream. • DO NOT use solvents. • Seek medical attention in the event of irritation.
Inhalation	If aerosols, fumes or combustion products are inhaled: • Remove to fresh air. • Lay patient down. Keep warm and rested. • Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. • If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or • pocket mask as trained. Perform CPR if necessary. • Transport to hospital, or doctor.
Ingestion	• Not considered a normal route of entry. • Avoid giving milk or oils. • Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

For intoxication due to Freons/ Halons;
A: Emergency and Supportive Measures
- Maintain an open airway and assist ventilation if necessary
- Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:
- There is no specific antidote

C: Decontamination
- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- Ingestion; (a) Prehospital: Administer activated charcoal, if available. DO NOT induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:
- There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition
- Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- No specific antidote.
- Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- If lavage is performed, suggest endotracheal and/or esophageal control.
- Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- Treatment based on judgment of the physician in response to reactions of the patient

Treat symptomatically.
To treat poisoning by the higher aliphatic alcohols (up to C7):
- Gastric lavage with copious amounts of water.
- It may be beneficial to instill 60 ml of mineral oil into the stomach.
- Oxygen and artificial respiration as needed.
- Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement unless shock or severe acidosis threatens.
- To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
- Haemodialysis if coma is deep and persistent. [GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, Ed 5)

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

ADVANCED TREATMENT
- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- If the patient is hypoglycaemic (decreased or loss of consciousness, tachycardia, pallor, dilated pupils, diaphoresis and/or dextrose strip or glucometer readings below 50 mg), give 50% dextrose.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

EMERGENCY DEPARTMENT
- Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
- Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
- Acidosis may respond to hyperventilation and bicarbonate therapy.
- Haemodialysis might be considered in patients with severe intoxication.
- Consult a toxicologist as necessary. BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

For C8 alcohols and above.

Symptomatic and supportive therapy is advised in managing patients.

5. FIRE FIGHTING MEASURES

Extinguishing media

SMALL FIRE:
- Water spray, dry chemical or CO2

LARGE FIRE:
- Water spray or fog

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. • May be violently or explosively reactive. • Wear breathing apparatus plus protective gloves. • Prevent, by any means available, spillage from entering drains or water course.
Fire/Explosion Hazard	• Non combustible. • Not considered to be a significant fire risk. • Heating may cause expansion or decomposition leading to violent rupture of containers. • Aerosol cans may explode on exposure to naked flames. Decomposition may produce toxic fumes of: -carbon dioxide (CO2) -hydrogen fluoride -other pyrolysis products typical of burning organic material. **Contains low boiling substance:** Closed containers may rupture due to pressure buildup under fire conditions.
HAZCHEM	• Not Applicable

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

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.
Major Spills	• Clear area of personnel and move upwind. • Alert Fire Brigade and tell them location and nature of hazard. • May be violently or explosively reactive. • Wear breathing apparatus plus protective gloves.

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

7. HANDLING & STORAGE

Precautions for safe handling

Safe Handling	• DO NOT allow clothing wet with material to stay in contact with skin • Avoid all personal contact, including inhalation. • Wear protective clothing when risk of exposure occurs. • Use in a well-ventilated area. • Prevent concentration in hollows and sumps.
Other Information	• Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can.

Conditions for safe storage, including any incompatibilities

Suitable container	• DO NOT use aluminium or galvanised containers • Aerosol dispenser. • Check that containers are clearly labelled.
Storage incompatibility	• Avoid reaction with oxidising agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

| OCCUPATIONAL EXPOSURE LIMITS (OEL)

| INGREDIENT DATA

Source	Ingredients	Material Name	TWA	STEL	Peak	Notes
Australia Exposure Standards	isopropanol	Isopropyl alcohol	400 ppm / 983 mg/m3	1230 mg/m3 / 500ppm	Not Available	Not Available
Australia Exposure Standards	ethanol	Ethyl alcohol	1000 ppm / 1880 mg/m3	Not Available	Not Available	Not Available

Source	Ingredients	Material Name	TWA	STEL	Peak	Notes
Australia Exposure Standards	propylene glycol	Propane-1,2-diol: particulates only	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	propylene glycol	Propane-1,2-diol total: (vapour & particulates)	150 ppm / 474 mg/m3	Not Available	Not Available	Not Available

| EMERGENCY LIMITS

Ingredients	Material Name	TEEL-1	TEEL-2	TEEL-3
isopropanol	Isopropyl alcohol	400 ppm	2000 ppm	12000 ppm
ethanol	Ethyl alcohol; (Ethanol)	Not Available	Not Available	15000 ppm
propylene glycol	Polypropylene glycols	30 mg/m3	330 mg/m3	2,000 mg/m3
propylene glycol	Propylene glycol; (1,2-Propanediol)	30 mg/m3	1,300 mg/m3	7,900 mg/m3
1,3,3,3-tetrafluoropropene	HFO-1234ze; 1,3,3,3-Tetrafluoropropylene	1,400 ppm	Not Available	Not Available

Ingredients	Original IDLH	Revised IDLH
isopropanol	2,000 [LEL] ppm	Not Available
ethanol	3,300 [LEL] ppm	Not Available
propylene glycol	Not Available	Not Available
1,3,3,3-tetrafluoropropene	Not Available	Not Available

| MATERIAL DATA

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.
Personal protection	
Eye and face protection	No special equipment for minor exposure i.e. when handling small quantities. OTHERWISE: For potentially moderate or heavy exposures: • Safety glasses with side shields. NOTE: Contact lenses pose a special hazard; soft lenses may absorb irritants and ALL lenses concentrate them.
Skin protection	See Hand protection below
Hands/feet protection	No special equipment needed when handling small quantities. OTHERWISE: • For potentially moderate exposures: Wear general protective gloves, eg. light weight rubber gloves. • For potentially heavy exposures: Wear chemical protective gloves, eg. PVC. and safety footwear.
Body protection	• See Other protection below
Other protection	No special equipment needed when handling small quantities. OTHERWISE: • Overalls. • Skin cleansing cream. • Eyewash unit.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Not Available

Physical State	Liquid
Odour	Not Available
Odour Threshold	Not Available
pH (as supplied)	Not Applicable
Melting/freezing point (°C)	Not Available
Initial boiling point (°C)	-19 (IBP)
Flash point (°C)	>55
Evaporation rate	Not Available
Flammability	Flammable.
Upper Explosive Limit (%)	Not Available
Lower Explosive Limit (%)	Not Available
Vapour pressure (kPa)	419.2 @20C
Solubility in water (g/L)	Immiscible
Vapour density (Air = 1)	Not Available

Relative density (Water = 1)	1.08
Partition coefficient n-octanol/water	Not Available
Auto-ignition temperature (°C)	368
Decomposition temperature	Not Available
Viscosity (cSt)	Not Available
Molecular weight (g/mol)	Not Applicable
Taste	Not Available
Explosive properties	Not Available
Oxidising properties	Not Available
Surface Tension (dyn/cm or mN/m)	Not Available
Volatile Component (%vol)	9.49
Gas group	Not Available
pH as a solution (1%)	Not Applicable
VOC g/L	102.5

10. STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	• Elevated temperatures. • Presence of open flame. • Product is considered stable. • Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Inhaled Cont.	Exposure to high concentrations of fluorocarbons may produce cardiac arrhythmias or cardiac arrest due sensitisation of the heart to adrenalin or noradrenalin. Deaths associated with exposures to fluorocarbons (specifically halogenated aliphatics) have occurred in occupational settings and in inhalation of bronchodilator drugs. Bronchospasm consistently occurs in human subjects inhaling fluorocarbons. At a measured concentration of 700 ppm of one of the commercially available aerosols there is a biphasic change in ventilatory capacity, the first reduction occurring within a few minutes and the second delayed up to 30 minutes. Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure. WARNING:Intentional misuse by concentrating/inhaling contents may be lethal. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Overexposure is unlikely in this form.
Skin Contact	Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Spray mist may produce discomfort. In common with other halogenated aliphatics, fluorocarbons may cause dermal problems due to a tendency to remove natural oils from the skin causing irritation and the development of dry, sensitive skin. They do not appear to be appreciably absorbed. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds 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.
Eye	Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Direct contact with the eye may not cause irritation because of the extreme volatility of the gas; however concentrated atmospheres may produce irritation after brief exposures.
Chronic	Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Halogenated oxiranes may arise following epoxidation of haloalkenes. The metabolism of haloethylenes by microsomal oxidation leading to epoxide formation across the double bond has been proposed. The resulting oxiranes are highly reactive and may covalently bind to nucleic acids leading to mutations and possible cancers A measure of such potential carcinogenicity is the development of significant preneoplastic foci in livers of treated rats. The carcinogenicity of halogenated oxiranes may lie in the reactivity of an epoxide intermediate. It is generally accepted that the fluorocarbons are less toxic than the corresponding halogenated aliphatic based on chlorine. Repeated inhalation exposure to the fluorocarbon FC-11 does not produce pathologic lesions of the liver and other visceral organs in experimental animals. There has been conjecture in non-scientific publications that fluorocarbons may cause leukemia, cancer, sterility and birth defects; these have not been verified by current research. The high incidence of cancer, spontaneous abortion and congenital anomalies amongst hospital personnel, repeatedly exposed to fluorine-containing general anaesthetics, has caused some scientists to call for a lowering of the fluorocarbon exposure standard to 5 ppm since some are mutagens. WARNING: Aerosol containers may present pressure related hazards.

	Toxicity	Irritation
Solo Smoke Detector Tester #146-6823, 146-6824	Not Available	Not Available
isopropanol	Dermal (rabbit) LD50: 12800 mg/kg[2] Inhalation (rat) LC50: 72.6 mg/l/4h[2] Oral (rat) LD50: 5000 mg/kg[2]	Eye (rabbit): 10 mg - moderate Eye (rabbit): 100 mg - SEVERE Eye (rabbit): 100mg/24hr-moderate Skin (rabbit): 500 mg - mild
ethanol	Dermal (rabbit) LD50: 17100 mg/kg[1] Inhalation (rat) LC50: 63926.976 mg/l/4h[2] Oral (rat) LD50: 7060 mg/kg[2]	Eye (rabbit): 500 mg SEVERE Eye (rabbit):100mg/24hr-moderate Skin (rabbit):20 mg/24hr-moderate Skin (rabbit):400 mg (open)-mild
propylene glycol	Dermal (rabbit) LD50: 11890 mg/kg[2] Oral (rat) LD50: 20000 mg/kg[2]	Eye (rabbit): 100 mg - mild Eye (rabbit): 500 mg/24h - mild Skin (human):104 mg/3d Intermit Mod Skin(human):500 mg/7days mild
1,3,3,3-tetrafluoropropene	Inhalation (rat) LC50: >5.4 mg/l/4h*[2]	Not Available

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

ISOPROPANOL	For isopropanol (IPA): Acute toxicity: Isopropanol has a low order of acute toxicity. It is irritating to the eyes, but not to the skin. Very high vapor concentrations are irritating to the eyes, nose, and throat, and prolonged exposure may produce central nervous system depression and narcosis. Human volunteers reported that exposure to 400 ppm isopropanol vapors for 3 to 5 min. 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. The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
PROPYLENE GLYCOL	The acute oral toxicity of propylene glycol is very low, and large quantities are required to cause perceptible health damage in humans. Serious toxicity generally occurs only at plasma concentrations over 1 g/L, which requires extremely high intake over a relatively short period of time. It would be nearly impossible to reach toxic levels by consuming foods or supplements, which contain at most 1 g/kg of PG. Cases of propylene glycol poisoning are usually related to either inappropriate intravenous administration or accidental ingestion of large quantities by children.The potential for long-term oral toxicity is also low.
1,3,3,3- TETRAFLUOROPROPENE	The fluoroalkenes vary widely in acute inhalation toxicity. Those, such as perfluoroisobutylene, PFIB, the most highly toxic member, attacks the pulmonary epithelium of rats eventuating in edema and death after a delay of about one day. Other fluoroalkenes, such as hexafluoropropylene (HFP) or chlorotrifluoroethylene (CTFE), also cause pulmonary injury but at lower concentrations produce concentration dependent changes in the renal concentrating mechanism of the rat. Changes in the CNS of rats and rabbits have also been reported for CTFE. Disinfection by products (DBPs) re formed when disinfectants such as chlorine, chloramine, and ozone react with organic and inorganic matter in water. The observations that some DBPs such as trihalomethanes (THMs), di-/trichloroacetic acids, and 3-chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone (MX) are carcinogenic in animal studies have raised public concern over the possible adverse health effects of DBPs. To date, several hundred DBPs have been identified. Numerous haloalkanes and haloalkenes have been tested for carcinogenic and mutagenic activities. Inhalation (rat) NOEL (28 days): >1.5 mg/l * * Vendor HFO-1234ze is not likely to accumulate in the bodies of humans or animals HFO-1234ze is practically non-toxic. Short-term exposures at levels higher than 10% have not induced cardiac sensitization to adrenalin nor induced serious toxic effects. Rats and rabbits did not exhibit any serious toxic, developmental or reproductive effects even with exposures to high levels of HFO-1234ze. Based on a series of mutagenicity and genomics studies, the cancer risk for HFO-1234ze is low, no cardiac sensitisation was observed in dogs with exposures up to 120,000 ppm; repeated dose toxicity in rats (13-wk) found mild effects on the heart (NOEL 5,000ppm); in vitro genotoxicity findings include negative Ames Test and negative human lymphocyte chromosome aberration test; in vivo genotoxicity findings in the mouse micronucleus test were negative (inhalation, mammalian bone-marrow cytogenic test with chromosomal analysis).
ETHANOL & PROPYLENE GLYCOL	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 the 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 Sensitivity	⊘	STOT - Repeated Exposure	⊘
Mutagenicity	⊘	Aspiration Hazard	⊘

Legend:

✗ - Data available but does not fill the criteria for classification
✓ - Data available to make classification
⊘ - Data not available to make classification

12. DISPOSAL CONSIDERATIONS

Waste treatmeant methods

Product/Packaging disposal	• DO NOT allow wash water from cleaning or process equipment to enter drains. • It may be necessary to collect all wash water for treatment before disposal. • In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. • Where in doubt contact the responsible authority. • Consult State Land Waste Management Authority for disposal. • Discharge contents of damaged aerosol cans at an approved site. • Allow small quantities to evaporate. • DO NOT incinerate or puncture aerosol cans.

13. TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO
HAZCHEM	Not Applicable

Land Transport (ADG)

UN Number	1950
UN Proper Shipping Name	AEROSOLS
Transport Hazard Class(es)	Class : 2.2 Subrisk : Not Applicable
Packing Group	Not Applicable
Environmental Hazard	Not Applicable
Special Precautions for user	Special Provisions : 63 190 277 327 344 Limited Quantity : 1000ml

Air transport (ICAO-IATA / DGR)

UN Number	1950
UN Proper Shipping Name	AEROSOLS, non-flammable
Transport Hazard Class(es)	ICAO/IATA Class : 2.2 ICAO/IATA Subrisk : Not Applicable ERG Code : 2L
Packing Group	Not Applicable
Environmental Hazard	Not Applicable
Special Precautions for user	Special Provisions : A98 A145 A167 A802 Cargo Only Packing Instructions : 203 Cargo Only Maximum Qty/Pack : 150kg Passenger and Cargo Packing Instructions : 203 Passenger and Cargo Maximum Qty/Pack : 75kg Passenger and Cargo Limited Quantity Packaging Instructions : Y203 Paasenger and Cargo Limited Maximum Qty/Pack : 30kg G

Sea Transport (IMDG-Code / GGVSee)

UN Number	1950
UN Proper Shipping Name	AEROSOLS
Transport Hazard Class(es)	IMDG Class : 2.2 IMDG Subrisk : Not Applicable
Packing Group	Not Applicable
Environmental Hazard	Not Applicable
Special Precautions for user	EMS Number : F-D, S-U Special Provisions : 63 190 277 327 344 381 959 Limited Quantities : 1000ml

14. REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

| ISOPROPANOL(67-63-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

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

Australia Exposure Standards
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

| PROPYLENE GLYCOL(57-55-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)
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) - Schedule 5

| 1,3,3,3-TETRAFLUOROPROPENE(29118-24-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AICS	N (1,3,3,3-tetrafluoropropene)
Canada - DSL	Y
Canada - NDSL	N (propylene glycol; ethanol; isopropanol)
China - IECSC	N (1,3,3,3-tetrafluoropropene)
Europe - EINEC / ELINCS / NLP	N (1,3,3,3-tetrafluoropropene)
Japan - ENCS	Y
Korea - KECI	Y

National Inventory	Status
New Zealand - NZIoC	N (1,3,3,3-tetrafluoropropene)
Philippines - PICCS	N (1,3,3,3-tetrafluoropropene)
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

Disclaimer: MSDS information is provided by the manufacturer