R123

A-Gas (Australia) Pty Ltd

Chemwatch Hazard Alert Code: **2**

Chemwatch: **45366**
Version No: **6.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **08/09/2018**
Print Date: **20/09/2018**
S.GHS.AUS.EN

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

Product Identifier

Product name	R123
Chemical Name	2,2-dichloro-1,1,1-trifluoroethane
Synonyms	CHCl2-CF3; C2-H-Cl2-F3; ethane, 2,2-dichloro-1,1-trifluoroethane; 2,2-dichloro-1,1,1-trifluoroethane; 1,1-dichloro-2,2,2-trifluoroethane; dichlorotrifluoroethane; dichloro(trifluoromethyl)methane; trifluorodichloroethane; FC 123; Freon 123; R 123; R-123; HCFC-123; HCFC 123; hydrochloro fluorocarbon; 1,1,1-trifluoro-2,2-dichloroethane hydro chloro fluoro carbon; halogenated hydrocarbon fluorocarbon; dichlorotrifluorocarbon
Chemical formula	CF3CHCl2
Other means of identification	Not Available
CAS number	306-83-2

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

Relevant identified uses	HCFCs are used in a variety of applications because of their low toxicity, reactivity and flammability. Every permutation of fluorine, chlorine and hydrogen based on methane and ethane has been examined and most have been commercialized. Furthermore, many examples are known for higher numbers of carbon as well as related compounds containing bromine. Uses include refrigerants, blowing agents, propellants in medicinal applications and degreasing solvents. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation. Component of electrical cleaning, degreasing solvents; also dry-cleaning. Replacement of CFCs as air conditioning refrigerants. Ozone depletion potential 0.02/1.00 - low.

Details of the supplier of the safety data sheet

Registered company name	**A-Gas (Australia) Pty Ltd**
Address	9-11 Oxford Rd, Laverton North Victoria 3026 Australia
Telephone	93689208
Fax	Not Available
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	**TOLL CHEMICAL LOGISTICS**
Emergency telephone numbers	1800024973
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Poisons Schedule	Not Applicable
Classification [1]	Carcinogenicity Category 2, Lactation Effects, Chronic Aquatic Hazard Category 3, Acute Aquatic Hazard Category 3, Specific target organ toxicity - repeated exposure Category 2
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

Hazard statement(s)

H351	Suspected of causing cancer.
H362	May cause harm to breast-fed children.
H412	Harmful to aquatic life with long lasting effects.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P263	Avoid contact during pregnancy/while nursing.
P281	Use personal protective equipment as required.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.
P314	Get medical advice/attention if you feel unwell.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

CAS No	%[weight]	Name
306-83-2	>=99	R123

Mixtures

See section above for composition of Substances

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ‣ Wash out immediately 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. ‣ Seek medical attention without delay; if pain persists or recurs seek medical attention. ‣ 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 or combustion products are inhaled remove from contaminated area. ‣ Lay patient down. Keep warm and rested. ‣ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ‣ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ‣ Transport to hospital, or doctor.
Ingestion	If poisoning occurs, contact a doctor or Poisons Information Centre. ‣ Avoid giving milk or oils. ‣ Avoid giving alcohol. ‣ If swallowed do **NOT** induce vomiting. ‣ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

	- Observe the patient carefully. - Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. - Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. - Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
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

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.
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. - May emit corrosive, poisonous fumes. Decomposes on heating and produces acrid and toxic fumes of: carbon dioxide (CO_2) hydrogen chloride phosgene 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

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.

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.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	**Contains low boiling substance:** Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately. ‣ Check for bulging containers. ‣ Vent periodically ‣ Always release caps or seals slowly to ensure slow dissipation of vapours ‣ **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. ‣ Avoid contact with moisture.
Other information	‣ Store in original containers. ‣ Keep containers securely sealed. ‣ Store in a cool, dry area protected from environmental extremes. ‣ Store away from incompatible materials and foodstuff containers. ·Do NOT store halogenated aliphatics in areas containing alkali or alkaline earth metals such as powdered aluminum, zinc, or beryllium

Conditions for safe storage, including any incompatibilities

Suitable container	‣ **DO NOT** use aluminium or galvanised containers ‣ Polyethylene or polypropylene container. ‣ Packing as recommended by manufacturer. ‣ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Haloalkanes: ‣ are highly reactive:some of the more lightly substituted lower members are highly flammable; the more highly substituted may be used as fire suppressants, not always with the anticipated results. ‣ may react with the lighter divalent metals to produce more reactive compounds analogous to Grignard reagents. ‣ may produce explosive compounds following prolonged contact with metallic or other azides ‣ may react on contact with potassium or its alloys - although apparently stable on contact with a wide rage of halocarbons, reaction products may be shock-sensitive and may explode with great violence on light impact; severity generally increases with the degree of halocarbon substitution and potassium-sodium alloys give extremely sensitive mixtures . BRETHERICK L.: Handbook of Reactive Chemical Hazards ‣ react with metal halides and active metals, eg. sodium (Na), potassium (K), lithium (Li),calcium (Ca), zinc (Zn), powdered aluminium (Al) and aluminium alloys, magnesium (Mg) and magnesium alloys.

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
R123	HCFC-123; (Dichloro-1,1,1-trifluoroethane, 2,2-)	150 ppm	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
R123	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.

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.
Skin protection	See Hand protection below
Hands/feet protection	▸ Butyl rubber gloves ·Butyl rubber gloves should be used when handling halogenated aliphatics . ·Nitrile, PVC-coated nitrile, and PVC protective equipment are not recommended The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. ▸ Protective gloves eg. Leather gloves or gloves with Leather facing
Body protection	See Other protection below
Other protection	·Halogen-selective detectors use a specialized sensor that allows the monitor to detect compounds containing fluorine, chlorine, bromine, and iodine with-out interference from other species.These detectors are typically easy to use, feature higher sensitivity than the nonselective detectors (detection limits are typically <5 ppm when used as an area monitor and <1.4 gm/yr [<0.05 oz/yr] when used as a leak pinpointer). ·Compound-Specific Detectors are typically capable of detecting the presence of a single compound without interference from other compounds. ▸ Overalls. ▸ P.V.C. apron. ▸ Barrier cream.

Respiratory protection

Type AX 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	AX-AUS / Class1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+			Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 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	The physical properties of HCFCs are tunable by changes in the number and identity of the halogen atoms. In general, they are volatile but less so than their parent alkanes. The decreased volatility is attributed to the molecular polarity induced by the halides, which induces intermolecular interactions. |Clear colourless highly volatile liquid which boils on a warm day; i.e. at temperatures above 23 C.. Solubility in water = 0.4% @ 25 C.|Ethereal odour. Soluble in ether, alcohol and benzene.

Physical state	Liquid	**Relative density (Water = 1)**	1.46 @ 25 deg C
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)	-107	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	27.6 (26-29)	**Molecular weight (g/mol)**	152.93
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	<1 (CCl4=1)	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	100
Vapour pressure (kPa)	89.6 @ 25 deg C	**Gas group**	Not Available
Solubility in water (g/L)	Partly miscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	5.3	**VOC g/L**	1460

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	Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. 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. There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Exposure to fluorocarbons can produce non-specific flu-like symptoms such as chills, fever, weakness, muscle pain, headache, chest discomfort, sore throat and dry cough with rapid recovery. High concentrations can cause irregular heartbeats and a stepwise reduction in lung capacity. Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved. 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. Depression of the central nervous system is the most outstanding effect of most halogenated aliphatic hydrocarbons. Inebriation and excitation, passing into narcosis, is a typical reaction. In severe acute exposures there is always a danger of death from respiratory failure or cardiac arrest due to a tendency to make the heart more susceptible to catecholamines (adrenalin) |Toxic effects noted in animals from a single exposure by inhalation of 5000 ppm or greater include effects on unconditioned reflexes, locomotor activity and co-ordination suggesting anaesthetic effects. Single inhalation exposure above 18000 ppm caused central nervous system effects such as anaesthesia and non-specific effects associated with lethality.|Cardiac sensitisation occurred in dogs at concentrations of 20000 ppm or greater. Repeated exposure to 300 ppm resulted in alterations to blood chemistry; higher doses produced anaesthesia, reduced lymphocyte counts, increased liver weight and enzyme alterations and decreased body weight.|Rats exhibited altered clinical chemistry and increased urinary fluoride concentrations. Dogs exhibited slight liver damage.
Ingestion	Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident.
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. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Fluorocarbons remove natural oils from the skin, causing irritation, dryness and sensitivity. Open cuts, abraded or irritated skin should not be exposed to this material Material on the skin evaporates rapidly and may cause tingling, chilling and even temporary numbness Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |Single application of high doses to the skin cause non-specific effects such as weight loss and irritation.
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Harmful: danger of serious damage to health by prolonged exposure through inhalation. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Fluorocarbons can cause an increased risk of cancer, spontaneous abortion and birth defects. |Inhalation of up to 5000 ppm for two years caused benign testicular and benign pancreatic tumours in male rats; benign pancreatic tumours were observed in female rats exposed to 5000 ppm. Both sexes exhibited an increase in benign liver tumours when exposed to 5000 ppm over two years.|It should be concluded * that until further data becomes available about the mechanism of HCFC-123 induced tumours, particularly in respect of cholangiofibroma and pancreatic adenoma induction, that the carcinogenicity findings in rats may have relevance for humans.|* [Commonwealth of Australia Gazette September 1997]|No genotoxic or adverse reproductive effects were apparent in animal studies; one study indicated mammalian cell culture genetic damage.*|[DuPont]

	TOXICITY	IRRITATION
R123	dermal (rat) LD50: >2000 mg/kg[1]	Not Available
	Inhalation (rat) LC50: 225.7 mg/l/4H[2]	

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*

R123	CFCs are absorbed following inhalation, oral ingestion, or through skin contact. Inhalation is the most important route of entry, and exhalation is the most significant route of elimination. They can cause irregular heartbeat, airway irritation, tingling sensation, humming in the ears, apprehension, slurred speech and decreased performance in psychological tests and consciousness. There could also be reduced lung function. For dichlorotrifloroethane (HCFC -123) and dichloropentafluoropropane (HCFC-225) Prolonged inhalation of high concentrations of HCFC-123 vapour may cause temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. With gross overexposure (greater than 20% concentration), a temporary alteration of the heart’s electrical activity with irregular pulse, palpitations, or inadequate circulation may occur. Similar effects are observed in overexposure to CFC-11. Inhalation may cause liver effects with extended high-level exposures. Disinfection byproducts (DBPs) are formed when disinfectants such as chlorine, chloramines and ozone react with organic and inorganic matter in water. Animal studies have shown that some DBPs cause cancer. To date, several hundred DBPs have been identified. Numerous haloalkanes and haloalkenes have been tested for cancer-causing and mutation-causing activities.

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

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

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
R123	LC50	96	Fish	55.5mg/L	2
	EC50	48	Crustacea	17mg/L	5
	EC50	96	Algae or other aquatic plants	68mg/L	5
	NOEC	48	Crustacea	<2.24mg/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*

Harmful to aquatic organisms.
May cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
For HCFCs:
Hydrochlorofluorocarbons (HCFCs) are Class II Ozone Depletion Substances (ODSs). They deplete stratospheric ozone, but to a lesser extent than most Class I ODSs. HCFCs generally have Ozone depleting Potentials (ODPs) of 0.1 or less.
The stratospheric ozone layer shields the Earth from the sun’s harmful ultraviolet radiation.
For Haloalkanes:
Atmospheric Fate: Fully, or partially, fluorinated haloalkanes released to the air can restrict heat loss from the Earth's atmosphere by absorbing infrared emissions from the surface. The major fate of haloalkanes in the atmosphere is via breakdown by hydroxyl radicals. These substances react with atmospheric ozone and nitrates, which also causes

them to change, (transform). Chlorofluorocarbons, (CFC), haloalkanes can break down into chlorine atoms in the air, which also contribute to ozone destruction.
DO NOT discharge into sewer or waterways.
|controlled ozone depleting gases: phase out by 2030 (C)

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
R123	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
R123	LOW (LogKOW = 2.1738)

Mobility in soil

Ingredient	Mobility
R123	LOW (KOC = 154.4)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	- Containers may still present a chemical hazard/ danger when empty. - Return to supplier for reuse/ recycling if possible. Otherwise: - If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. - Where possible retain label warnings and SDS and observe all notices pertaining to the product. 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. - **DO NOT** allow wash water from cleaning or process equipment to enter drains. - It may be necessary to collect all wash water for treatment before disposal. - In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. - Where in doubt contact the responsible authority. - Recycle wherever possible. - 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.

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

R123(306-83-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Inventory of Chemical Substances (AICS)

National Inventory Status

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (R123)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
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)*

SECTION 16 OTHER INFORMATION

Revision Date	08/09/2018
Initial Date	20/02/2001

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.

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