

R123**Hazard Alert Code:
MODERATE**

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME**

R123

SYNONYMS

"R 123, HFA-123, HCFC-123, Suva123, Solkane 123"

PRODUCT USE

» Used according to manufacturer's directions. 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.

SUPPLIER

Company: A-Gas (Singapore) PTE LTD

Address:

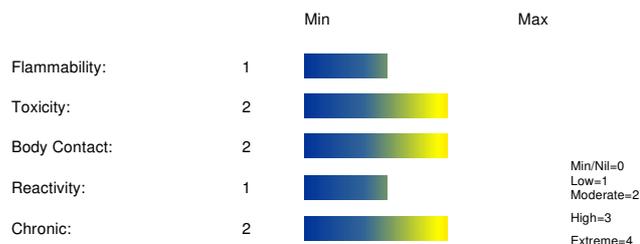
360 Orchard Road, #10-05

International Building 238869

Telephone: 65 6836 0065

Emergency Tel: 65 6836 0065

Fax: 65 6836 6521

HAZARD RATINGS**Section 2 - HAZARDS IDENTIFICATION****STATEMENT OF HAZARDOUS NATURE****HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.****POISONS SCHEDULE**

None

RISK

Risk Codes	Risk Phrases
R40(3)	» Limited evidence of a carcinogenic effect.

SAFETY

Safety Codes	Safety Phrases
S23	» Do not breathe gas/ fumes/ vapour/ spray.
S36	» Wear suitable protective clothing.
S51	» Use only in well ventilated areas.
S09	» Keep container in a well ventilated place.
S401	» To clean the floor and all objects contaminated by this material use water and detergent.
S07	» Keep container tightly closed.
S13	» Keep away from food drink and animal feeding stuffs.
S46	» If swallowed IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
2,2-dichloro-1,1,1-trifluoroethane	306-83-2	>99.5

Section 4 - FIRST AID MEASURES

R123**Hazard Alert Code:**
MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

SWALLOWED

» For advice, contact a Poisons Information Centre or a doctor.

- 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.

EYE

» 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.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

» 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.

INHALED

»

- 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.

NOTES TO PHYSICIAN

» 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 - FIRE FIGHTING MEASURES**EXTINGUISHING MEDIA**

»

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

FIRE FIGHTING

»

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- 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

»

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

R123**Hazard Alert Code:**
MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

Combustion products include: carbon dioxide (CO₂), 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.
May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY

- »
- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

None

Section 6 - ACCIDENTAL RELEASE MEASURES**EMERGENCY PROCEDURES****MINOR SPILLS**

- »
- Remove all ignition sources.
 - Clean up all spills immediately.
 - Avoid breathing vapours and contact with skin and eyes.
 - Control personal contact 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

» Chemical Class: aliphatics, halogenated

For release onto land: recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
LAND SPILL - SMALL				
cross-linked polymer - particulate	1	shovel	shovel	R, W, SS
cross-linked polymer - pillow	1	throw	pitchfork	R, DGC, RT
wood fiber - pillow	2	throw	pitchfork	R, P, DGC, RT
treated wood fibre - particulate	2	shovel	shovel	R, W, DGC
sorbent clay - particulate	3	shovel	shovel	R, I, P
foamed glass - pillow	3	throw	pitchfork	R, P, DGC, RT
LAND SPILL - MEDIUM				
cross-linked polymer - particulate	1	blower	skidloader	R,W, SS
cross-linked polymer - pillow	2	throw	skidloader	R, DGC, RT
sorbent clay - particulate	3	blower	skidloader	R, I, P
polypropylene - particulate	3	blower	skidloader	W, SS, DGC
foamed glass - pillow	3	throw	skidloader	R, P, DGC, RT
expanded mineral - particulate	4	blower	skidloader	R, I, W, P, DGC

Legend

DGC: Not effective where ground cover is dense

R: Not reusable

I: Not incinerable

P: Effectiveness reduced when rainy

RT: Not effective where terrain is rugged

SS: Not for use within environmentally sensitive sites

W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;

R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

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.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

2,2-dichloro-1,1,1-trifluoroethane 10000ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

2,2-dichloro-1,1,1-trifluoroethane 1000ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

2,2-dichloro-1,1,1-trifluoroethane ID#

R123Hazard Alert Code:
MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

American Industrial Hygiene Association (AIHA)

Ingredients considered according exceed the following cutoffs

Very Toxic (T+) >= 0.1% Toxic (T) >= 3.0%

R50 >= 0.25% Corrosive (C) >= 5.0%

R51 >= 2.5%

else >= 10%

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS*X: Must not be stored together**O: May be stored together with specific preventions**+: May be stored together***Personal Protective Equipment advice is contained in Section 8 of the MSDS.****Section 7 - HANDLING AND STORAGE****PROCEDURE FOR 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
- 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.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
- DO NOT allow clothing wet with material to stay in contact with skin

SUITABLE CONTAINER

»

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

» Avoid reaction with.

Segregate from:

- powdered metals such as aluminium, zinc and
- alkali metals such as sodium, potassium and lithium.

May attack, soften or dissolve rubber, many plastics, paints and coatings.

- Avoid magnesium, aluminium and their alloys, brass and steel.
- Avoid reaction with oxidising agents

STORAGE REQUIREMENTS

»

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- 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 storing and handling recommendations.

Storage temperature <math>-50\text{ deg.C}</math>

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**EXPOSURE CONTROLS**

R123**Hazard Alert Code:
MODERATE**

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC
Australia Exposure Standards	2,2-dichloro-1,1,1-trifluoroethane (Fluorides (as F))		2.5					

MATERIAL DATA

» Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

INGREDIENT DATA

2,2-DICHLORO-1,1,1-TRIFLUOROETHANE:

ES TWA: 10 ppm, 62.5 mg/m³ Carcinogen Category 3b PROPOSED ADDITION

» CAUTION: This substance is classified by the NOHSC as Category 3 Suspected of having carcinogenic potential.

CEL TWA: 10 ppm, 62.5 mg/m³ [Du Pont]

Emergency Exposure Limit: 1000 ppm for up to 60 mins

2500 ppm not-to-exceed ceiling for 1 minute*

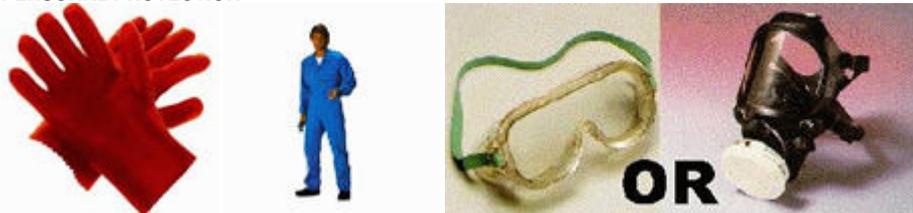
* Established to facilitate site and plant emergency evacuation and to specify airborne concentrations of brief durations which should not result in permanent adverse health effects or interfere with escape.

These limits are used in conjunction with engineering controls/monitoring

and as an aid in planning for episodic releases and spills. [Du Pont]

» MAK IIIb: Substances suspected of having carcinogenic potential.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany.

PERSONAL PROTECTION**EYE**

»

- 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 lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]

HANDS/FEET

» Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
 - chemical resistance of glove material,
 - glove thickness and
 - dexterity,
- are important in the selection of gloves.
- Protective gloves eg. Leather gloves or gloves with Leather facing
 - Wear chemical protective gloves, eg. PVC.
 - Wear safety footwear or safety gumboots, eg. Rubber

OTHER

»

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

» Respiratory protection is required when ANY "Worst Case" vapour-phase concentration is exceeded (see Computer Prediction in "Exposure Standards").

Protection Factor (Min)	Half-Face Respirator	Full-Face Respirator
10 x ES	AX--AUS AX--PAPR-AUS	- -
50 x ES	-	AX--AUS AX--PAPR-AUS
100 x ES	-	AX--2 AX--PAPR-2

^ - Full-face.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

R123**Hazard Alert Code:
MODERATE**

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

ENGINEERING CONTROLS

» Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**APPEARANCE**

Dark brown viscous, non-volatile, hygroscopic liquid with a slightly ethereal odour; insoluble in water.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

Molecular Weight: 152.9

Melting Range (°C): <-100 (freezing point)

Solubility in water (g/L): Immiscible

pH (1% solution): Not Applicable

Volatile Component (%vol): Not Available

Relative Vapour Density (air=1): >1

Lower Explosive Limit (%): Not Available

Autoignition Temp (°C): 350

State: Liquid

Boiling Range (°C): >160

Specific Gravity (water=1): 1.58

pH (as supplied): Not Applicable

Vapour Pressure (kPa): 0.470 @ 20C

Evaporation Rate: Not Available

Flash Point (°C): 196 (OC)

Upper Explosive Limit (%): Not Available

Decomposition Temp (°C): >160

Viscosity: 7000 mPa.s cSt@40°C

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION**CONDITIONS CONTRIBUTING TO INSTABILITY**

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION**POTENTIAL HEALTH EFFECTS****ACUTE HEALTH EFFECTS****SWALLOWED**

» The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

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).

SKIN

» 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.

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

R123**Hazard Alert Code:
MODERATE**

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

the material and ensure that any external damage is suitably protected.

INHALED

» Inhalation of 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.

Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. Vapour is heavier than air and may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure.

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.

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. Heart rate may be reduced.

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).

CHRONIC HEALTH EFFECTS

» Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Fluorocarbons can cause an increased risk of cancer, spontaneous abortion and birth defects.

TOXICITY AND IRRITATION

» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (Rat) LD50: >2000 mg/kg Rabbit, slightly Irritant (
Dermal (Rat) LD50: >2000 mg/kg Rabbit, slightly Irritant (
Inhalation (Rat) LC50: 200 mg/l Guinea Pig, Non sensitising (

IRRITATION

skin)
eyes)
skin)

Chronic toxicity

. Dog, > 1 % v/v air , cardiac sensitisation following adrenergic stimulation
. Inhalation, after prolonged exposure, rat, Target organ: liver, 30 ppm, observed effect
. Inhalation, after repeated exposure, guinea pig, Target organ: liver / metabolism (lipids) / Endocrine system, 0.94 % v/v air , observed effect
. Inhalation, after repeated exposure, monkey, Target organ: liver, 0.1 % v/v air , observed effect

. Inhalation, after prolonged exposure, rabbit, Target organ: testes / pancreas / liver, Remark:

Leydig cells/benign tumours

. No mutagenic, teratogenic effects

2,2-DICHLORO-1,1,1-TRIFLUOROETHANE:

» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Inhalation (mouse) LC50: 74000 ppm/1h
Inhalation (rat) LC50: 32000 ppm/4h*
Oral (rat) LDLo: 9000 mg/kg*
Dermal (rabbit) LD50: 2000 mg/kg*

IRRITATION

Nil Reported

NOTE: The compound is non-irritating to skin and does not act as a skin

sensitiser in experimental animals. [Du Pont]*

Section 12 - ECOLOGICAL INFORMATION

» DO NOT discharge into sewer or waterways.

Acute ecotoxicity:

. Fishes, *Salmo gairdneri*, LC 50, 96 h, 55.5 mg/l
. Crustaceans, *Daphnia magna*, EC 50, 48 h, 17.3 mg/l
. Algae, *Selenastrum capricornutum*, EC 50, 96 h, 96.6 mg/l

Mobility:

. Air, Henry's law constant (H) ca. 3,570 Pa.m³/mol
Result: considerable volatility

Conditions: 25 °C

. Water, evaporation, t 1/2 ca. 23 hour(s)

Conditions: 25 °C / calculated value

. Soil/sediments, adsorption, log KOC from 1.8 - 2.6

Abiotic degradation:

. Air, indirect photo-oxidation, t 1/2 = 1.18 year(s)

Conditions: sensitiser: OH radicals

Degradation's products: trifluoroacetic acid / carbon dioxide / hydrochloric acid/fluorhydric acid

. Air, photolysis, ODP = 0.02

Result: limited effect on stratospheric ozone

Reference value for CFC 11: ODP = 1.

. Air, greenhouse effect, GWP = 0.022

Reference value for CFC 11: GWP = 1.

. Water/soil

Result: non-significant hydrolysis and photolysis

Biotic degradation:

. Aerobic, test: ready biodegradability/closed bottle, degradation = 24 %, 28 day(s)

Result: non-readily biodegradable

. Aerobic, test: biodegradation by methane oxidation

Result: non-biodegradable

Conditions: inoculum: *Methylosinus trichosporium* OB3b

Refer to data for ingredients, which follows:

2,2-DICHLORO-1,1,1-TRIFLUOROETHANE:

controlled ozone depleting gases: phase out by 2030 (C)

R123**Hazard Alert Code:
MODERATE**

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 6100-23

Issue Date: 20-May-2008

CD 2008/3

Section 13 - DISPOSAL CONSIDERATIONS

- »
- Recycle wherever possible or consult manufacturer for recycling options.
 - Consult State Land Waste Authority for disposal.
 - Bury or incinerate residue at an approved site.
 - Recycle containers if possible, or dispose of in an authorised landfill.
 - 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 MSDS and observe all notices pertaining to the product.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None (ADG6)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION**POISONS SCHEDULE**

None

REGULATIONS

A- Gas R123 (CAS: None):

No regulations applicable

2, 2-dichloro- 1, 1, 1-trifluoroethane (CAS: 306- 83- 2) is found on the following regulatory lists:

Australia - New South Wales Ozone Protection Regulation - Schedule 1 Controlled substances [NLV]

Australia Exposure Standards

Australia Hazardous Substances

Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 2

Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 4

International Council of Chemical Associations (ICCA) - High Production Volume List

OECD Representative List of High Production Volume (HPV) Chemicals

UNEP Montreal Protocol Ozone Depleters - Annex C

Section 16 - OTHER INFORMATION**Denmark Advisory list for selfclassification of dangerous substances**

Substance CAS Suggested codes 2, 2-dichloro- 1, 1, 1-trifluoroethane 306- 83- 2 R52/53

EXPOSURE STANDARD FOR MIXTURES

» "Worst Case" computer-aided prediction of vapour components/concentrations: » Composite Exposure Standard for Mixture (TWA) (mg/m³): 62.5 mg/m³ » If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed. Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc: (%).

Component	Breathing zone (ppm)	Breathing zone (mg/m ³)	Mixture Conc (%)
2,2-dichloro-1,1,1-trifluoroethane	10.00	62.5000	100.0

» 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.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

» The (M)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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Issue Date: 20-May-2008

Print Date:4-Dec-2008