

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Genetron® 123
MSDS Number : 00000009885
Product Use Description : Refrigerant

Company : Honeywell International, Inc.
101 Columbia Road
Morristown, NJ 07962-1057

For more information call : 800-522-8001
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : Medical: 1-800-498-5701 or +1-651-523-0309
: **Transportation: 1-800-424-9300 or +1-703-527-3887**
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid

Color : colourless

Odor : weak

Hazard Summary : This product is not flammable at ambient temperatures and atmospheric pressure. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Causes asphyxiation in high concentrations. The victim will not realize that he/she is suffocating. Inhalation may cause central nervous system effects. May cause cardiac arrhythmia. May cause drowsiness and dizziness. Do not breathe vapour. Irritating to eyes. Avoid contact with skin, eyes and clothing. At higher temperatures, (>250°C), decomposition products may include hydrochloric acid (HCl), hydrofluoric acid (HF) and carbonyl halides. The ACGIH Threshold Limit Values (2007) for Hydrogen Fluoride are TLV-TWA 0.5 ppm and Ceiling Exposure Limit 2 ppm.

Potential Health Effects

Skin : Prolonged skin contact may defat the skin and produce

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

- dermatitis.
- Eyes : Irritating to eyes.
- Ingestion : Effects due to ingestion may include:
Gastrointestinal discomfort
- Inhalation : May cause cardiac arrhythmia.
Causes asphyxiation in high concentrations. The victim will not realize that he/she is suffocating.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Vapours may cause drowsiness and dizziness.
Inhalation may cause central nervous system effects.
- Chronic Exposure : Repeated or prolonged exposure to the substance can produce liver damage.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₂HCl₂F₃

Chemical Name	CAS-No.	Concentration
2,2-Dichloro-1,1,1-trifluoroethane	306-83-2	94.50%
1,2-Dichloro-1,1,2-Trifluoroethane	354-23-4	5.00%

SECTION 4. FIRST AID MEASURES

- Inhalation : Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Use oxygen as required, provided a qualified operator is present. Call a physician. Do not give drugs from adrenaline-ephedrine group.
- Skin contact : After contact with skin, wash immediately with plenty of water. If symptoms persist, call a physician. Remove contaminated clothing immediately Wash contaminated clothing before re-use.

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician immediately.

Notes to physician

Treatment : Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

SECTION 5. FIRE-FIGHTING MEASURES

Flash point : None

Ignition temperature : 770 °C (1,418 °F)

Lower explosion limit : None

Upper explosion limit : None

Suitable extinguishing media : The product is not flammable.
ASTM D-1310-67
ASTM D 56-82
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards during fire fighting : This product is not flammable at ambient temperatures and atmospheric pressure.
However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources.
Container may rupture on heating.
Cool closed containers exposed to fire with water spray.
Do not allow run-off from fire fighting to enter drains or water courses.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Exposure to decomposition products may be a hazard to health.
In case of fire hazardous decomposition products may be produced such as:
Hydrogen fluoride

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

Gaseous hydrogen chloride (HCl).
Carbon monoxide
Carbon dioxide (CO₂)
Carbonyl halides

Special protective equipment for fire-fighters : In the event of fire and/or explosion do not breathe fumes. Wear self-contained breathing apparatus and protective suit. No unprotected exposed skin areas.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Immediately evacuate personnel to safe areas. Wear personal protective equipment. Unprotected persons must be kept away. Remove all sources of ignition. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Ensure adequate ventilation.

Environmental precautions : Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

Handling : Handle with care. Do not get in eyes, on skin, or on clothing. Do not use in areas without adequate ventilation. Perform filling operations only at stations with exhaust ventilation facilities. Open drum carefully as content may be under pressure. Do not breathe vapours or spray mist.

Advice on protection against fire and explosion : Can form a combustible mixture with air at pressures above atmospheric pressure. Keep product and empty container away from heat and sources of ignition.

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

Storage

Requirements for storage areas and containers : Store away from incompatible substances.
Keep away from direct sunlight.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Ensure adequate ventilation, especially in confined areas.
Keep in original packaging, tightly closed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

Engineering measures : Use with local exhaust ventilation.
Perform filling operations only at stations with exhaust ventilation facilities.

Eye protection : Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes

Hand protection : Impervious butyl rubber gloves
Neoprene gloves
Gloves must be inspected prior to use.
Replace when worn.

Skin and body protection : Wear as appropriate:
Solvent-resistant gloves
Solvent-resistant apron and boots
If splashes are likely to occur, wear:
Protective suit

Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
Wear a positive-pressure supplied-air respirator.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

Avoid contact with skin, eyes and clothing.
 Ensure adequate ventilation, especially in confined areas.
 Remove and wash contaminated clothing before re-use.
 Contaminated work clothing should not be allowed out of the workplace.
 Keep working clothes separately.
 Wash hands before breaks and immediately after handling the product.

Exposure Guidelines

2,2-Dichloro-1,1,1-trifluoroethane	306-83-2	WEEL	TWA	50 ppm	310 mg/m ³
		HONEYWELL	TWA		10 ppm

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid

Color : colourless

Odor : weak

Molecular Weight : 152.92 g/mol

pH : neutral

Melting point/range : -107 °C (-161 °F)

Boiling point/boiling range : 28 °C (82 °F)

Vapor pressure : 0.747813 kPa
at 20 °C (68 °F)

Relative vapour density : 5.3
(Air = 1.0)

Density : 1.47 g/cm³
at 21.1 °C (70.0 °F)

Water solubility : 2.1 g/l

Partition coefficient: n-octanol/water : log Pow: 2.307
The product is more soluble in octanol.

Solubility in other solvents : Medium: Methanol

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

Application Route: Inhalation

Result: negative

Note: In vivo tests did not show mutagenic effects

- Further information
- : Acute toxicity Acute Health Hazard Irritating to respiratory system. Cardiac sensitisation threshold (dog): 20900 ppm. May cause cardiac arrhythmia. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. A follow-up study confirmed that these effects were the direct result of exposure of the pups to the product and its derivatives through the maternal milk.

 - : Chronic toxicity Chronic Health Hazard Testicular and liver tumors were found in test animals at 300 ppm. None of the effects were life threatening or life shortening, also at 1000 ppm. Pancreatic tumors were found. No reproductive effects were seen in a two-generation, inhalation, reproduction study. A related rate of weight gain and lower pup weights were seen. These effects were seen at inhalation concentrations above 30 ppm. A follow-up study confirmed that these effects were the direct result of exposure of the pups to the product and its derivatives through the maternal milk.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish : LC50: 55.5 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates. : EC50: 17.3 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

Toxicity to algae : Growth rate
ErC50: 96.6 mg/l
Exposure time: 96 h
Species: Pseudokirchneriella subcapitata (green algae)

Elimination information (persistence and degradability)

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

Biodegradability : Result: Not readily biodegradable.
Value: 24 %
Method: Closed Bottle test

Further information on ecology

Additional ecological information : This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82. Section 611 requires the following label text on all shipments of this product:
Warning: Contains Dichlorotrifluoroethane (HCFC-123), a substance which harms public health and environment by destroying ozone in the upper atmosphere.
Refer to sections 610 and 612 for list of acceptable and unacceptable uses for this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Information: Observe all Federal, State, and Local Environmental regulations.
Additional advice : This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

SECTION 14. TRANSPORT INFORMATION

DOT Not dangerous goods

TDG Not dangerous goods

IATA Not dangerous goods

IMDG Not dangerous goods

SECTION 15. REGULATORY INFORMATION**Inventories**

1907/2006 (EU) : This mixture contains only ingredients which have been subject to a pre-registration according to Regulation (EC) No. 1907/2006 (REACH).

US. Toxic Substances Control Act : On TSCA Inventory

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

- Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory
- Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133) : All components of this product are on the Canadian DSL list.
- Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory
- Korea. Toxic Chemical Control Law (TCCL) List : On the inventory, or in compliance with the inventory
- Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory
- China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory
- NZIOC - New Zealand : On the inventory, or in compliance with the inventory
- TSCA 12B : US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
- 2,2-Dichloro-1,1,1-trifluoroethane 306-83-2

National regulatory information

- SARA 313 Components** : 2,2-Dichloro-1,1,1-trifluoroethane 306-83-2
: 1,2-Dichloro-1,1,2-Trifluoroethane 354-23-4

- SARA 311/312 Hazards** : Acute Health Hazard
: Sudden Release of Pressure Hazard
: Chronic Health Hazard

Genetron® 123

Version 2

Revision Date 09/29/2010

Print Date 11/15/2010

California Prop. 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

New Jersey RTK : 1,2-Dichloro-1,1,2-Trifluoroethane 354-23-4

Global warming potential : 90

Ozone depletion potential (ODP) : 0.02

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	2
Flammability	: 1	1
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard