Material Safety Data Sheet

Genetron® 11

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Genetron® 11
OTHER/GENERIC NAMES: CFC-11
PRODUCT USE: Refrigerant and blowing agent for insulating foam. See Section 15 for Regulatory Information
MANUFACTURER: Honeywell
101 Columbia Road
Box 1053
Morristown, New Jersey 07962-1053

FOR MORE INFORMATION CALL:
(Monday-Friday, 8:00am-5:00pm)
1-800-522-8001

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)
Chemtrec 1-800-424-9300 or 703-527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
Trichlorofluoromethane	75-69-4	100

Trace impurities and additional material names not listed above may also appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At high temperatures (>250°C), decomposition products may include Hydrochloric Acid (HCl), Hydrofluoric Acid (HF) and carbonyl halides.

POTENTIAL HEALTH HAZARDS

SKIN: Prolonged and/or repeated contact with this solvent can cause irritation of the skin (defatting of skin).

EYES: Irritant. Liquid contact will irritate and may cause conjunctivitis.

INHALATION: Genetron 11 has a relatively low order of acute toxicity. When oxygen levels in air are reduced to 12-14% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur. In repeated exposure tests with animals, changes were noted in liver functions and lipid production at levels above 100ppm. At higher levels, cardiac arrhythmia may occur.

INGESTION: Discomfort due to volatility would be expected. Some of the inhalation effects could be expected.

DELAYED EFFECTS: None identified.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

INGREDIENT NAME	NTP STATUS	IARC STATUS	OSHA LIST
No ingredients listed in this section			

4. FIRST AID MEASURES

SKIN: Promptly flush skin with water until all chemical is removed. Remove clothing contaminated with liquid and wash before reuse.

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes, lifting eyelids occasionally to facilitate irrigation. Get medical attention.

INHALATION: Immediately remove patient to fresh air. If breathing has stopped, give artificial respiration. Use oxygen as required, provided a qualified operator is available. DO NOT give epinephrine (adrenaline). Get medical attention immediately.

INGESTION: DO NOT induce vomiting unless instructed to do so by a physician. DO NOT give stimulants. Get medical attention immediately.

ADVICE TO PHYSICIAN: Because of 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.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: None
FLASH POINT METHOD: ASTM D-1310-67 and ASTM D-56-82
AUTOIGNITION TEMPERATURE: Unknown
UPPER FLAME LIMIT (volume % in air): None
LOWER FLAME LIMIT (volume % in air): None

FLAME PROPAGATION RATE (solids): Not applicable
OSHA FLAMMABILITY CLASS: Not applicable

EXTINGUISHING MEDIA:
Use any standard agent - choose the one most appropriate for type of surrounding fire (material itself in not flammable)

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Contact with certain finely divided metals may cause exothermic reaction and/or explosive combinations under specific conditions (e.g. very high temperatures and/or appropriate pressures and in the presence of oxygen). Decomposition products include hydrochloric acid, hydrofluoric acid, and carbonyl halides.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:
Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

MATERIAL SAFETY DATA SHEET

Genetron® 11

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

Immediately evacuate the area and provide maximum ventilation. Try to eliminate all ignition sources. Unprotected personnel should move upwind from spill. Only personnel equipped with proper respiratory and eye/skin protection should be permitted in the area. Dike area to contain the spill. Take precautions as necessary to prevent contamination of ground and surface waters. For large spills, pump material into appropriate containers. For small spills, recover or absorb spilled material using an absorbant designed for chemical spills such as Hazsorb® pillows. Place used absorbants into closed DOT approved containers for disposal. After all visible traces have been removed, thoroughly wet vacuum the area. DO NOT flush into sewer. If the area of the spill is porous, removal of contaminated earth/surface may be required.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Genetron 11 boils at 74.5°F, hence contents may be under pressure. Exercise caution when opening container. If containers have been stored in direct sunlight or heated above the boiling point of the solvent, the container should be cooled to below the boiling point before opening.

Recommended Opening Prcedure

To open container, follow these procedures to avoid loss and contamination of the product.

1. Tear off protective cap over large bung opening.
2. Carefully remove the 3/4 inch plug from the center of the large bung. DO NOT puncture the inner seal.
3. Insert convenient length 3/4 inch nipple fitted with a closed valve. As nipple is inserted, the inner seal is broken and container is ready to unload through valve.

STORAGE RECOMMENDATIONS:

Keep container closed when not in use. DO NOT store in open, unlabeled or mislabeled containers. Store in a cool, well-ventilated area of low fire risk. Protect container and its fittings from physical damage. Storage in subsurface locations should be avoided. Close valve tightly and replace bung after use and when empty. If container temperature exceeds boiling point, cool the container before opening.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Use local exhaust at filling zones and where leakage is probable. Use mechanical (general) ventilation for storage areas. All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94).

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Use protective, impervious gloves such as PVA or neoprene. Also, use full protective clothing if there is prolonged or repeated contact of liquid with skin. Any non-impervious clothing should be promptly removed when contaminated and washed before reuse.

EYE PROTECTION:
For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

RESPIRATORY PROTECTION:
None required for normal work situations where adequate ventilation is provided. Use NIOSH approved self-contained, positive pressure respirators for emergencies and in situations where air may be displaced by vapors.

ADDITIONAL RECOMMENDATIONS:
High dose-level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quick drench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT
Trichlorofluoromethane	1000 ppm Ceiling	1000 ppm TWA - 8	None

* = Limit established by Honeywell.
** = Workplace Environmental Exposure Level (AIHA).
*** = Biological Exposure Index (ACGIH).

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:
Hydrogen Fluoride: ACGIH TLV: 3 ppm ceiling

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless liquid
PHYSICAL STATE: Liquid
MOLECULAR WEIGHT: 137.35
CHEMICAL FORMULA: CCl_3F
ODOR: Faint ethereal and sweetish odor
SPECIFIC GRAVITY (water = 1.0): 1.47 @ 70°F (21.1°C)
SOLUBILITY IN WATER (weight %): 0.21% @ 70°F (21.1°C)
pH: Neutral
BOILING POINT: 23.6°F (74.5°C)
MELTING POINT: -167.8°F (-111°C)
VAPOR PRESSURE: 12.8 psia at 68°F
VAPOR DENSITY (air = 1.0): 4.8
EVAPORATION RATE: >1 **COMPARED TO:** Ether = 1
% VOLATILES: 100
FLASH POINT: None
(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):
Product is normally stable.

Avoid sources of ignition such as sparks, hot spots, welding flames and lighted cigarettes. At all concentration ranges, exposure of the product to high energy sources may yield toxic and/or corrosive decomposition products.

INCOMPATIBILITIES:
Strong acids and alkalis, reactive metals e.g., powdered or freshly abraded aluminum (may cause strong exothermic reaction), sodium, potassium, calcium, magnesium, zinc, molten aluminum, barium and lithium shavings. Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
Hydrochloric and hydrofluoric acids; and carbonyl halides, such as phosgene.

HAZARDOUS POLYMERIZATION:
Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:
Acute Inahlation:
4 hr LC_{50}.(rat)....26,000 ppm
Cardiac Sensitization Threshold (dog).....5,000 ppm
Anesthetic Concentration 35,000 ppm (10 min.)

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:
Subchronic NOEL - 10,000 ppm

OTHER DATA:
Not a teratogen

12. ECOLOGICAL INFORMATION

Biodegradability - Minimal
Octanol Water Partition Coefficient: Not Determined

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes
If yes, the RCRA ID number is: U121

OTHER DISPOSAL CONSIDERATIONS:
Disposal of waste material may be subject to federal regulations. Users should review their operations, then consult with appropriate regulatory agencies before discharging or disposing of waste material. Genetron 11 is subject to U.S. Environmental Protection Agency Clean Air Act Regulations, Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

MATERIAL SAFETY DATA SHEET

Genetron® 11

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: For individual packages that contain LESS THAN the Reportable Quantity (5000 lbs.),- Not Regulated.
For individual packages that contain MORE THAN the Reportable Quantity (5000 lbs.), - RQ, Environmentally Hazardous Substances, Liquid, n.o.s. (Trichlorofluoromethane) 9, PG III, UN3082

US DOT ID NUMBER: For individual packages that contain LESS THAN the Reportable Quantity (5000 lbs.),- Not Applicable.
For individual packages that contain MORE THAN the Reportable Quantity (5000 lbs.), - RQ, Environmentally Hazardous Substances, Liquid, n.o.s. (Trichlorofluoromethane) 9, PG III, UN3082

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed on the TSCA Inventory

OTHER TSCA ISSUES: None

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

INGREDIENT NAME	SARA/CERCLA RQ (lb)	SARA EHS TPQ (lb)
Trichlorofluoromethane	5000	None

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: IMMEDIATE
DELAYED

SARA 313 TOXIC CHEMICALS:
The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

INGREDIENT NAME	COMMENT
Trichlorofluoromethane	None

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME	WEIGHT %	COMMENT
No ingredients listed in this section		

MATERIAL SAFETY DATA SHEET

Genetron® 11

ADDITIONAL REGULATORY INFORMATION:

Genetron 11 is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Sections 610, 611 at 40 CFR Part 82. Section 611 requires the following label text on all shipments of this product:

WARNING:
DO NOT VENT TO THE ATMOSPHERE. TO COMPLY WITH PROVISIONS OF THE U.S. CLEAN AIR ACT, ANY RESIDUAL MUST BE RECOVERED.
CONTAINS TRICHLOROFLUOROMETHANE (CFC-11), A SUBSTANCE WHICH HARMS PUBLIC HEALTH AND ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSHPERE.

WHMIS CLASSIFICATION (CANADA):

This product has been evaluated in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

FOREIGN INVENTORY STATUS:

EINECS Number:2008925

16. OTHER INFORMATION

CURRENT ISSUE DATE: January, 2004
PREVIOUS ISSUE DATE: February, 2003

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Section 3: Revised decomposition products
Section 5: Revised decomposition products

OTHER INFORMATION: HMIS Classification: Health - 1, Flammability - 0, Reactivity – 0
NFPA Classification: Health - 2, Flammability - 0, Reactivity - 0