**Fluorocarbon**

**MATERIAL SAFETY DATA SHEET**

**PRODUCT:** UCON Fluorocarbon 11

**CHEMICAL NAME:** Trichlorofluoromethane

**SYNONYM:** R-11, Freon 11, Freon-11, Methane-CH3Cl, Chlorofluorocarbon

**FORMULA:** CCl3F

**MELTING POINT:** 13.7°C

**Boiling Point:** 23.77°C (44.7°F)

**VAPOR PRESSURE:** At 21°C, 13.4 psia

**SOLUBILITY IN WATER:** 16% by wt.

**VOLUME:** 100

**Appearance and Odor:** Colorless liquid and vapor at normal temperature and pressure; slightly aromatic odor.

**Emergency Phone Number:**

In case of emergencies involving this material, further information is available at all times in the USA 1-800-UCON-HELP (1-800-826-6453) or in Canada 514-560-8400. For routine information contact your local supplier.
PRODUCT: UCON® Fluorocarbon 11
L-276-9

November 1989

I. HEALTH HAZARD DATA

TERMOGOLD LIMIT VALUE: See Section II.

EFFECTS OF SINGLE (ACUTE) OVEREXPOSURE:

SWALLOWING — An unlikely route of exposure. This product is a gas at normal temperature and pressure, but contact of the skin and mouth may result from contact with the liquid.

SKIN ABSORPTION — Penetration of undissolved skin contact with the liquid may result in the absorption of harmful amounts of material.

INHALATION — High concentrations can cause dizziness, nausea, vomiting, disorientation, and convulsions. Very high concentrations may cause death. Lack of oxygen can cause death.

SPECIAL SITUATION WHERE INHALATION OF MATERIAL CAN OCCUR: No situation described.

SKIN CONTACT — An unlikely route of exposure. This product is a gas at normal temperature and pressure. Liquid may cause frostbite.

EYES CONTACT — An unlikely route of exposure. This product is a gas at normal temperature and pressure. Liquid may cause corneal injury.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE: No evidence of adverse effects from available information.

OTHER EFFECTS OF OVEREXPOSURE: At high concentrations may produce central encephalopathy or arrest due to asphyxiation of the brain and respiratory centers. This product is an asphyxiant. Lack of oxygen can cause death. Exposure to fluorocarbon aerosol decomposition products may produce flu-like symptoms including chills, fever, vomiting, muscular ache, headache, chill, disorientation, nausea, and cough. Complete recovery usually occurs within 24 hours after exposure.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: A knowledge of the available laboratory information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggrivate existing medical conditions.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION: None currently known.

EMERGENCY AND FIRST-AID PROCEDURES:

SWALLOWING — This product is a gas at normal temperature and pressure.

SKIN — For exposure to liquid, immediately wash from the affected area with warm water (not exceeding 100°F). In case of massive exposure, remove clothing while showering with warm water. Call a physician.

INHALATION — Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, call a physician.

EYES — For contact with liquid, immediately flush eyes thoroughly with water for at least 15 minutes. See a physician, preferably an ophthalmologist, immediately.

NOTES TO PHYSICIAN: Do not administer adrenaline due to the stimulating effect of fluorocarbons on the myocardium. Treatment of overexposure should be directed at the control of symptoms and the clinical condition. Exposure to fluorocarbons produces products that should be considered in the diagnosis and treatment of chemically related forms of short duration and unknown origin. Signs of exposure include tachycardia, hypotension, and hyperglycemic compensation; investigation may reveal pulmonary edema and hemoptysis.

II. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (most method) Not applicable

FLAMMABLE LIMITS IN AIR, % by volume LOWER Not applicable

FLASH TEMPERATURE UPPER Not applicable

EXTOTHERMIC REACTIONS: UCON® Fluorocarbon 11 cannot catch fire. Use water spray for extinguishing fire.

SPECIAL FIRE FIGHTING PROCEDURES: Extinguish all personnel from danger area. Immediately douse container with water spray and heat will cool, then move container away from area if without risk.

UNUSUAL FIRE AND EXPLOSION HAZARDS: UCON® Fluorocarbon 11 cannot catch fire. Container may rupture due to heat of fire.

III. REACTIVITY DATA

STABILITY: X

CONDITIONS TO AVOID: Elevated temperature (the presence of certain metals may promote catalytic decomposition of the gas).

INSOLUBILITY (prototol to avoid dehydration and drying at more than 0% in presence of H2O). Natural rubber, Phenol, Urethane and Brokans.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may produce toxic fumes of nitrogen oxides, ammonia, and carbon monoxide.

HAZARDOUS POLYMORPHIZATION: May Occur Will Not Occur

CONDITIONS TO AVOID: None currently known.

IV. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Examine all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off leak if possible. Ventilate area of leak or move leaking container to ben-vented area. Test area, especially confined areas, for sufficient oxygen content prior to permitting re-entry of personnel.

WASTE DISPOSAL METHOD: Prevent waste from contaminating surrounding environment. Keep personnel away. Discard any product, residue, or disposable container or liner in an environmentally acceptable manner, in full compliance with Federal, State and local regulations.