MATERIAL SAFETY DATA SHEET

Upjohn POLYMER CHEMICALS

● Section 1 — NAME & PRODUCT

Manufacturer's Name: The Upjohn Company
Kalamazoo, MI 49001

Emergency Number:
CHEMTREC Transportation 800-424-9300
Washington, D.C. 202-483-7616
UPJOHN 713-479-7666

Product Name: ISONATE® 143L

Formula: $C_{15}H_{10}N_2O$; [CH_2 ($C_6H_4NCO)_2$] plus higher molecular weight polymers

Chemical Name and Synonyms: diphenylmethane diisocyanate; (MDI) or methylene diphenyl diisocyanate

Chemical Family: Aromatic isocyanate

● Section 2 — HAZARDOUS INGREDIENTS

	%	TLV (Units)
4,4' diphenylmethane diisocyanate; (MDI)	80	ceiling 0.02 ppm, 0.2 mg/m³
higher molecular weight polymers	20	N.E.

● Section 3 — PHYSICAL DATA

Boiling Point (°F.):	@ 5 mm Hg 392°F (200°C) decomposes ≥ 500°F (260°C)	**Solubility in Water:**	Reacts with water
Vapor Pressure (mm Hg):	3 x 10^{-4} mm Hg	**Specific Gravity (H_2O: 1):**	1.24 20/20° C
Vapor Density (air: 1):	approximately 8.6	**% Volatile by Volume:**	nil
Evaporation Rate: (_____ _____ = 1)	NE		

Appearance and Odor: Clear to yellow liquid above 65°F (18° C).

● Section 4 — FIRE AND EXPLOSION HAZARD DATA

Flash Point (and method used): ASTM D-93 closed cup > 350°F (177° C)

Flammable Limits: Lower N.E. Upper N.E.

Extinguishing Media: Water Fog, Foam, Alcohol Foam, CO_2, Dry Chemical

Special Fire Fighting Procedures:
Fire fighters should wear self-contained breathing apparatus in addition to normal protective turnout clothing.

Unusual Fire and Explosion Hazards:
Avoid water contamination in closed container or confined area (CO_2 evolved-exothermic)

● Section 5 — HEALTH HAZARD DATA (See other side)

● Section 6 — REACTIVITY DATA

Stability (Normal Conditions):
[X] Stable [ ] Unstable

Conditions to avoid:
Avoid prolonged heating over 160°F (71°C) or storage below 75°F (24°C)

Incompatability — **Materials to avoid:** Water, strong bases, alcohols, metal compounds or surface active agents.

Hazardous Decomposition Products:
@>500°F: carbon monoxide, oxides of nitrogen, traces of hydrogen cyanide.

Hazardous Polymerization
May occur [X]
Will not occur [ ]

Conditions to avoid:
Contamination by moisture (store under -40°F dew point air or N_2) or other materials that react with isocyanates. Contaminated containers should be left vented and moved to a safe area for neutralization and proper disposal.

● Section 7 — SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled:
Only properly protected personnel should remain in the immediate area, contain spill, cover liquid with absorbent material (saw dust, oil absorbent, etc.) Place in open top container. Remove to a well ventilated area and treat with dilute ammonia solution (exothermic) [water, 90%/conc NH_4OH, 8%/liquid detergent, 2%] leave ventilated 24 hours.

Disposal Method:
Bury or land fill neutralized material in accordance with local, state and federal regulations for environmental protection.

NE — Not established

● Section 5 — HEALTH HAZARD DATA

Threshold limit value:
Ceiling 0.02 ppm, 0.2 mg/m³
Effect of over exposure:
Inhalation:
May cause breathlessness, severe coughing, chest discomfort, irritation of mucous membrane and reduced pulmonary function (reaction may be delayed four to eight hours). Some individuals may develop sensitivity leading to the asthma-like symptoms on subsequent exposures below the TLV.

Eye exposure:
May lead to irritation, with tearing

Skin exposure:
Minor irritation may result from isocyanate reaction with skin moisture and protein. Temporary stains will result. Allergic sensitivity may occur for some individuals.

Ingestion:
Irritation and possible corrosive action on the mouth and stomach tissue. Vomiting may occur.

FIRST AID PROCEDURES

Inhalation

Move personnel out of exposure area immediately. If breathing is labored or difficult, oxygen should be administered by trained personnel. If breathing has stopped, apply artificial respiration. Consult a physician immediately. Note to physician: Treat symptomatically: bronchodilators: oxygen. Respiratory response may be delayed 4-8 hours after exposure.

Eyes:
Flush with clean water for at least 15 minutes. Consult a physician immediately.

Skin:
Wash with soap and water, alcohol may be helpful. Consult a physician if swelling or reddening occurs.

Ingestion:
Induce vomiting with warm salt water (one tablespoon of salt to a cup of water) at least three times or until vomitus is clear. Follow with a quart of milk and a mild cathartic (Milk of Magnesia). Consult a physician immediately.

Never give fluids or induce vomiting if patient is unconscious or having convulsions.

● Section 8 — SPECIAL PROTECTION INFORMATION

SAFETY SHOWERS AND EYE WASH STATIONS SHOULD BE ACCESSIBLE IN ALL WORK AREAS.

Ventilation:
General mechanical and local exhaust to maintain levels below TLV.

Respiratory Protection:
For short term or emergency exposures use a mask or respirator of a type approved by NIOSH or U.S. Mining Enforcement and Safety Administration. Pure supplied air or self contained breathing apparatus is preferred.

Protective Clothing:
Clean waterproof or freshly laundered protective clothing (coveralls, rubber boots, cap, clean rubber gloves).

Eye Protection:
Chemical workers goggles.

● Section 9 — SPECIAL PRECAUTIONS OR OTHER COMMENTS

WARNING: Precautions to be taken in handling and storing.

Harmful if inhaled.
May cause eye and skin irritation.
May cause allergic respiratory reaction.
Avoid contact with eyes, skin and clothing.

Protect from moisture contamination (exothermic generation of CO_2 may cause dangerous pressure).

See Upjohn "technical information" sheet for this product, and
Technical Bulletin 107.

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.