

MATERIAL SAFETY DATA SHEET

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Date revised: September 1990

SECTION I - IDENTIFICATION

Product Name: TRA #SA-230
Chemical Name: Fluorochemical mixture

SECTION II - HAZARDOUS COMPONENTS

Material	%	tlv
1,1,1 Trichloroethane	73%	350 ppm
Trichlorotrifluoroethane	18%	1000 ppm
Naptha	2%	500 ppm

SECTION III - PHYSICAL DATA

Boiling point: 165.4 F
Vapor pressure: 350 (mm Hg)
Vapor Density: 4.54 (Air=1)
Solubility in water: Negligible
Appearance/Odor: Translucent/Ethereal
Specific Gravity: 1.21 (water=1)
Percent volatile by volume: 93%
Evaporation rate: 0.35 (Ether=1)

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash point: None
Flammable limits: lei- uei-
Extinguishing media:
Special firefighting procedures: Use self contained respiratory equipment.
Unusual fire and explosion hazards: Vapors and solids can be decomposed by intense heat releasing HCL and toxic fumes.

SECTION V - HEALTH HAZARD DATA

Threshold limit value: 350 ppm
Effects of overexposure: Overexposure may lead to slight anesthetic feeling, possible irritation to eyes, nose, and throat. Continued exposure can result in headaches, fatigue, dizziness, nausea and gradual suppression of consciousness.
Emergency and first aid procedures: Move patient to fresh air and if conscious give artificial respiration

or oxygen, NEVER administer adrenalin. Any clothing that has been wet should be removed and skin allowed to air dry completely and then treated with lanolin cream. Eyes should be flushed with lukewarm water for 15 minutes.

SECTION VI - REACTIVITY DATA

Stability: stable

Conditions to avoid: Open flame or intense heat.

Incompatible materials to avoid: Sodium, potassium, and sulfuric acid (above 100C)

Hazardous decomposition products: HCL and toxic fumes during decomposition.

Hazardous polymerization: will not occur

Conditions to avoid:

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is spilled: Avoid breathing high concentrations of the vapors and avoid repeated contact of the liquid with skin and clothing. Flush spilled area with water. Be sure sufficient fresh air enters the area or it should be vacated.

Waste disposal method: Contain and soak up with sand or earth. Dispose in accordance with Federal, State, and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory protection type: None when coatings are used in properly designed and operated units.

Ventilation: Exhaust to maintain tlv.

Protective gloves: Neoprene (Normally not necessary)

Eye protection: Safety glasses (Normally not necessary)

Other protective equipment:

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storing: Avoid spills, intense heat and open flame.

Other precautions: Avoid spills, repeated contact with skin, and prolonged breathing of vapors. Although there is no flash point, do not expose to open flame or intense heat, toxic and corrosive gases can form. When using do not contaminate tobacco products. Always wash thoroughly after handling. Store in a cool dry place.

Health Hazard InformationSECTION 5A. Exposure/Health Effects

Inhalation: Inhalation may cause irritation of the upper respiratory tract. Symptoms of overexposure may include fatigue, confusion, headache, dizziness and drowsiness. Peculiar skin sensations (e.g. pins and needles) or numbness may be produced. Very high concentrations may cause unconsciousness and death.

Ingestion: Swallowing may cause abdominal spasms and other symptoms that parallel over-exposure from inhalation. Aspiration of material into the lungs can cause chemical pneumonitis, which may be fatal.

Skin Contact: May cause skin irritation.

Eye Contact: May cause eye irritation, redness, tearing. Splashes have caused temporary corneal damage.

Chronic Exposure: Reports of chronic poisoning describe anemia, leucopenia, and bone marrow hypoplasia. Liver and kidney damage may occur. Repeated or prolonged contact has a defatting action, causing drying, redness, dermatitis.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or impaired liver or kidney function may be more susceptible to the effects of this substance. Alcoholic beverage consumption can enhance the toxic effects of this substance.

B. FIRST AID

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. CALL A PHYSICIAN IMMEDIATELY.

Ingestion: Give water to rinse mouth and get medical attention immediately. Never give anything by mouth to an unconscious person.

Skin Exposure: Remove any contaminated clothing. Wipe off excess from skin. Wash skin with plenty of water for at least 15 minutes. Get medical attention promptly.

Eye Exposure: Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

Oral rat LD50: 5000 mg/kg.
 Skin rabbit LD50: 12.124g/kg.
 Inhalation mouse LC50: 5320 ppm/8H.
 Aquatic Toxicity rating: Tlm96: 100-10 ppm.
 Mutation references cited.
 Reproductive effects cited.

Occupational Control MeasuresSECTION 6

Airborne Exposure Limits: -OSHA Permissible Exposure Limit (PEL):
 200 ppm (TWA); 300 ppm (Ceiling); 500 ppm (Peak).
 -ACGIH Threshold Limit Value (TLV):
 100 ppm (TWA); 150 ppm (STEL).

Ventilation System: A system of local exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the dust or vapor at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved) If the TLV is exceeded, a half mask chemical cartridge respirator may be worn up to ten times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material.

Maintain eye wash fountain and quick-drench facilities in work area.

Storage and Special InformationSECTION 7

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from oxidizing materials. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment.

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TOLUENE

Material Safety Data Sheet

Emergency Telephone Number
314-982-5000

Effective Date: 08-22-85

PRODUCT IDENTIFICATION:

Synonyms: Methylbenzene; Toluol; Phenylmethane

Formula CAS No.: 108-88-3

Molecular Weight: 92.14

Hazardous Ingredients:
Not applicable.

Chemical Formula: $\text{CH}_3\text{C}_6\text{H}_5$

PRECAUTIONARY MEASURES

WARNING! FLAMMABLE! HARMFUL IF SWALLOWED OR INHALED.

Keep away from heat, sparks and flame.
Keep container closed.
Use with adequate ventilation.
Avoid breathing vapor.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

If swallowed, give water to rinse mouth. Never give anything by mouth to an unconscious person.
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
In all cases call a physician.

SEE SECTION 5.

DOT Hazard Class: Flammable Liquid

Physical DataSECTION 1

Appearance: Clear, colorless liquid.

Odor: Aromatic benzene-like.

Solubility: 0.05 gm/100gm water @ 20°C (68°F).

Boiling Point: 111°C (231°F).

Vapor Density (Air=1): 3.14

Melting Point: -95°C (-139°F).

Vapor Pressure (mm Hg): 22 @ 20°C (68°F).

Specific Gravity: 0.86

Evaporation Rate: 2.24

-2-

Fire and Explosion InformationSECTION 2

Fire:

Flammable. Vapors can flow along surfaces to distant ignition source and flash back.
Flash Point: 4°C (40°F) (closed cup). Autoignition temperatures: 480°C (896°F). Flammable limits in air, % by volume: 1.1-7.1.

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

Contact with strong oxidizers may cause fire and explosions.

Fire Extinguishing Media:

Dry chemical, foam or carbon dioxide.
Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Reactivity DataSECTION 3

Stability:

Stable under ordinary conditions of use and storage. Containers may burst when heated.

Hazardous Decomposition Products:

Toxic gases and vapors (e.g., carbon dioxide and monoxide) may be released in a fire involving toluene.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Heat, flame, strong oxidizers, acids nitric and sulfuric, nitrogen tetroxide, will attack some forms of plastics, rubber, coatings.

Leak/Spill Disposal InformationSECTION 4

Remove all sources of ignition. Use non-sparking tools and equipment. Clean-up personnel require protective clothing and respiratory protection from flammable vapors. Small spills may be absorbed on paper towels and evaporated in a fume hood. Allow enough time for fumes to clear hood, then ignite paper in a suitable location away from combustible materials. Contain and recover liquid for reclamation when possible. Larger spills and lot sizes can be collected as hazardous waste and atomized in a suitable RCRA approved combustion chamber, or absorbed with vermiculite, dry sand, earth or similar material for disposal as hazardous waste in a RCRA approved facility. Do not flush to sewer!

Reportable Quantity (RQ) (CWA/CERCLA) : 1000 lbs.

Ensure compliance with local, state and federal regulations.

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