
MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: REFRAX MOUNTING MEDIUM

Catalog number: 711

General use: Coverslipping mounting medium for histological and cytological preparations.

Product description: Solution of acrylic resin, minerals spirits and toluene.

Manufacturer

Anatech Ltd.
1020 Harts Lake Road
Battle Creek, MI 49037
USA

Emergency contact information

Health:	Anatech Ltd.	800-262-8324	8 am - 5 pm ET, M-F
Transportation:	CHEMTREC	800-424-9300	24 hours

2. COMPOSITION AND INFORMATION ON INGREDIENTS

(Note: Percentage composition is withheld as a trade secret.)

<u>Component</u>	<u>CAS #</u>	<u>Exposure limits</u>
Butylated hydroxytoluene	128-47-0	10 mg/m ³ (NIOSH 8 hour TWA) Not established for solutions.
Butylbenzylphthalate	85-68-7	Not established.
Methacrylate resin	None assigned	Not established.
Mineral spirits/naphtha	8030-30-6	100 ppm (OSHA, NIOSH 8 hour TWA) 400 ppm (ACGIH 8 hour TWA)
Toluene	108-88-3	200 ppm (OSHA 8 hour TWA) 100 ppm (NIOSH 8 hour TWA) 50 ppm (ACGIH 8 hour TWA) 300 ppm (OSHA Ceiling) 150 ppm (NIOSH 15 minute STEL)

3. HAZARDS IDENTIFICATION

Emergency Overview

Faint yellow liquid; characteristic toluene odor.

Irritant to eyes and skin. Inhalation of high concentrations of vapors causes drowsiness and dizziness.
Harmful or fatal if swallowed.

Flammable liquid.

3. HAZARDS IDENTIFICATION (continued)

Potential health effects

(Human health effects only; animal effects in Section 11: Toxicological Information.)

Primary route(s) of exposure: Eyes, skin and inhalation.

Inhalation: Breathing high concentration of vapors or working in a poorly ventilated area is likely to cause irritation to the eyes and respiratory tract. Inhalation of high concentrations of vapors causes drowsiness and dizziness.

Eye: Contact of liquid with eyes will cause irritation.

Skin: Prolonged or repeated contact may cause skin irritation.

Ingestion: Irritant to the mouth, throat, and stomach. Harmful or fatal if swallowed. Aspiration into the lungs when swallowed or vomited can cause chemical pneumonitis.

Chronic effects: Prolonged or repeated exposure may cause dermatitis, liver and kidney damage, abnormal behavior, nervous system damage and serious disturbances of heart rhythm and sudden death.

Signs and symptoms: Inhalation may cause headaches and dizziness. Affected skin will appear dry and cracked. Eyes show general signs of irritation. Ingestion may cause central nervous system effects of dizziness, loss of balance, unconsciousness, coma and death.

4. FIRST AID MEASURES

Inhalation: Remove victim to fresh air if coughing or difficulty in breathing is experienced. Consult a physician if symptoms persist or worsen. Administer oxygen or artificial respiration as needed.

Eye: Flush eyes for at least 15 minutes in an eyewash station. If symptoms persist after washing, consult a physician.

Skin: Remove contaminated clothing, including footwear; wash before reuse or discard. For minor exposure, wash affected area with water and mild soap, rinsing thoroughly; apply a good quality skin lotion. In cases of prolonged, repeated or extensive exposure, rinse affected area or entire body for at least 15 minutes. For severe conditions, consult a physician.

Ingestion: Call a poison control center immediately. If victim is conscious, have him/her drink several glasses of water to dilute the solution. Induce vomiting only upon the advice of a physician or poison control authority.

5. FIRE FIGHTING MEASURES

Flammable properties

Flash point: 52°F (11°C), closed-cup.

Flammable limit: Not determined.

Autoignition temperature: Not determined.

Flammability classification: Flammable liquid (OSHA).

Flame propagation: Vapors can travel to source of ignition and flash back to liquid if vapor temperature exceeds flash point.

5. FIRE FIGHTING MEASURES (continued)

Hazardous products of combustion: Carbon monoxide and carbon dioxide.

Extinguishing media: ABC rated portable fire extinguishers should be used. Professional fire fighters may use water spray, dry chemical or carbon dioxide.

Fire fighting instructions: Sealed chemical suits and self contained breathing apparatus are necessary for fighting fires involving substantial volumes of this product.

6. ACCIDENTAL RELEASE MEASURES

The size of a spill is defined in part by the local situation, especially regarding ventilation. At room temperature in a well ventilated room, a few hundred milliliters might be considered a small spill. Flammable vapors are generated during a spill and may exceed OSHA's Permissible Exposure Limits. Wear protective gloves, rubber boots, impermeable aprons and full-face respirators. Use dry paper towels to remove spilled liquid. Discard absorbents and other contaminated solids in a receptacle suitable for hazardous chemical waste. Have a licensed waste hauler remove contaminated solids.

With large spills, evacuate the area and have an emergency response team perform the cleanup. Have a licensed waste hauler remove contaminated solids and any recovered liquid.

Comply with all applicable governmental regulations on spill reporting and on the handling and disposal of hazardous waste.

7. HANDLING AND STORAGE

Handling: Wear a plastic or rubber apron, protective gloves and splash-proof goggles. Avoid all contact with skin and eyes. Do not continue to wear contaminated clothing after a spill.

Storage: Store in a flammable storage cabinet.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering controls: Good general room ventilation is essential. Product should be used with local ventilation (fume hood).

Personal protective equipment

Respiratory protection: A NIOSH-approved respirator suitable for organic vapors must be used if vapor levels exceed the exposure limits.

Skin protection: Anatech Ltd. recommends nitrile gloves. Do not use latex surgical gloves for protection against any hazardous liquid. An eyewash station and safety shower must be nearby, preferably in the same room, no more than 10 seconds away.

Eye protection: Use splash-proof goggles. Do not use safety glasses. If a face shield is worn as protection against biohazards, splash-proof goggles also should be used. An eyewash station and safety shower must be nearby, preferably in the same room, no more than 10 seconds away.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, slightly yellow liquid.

Odor: Characteristic toluene odor.

Physical state: Liquid.

pH: Not applicable.

Vapor pressure: Not determined.

Vapor density: Not determined.

Boiling point: Not determined.

Freezing point: Not determined.

Solubility in water: Negligible.

Specific gravity: Not determined.

10. STABILITY AND REACTIVITY

Chemical stability: Stable.

Conditions to avoid: Heating this solution will give off irritating vapors. Solution is flammable; keep away from heat, sparks and flames.

Incompatibility with other materials: Strong oxidants. Will attack some forms of plastics, rubber and coatings.

Hazardous decomposition products: Carbon oxides.

Hazardous polymerization: None.

11. TOXICOLOGICAL INFORMATION

The following data are from studies using 100% toluene.

Acute eye effects: 2 mg administered into rabbit eyes for 24 hours produced severe irritation. In humans an exposure of 0.1 ppm after 30 minutes was an eye and nose irritant.

Acute skin effects: 500 mg administered on rabbit skin produced moderate irritation.

Acute oral effects: OSHA considers chemicals to be toxic if their LD₅₀ is at or below 500 mg/kg. LD₅₀ is the dose killing 50% of the test animals in a given time (usually 4 hours). LD_{Lo} is the lowest dose causing death. LD₅₀ was 636 mg/kg in rats. LD_{Lo} in man has been reported at 719 µl/kg.

Acute inhalation effects: Inhalation studies reported LC_{Lo} in rats of 33,176 mg/m³, 20,056 mg/m³ in mice and 49 gm/m³/4 hours in rabbits.

Other acute effects: Lowest observed adverse effect level in humans (LOAEL) = 332 mg/m³. Severe toxic effects in man was observed at 1,000 ppm (3,830 mg/ m³) after 60 minutes. Symptoms of illness in man shows at 30 ppm (1,149 mg/m³).

11. TOXICOLOGICAL INFORMATION (continued)

Chronic effects/carcinogenicity: Repeated exposure affects the respiratory system, nervous system and causes kidney and liver damage. No evidence of carcinogenicity.

Teratology: Fetotoxicity was observed in animals at doses that are maternally toxic.

Reproductive effects: There are occupational studies correlating reproductive toxicity (spontaneous abortions and changes in gonadotrophic hormones) with long-term exposure.

Mutagenicity: Negative.

12. ECOLOGICAL INFORMATION

Ecotoxicity: The following data are from studies using 100% toluene.

Toxicity threshold (cell multiplication inhibition test):

Bacteria	<i>Pseudomonas putida</i> : 29 mg/l
Algae	<i>Microcystis aeruginosa</i> : 105 mg/l <i>Scenedesmus quadricauda</i> : > 400 mg/l
Protozoa	<i>Entosiphon sulcatum</i> : 456 mg/l <i>Uronema parduczi</i> : > 450 mg/l

Biological Oxygen Demand (BOD), 5 day: = 5% ThOD
Chemical Oxygen Demand (COD): = 21 - 27% ThOD

Environmental fate: Toluene is dangerous to aquatic life in high concentrations and is expected to biodegrade in soil and water very rapidly. It is not expected to bioaccumulate through food chains in the environment.

13. DISPOSAL CONSIDERATIONS

Refrax Mounting Medium is flammable and should be disposed via a licensed waste hauler. Do not mix waste streams unless instructed to do so by your waste hauler.

This product is not recyclable.

Canadian disposal regulations generally parallel those in the United States.

Follow federal, state (provincial) and local regulations. Proper waste disposal is the generator's responsibility.

14. TRANSPORTATION INFORMATION

Packaging for hazardous shipments must meet the specifications as required by the current editions of *International Air Transportation Association (IATA) Dangerous Goods Regulations* and the United States Department of Transportation *49 CFR*.

DOT (ground and air) and IATA: **Proper Shipping Name:** Resin solution
UN #: 1886
Hazard Class: 3
Packing Group: II

15. REGULATORY INFORMATION

OSHA (USA): Under the Hazard Communication Standard and the Laboratory Standard, this product is a hazardous material: it is an irritant and flammable.

The two OSHA Standards cited above mandate that exposed workers receive proper training in the properties of this product, work practices involved with its handling and disposal, and interpretation of its MSDS.

FDA (USA): Refrax Mounting Medium is for in vitro diagnostic use as a coverslipping mounting medium in histology and cytology.

EPA (USA): Refrax Mounting Medium is ignitable. It is a reportable substance under SARA Title III.

16. OTHER INFORMATION

Label warnings: Flammable. Keep from heat and open flame. Avoid extensive or repeated contact with skin. Remove contaminated clothing. Avoid contact with eyes. Vapor harmful. Use with adequate ventilation. Harmful or fatal if swallowed. If swallowed, do not induce vomiting. Contact a physician immediately.

NFPA (National Fire Protection Association) Rating:

General note: This rating is applicable only to safeguard the lives of individuals who may be concerned with fires occurring in an industrial plant or storage location. The ratings provide information to emergency personnel on whether to evacuate the area or how to perform control procedures. It is not descriptive of hazards under normal conditions of occupational use, and is even less applicable to anticipated laboratory-scale use.

Health 2: Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Flammability 3: Materials that can be ignited under almost all ambient temperature conditions.

Instability 0: Materials that are normally stable even under fire conditions.