

MATERIAL SAFETY DATA SHEET

Conforms to ANSI Z400.1 and is in compliance with 29 CFR 1910

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Section 1: Product Identification

Product Name: Temp-Chex Red Spirit
Product Type: Temperature monitor; Refrigerator (240043), Freezer (240046), and Incubator/Room Temperature (240049)
Contains VARSOL Fluid, Regular.
Temperature monitor; Ultra-Low Freezer (240047) contains Toluene.

Section 2: Composition

Components	Toluene (<2mL)	OSHA PEL:	200 ppm (TWA ceiling)	CAS: [108-88-3]
:			500 ppm (Max conc.)	
	VARSOL Fluid ^(a) (Proprietary)	EXXON PEL:	66 ppm total hydrocarbon	CAS: [8052-41-3]
	Methanol ^(b)	OSHA PEL:	200 ppm (Max conc.)	CAS [67-56-1]
	Propylene Glycol (5mL)	OSHA PEL:	Not listed	CAS [57-55-6]

NOTE: Propylene Glycol is listed as GRAS (Generally Recognized as Safe) by the U.S. FDA.
^(a) EXXON Chemical Americas, identified as a Petroleum Hydrocarbon
^(b) Methanol present in vial at nominal concentration; Ultra-Low only. (Feb.03)

Section 3: Hazards Identification

- No hazards present under normal usage conditions. Methanol (in Ultra-Low) and Toluene or VARSOL fluid, which may be released from a broken thermometer, are the hazardous components of the Temp-Chex product.
- Methanol and Toluene are flammable liquids.
- High vapor/aerosol concentrations cause respiratory irritation. Symptoms of over-exposure include fatigue, confusion, headache, dizziness, drowsiness, other central nervous system effects, unconsciousness, and death.
- Swallowing may cause abdominal spasms and other symptoms that parallel over-exposure from inhalation. Aspiration of material into lungs can cause severe pulmonary injury which may be fatal.
- Eye and Skin Irritant
- Toluene Chronic exposure/poisoning can produce anemia, decreased blood cell count, bone marrow hypoplasia, and liver and kidney damage. Repeated or prolonged skin contact has a defatting action, causing drying, redness, dermatitis. Exposure may affect the developing fetus.
- Toluene may aggravate pre-existing conditions; skin disorders or impaired liver or kidney function may be more susceptible to the effects of Toluene. Alcoholic beverage consumption can enhance the toxic effects of Toluene.
- Methanol may be fatal or cause blindness if swallowed. May cause irritation of the digestive tract. May cause kidney damage. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

Section 4: First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion: Aspiration Hazard. DO NOT INDUCE VOMITING. Keep victim at rest. Call for medical attention immediately. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Give large amounts of water.

Skin Contact: Remove any contaminated clothing. Rinse the contacted area with water, then wash with soap and water. Wash clothing before reuse. Seek medical attention immediately.

Eye Contact: In case of contact, flush eyes with copious amounts of water for at least 15-20 minutes. Raise eyelids to be sure material is rinsed out. Seek medical attention immediately.

Section 5: Fire Fighting Measures

Flash Point:	Toluene: 45°F	VAR SOL Fluid: 100°F	Methanol: 54°F
Autoignition:	Toluene: 792°F	VAR SOL Fluid: 490°F (approximate)	Methanol: 847°F
Extinguishing Media:	Flammable liquid and vapor. Sensitive to static discharge. Use foam or dry chemical to extinguish fire. If a leak or spill has not ignited, use water to disperse vapors and cool storage containers.		

Section 6: Accidental Release Measures

Spill Procedure: Ventilate area. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Use non-sparking equipment. Collect liquid in an appropriate container or absorb with an inert material (i.e. vermiculite, dry sand, earth) and place in a suitable chemical waste container. Do not flush to sewer.

Section 7: Handling and Storage

Store at temperature and conditions as indicated on the product label. Protect from breakage. As supplied, Temp-Chex thermometers pose no hazard. When thermometer is broken, protect from hazardous contents and broken glass. Ventilate area. Remove all sources of ignition.

Section 8: Exposure Control and Personal Protection Equipment (PPE)

Ventilation: As supplied, use general room ventilation. If thermometer breakage occurs, local or general exhaust is recommended to keep exposure below limits.

Respiratory Protection: If exposure limits are exceeded, utilize a NIOSH approved organic vapor respirator.

Eye Protection: Chemical safety goggles and/or face shield where splashing is possible.

Gloves: Wear impervious protective clothing, as appropriate, to prevent skin contact.

Other: A laboratory coat or apron is recommended.

Section 9: Physical and Chemical Properties

	<u>Toluene</u>	<u>VAR SOL Fluid</u>	<u>Methanol</u>
Appearance	Red liquid	Red liquid	Clear
Odor:	Aromatic benzene-like	Petroleum Odor	Pungent
Solubility:	0.05 gm/100 gm water (68°F)	Insoluble	(H ₂ O) Complete (100%)
Specific Gravity:	0.86 @ 20°C/4°C	0.80 @ 60°C	.79 (H ₂ O=1)
pH:	Not Available	Not Available	Not Available
Boiling Point:	232°F	315° - 394°F (approximate)	149°F
Melting Point:	-139°F	Not Available	-144°F
Vapor density:	3.14	Not Available	1.11 (air=1.0)
Vapor Pressure (mm Hg):	22 @ 68°F	1.6 @ 68°F	96 @ 20°C
Expiration Rate:	2.24 (BuAc=1)	<0.1 (n-Bu Acetate=1)	4.6 (BuAc=1)

Section 10: Stability and Reactivity

	<u>Toluene</u>	<u>VAR SOL Fluid</u>	<u>Methanol</u>
Stability:	Stable	Stable	Stable
Hazardous Decomposition Products:	Carbon Dioxide and Carbon Monoxide may form when heated to decomposition.	None	Carbon Monoxide, Carbon Dioxide, Formaldehyde
Hazardous Polymerization:	Will not occur	Will not occur	Will not occur
Incompatibilities/Materials to Avoid:	Heat, flame, strong oxidizers, nitric and sulfuric acids, chlorine, nitrogen tetroxide	Halogens, molten sulfur, strong oxidizing agents	Heat, flame, strong oxidizing agents, strong acids, zinc, magnesium, aluminum
Conditions to Avoid:	Heat, flames, ignition sources & incompatibles	Heat, flames, ignition sources & incompatibles	Heat, flame, other sources of ignition.

Section 11: Toxicological Properties

Carcinogenicity:	Toluene:	IARC Category 3
	VAR SOL Fluid:	This fluid contains ethylbenzene. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and classified it as a possible human carcinogen (group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans.
Toxicity	Toluene:	Oral rat LD50: 636 mg/kg; skin rabbit LD50: 14100 µL/kg; inhalation LC50: 49gm/m ³ /4H Irritation data; skin rabbit, 500mg, moderate; eye rabbit, 2 mg/24H, severe. Has shown some evidence of reproductive effects in laboratory animals.
	VAR SOL Fluid:	Oral rat LD50: 3500mg/kg, skin rabbit LD50: 17,800mg/kg, ihl guinea pig LCLD: 10,000ppm
	Methanol	Oral rat LD50: 5628 mg/kg (see Toxicity of Components, Methanol MSDS)

Section 12: Ecological Information

Toluene: Toxic to aquatic life. Prevent from entering sewers or environment.
VAR SOL Fluid: Prevent Liquid from entering sewers or environment. If accidentally spilled, not subject to any special reporting under requirements of CERCLA. Manufacturer recommends contacting local authorities to determine if there may be local reporting requirements.
Methanol: Toxic to aquatic life. Prevent from entering sewers or environment.

Section 13: Disposal Considerations

To the best of our knowledge, this material does not require special disposal. However each facility must determine proper disposal methods to comply with local, state, and federal regulations.

Section 14: Transport Information

Materials are regulated as Class 3, Flammable/Combustible Liquid by IATA and DOT. Quantities shipped (excluding air) are under the volume required for hazardous material labeling and placarding per 49CFR173.4.

Toluene: DOT: Shipping name; Toluene, UN1294, packing group II
VAR SOL Fluid: DOT: Shipping name: Petroleum Distillate, N.O.S., UN1268, packing group III
Methanol: DOT: Shipping name, Methyl Alcohol, UN1230, packing group II

Section 15: Regulatory Information

Toluene: TSCA listed
SARA 313 listed
CERCLA, identified 1000
RCRA 261.33, identified U220
SARA Title III, Sections 311/3312 classified in Acute Health, Chronic Health, and Fire Hazard categories.
WARNING! Known by state of California to cause birth defects or other reproductive harm.

VAR SOL Fluid: TSCA listed as UVCB (Unknown, variable comparison or biological)
SARA Title III, Sections, 311/312 classified in Delayed Health and Fire Hazard categories

Methanol: Reference 49 CFR, 172.101, 172.102, 173.119, 173.6

Section 16: Other

NFPA Ratings: **Toulene:** H2, F4, R0
VAR SOL Fluid: H1, F2, R0
Methanol: H3, F3, R1, C1

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