

Jorgensen Laboratories, inc. TECHNIVIT LIQUID/  
1450 Van Buren Avenue POWDER KIT  
Loveland, Co. 80538 U.S.A.  
Telephone (970) 669-2500, or 800-525-5614  
FAX (970) 663-5042

## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: *Technovit Liquid/Powder Kit*  
PRODUCT TYPE: *Formulated mixture kit*  
SUPPLIER: *Jorgensens Laboritories, Inc.*  
*1450 Van Buren Avenue*  
*Loveland, Co. 80538 U.S.A.*  
PHONE NUMBER: (970) 669-2500, or 800-525-5614  
FAX NUMBER: (970) 663-5042  
EMERGENCY NUMBER: (970) 663-4190 OR (970) 667-6201  
PREPARED BY: Dale Peterson, chemist  
1-970-663-4190 During business hours  
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PREPARATION/UP DATE DATE: 08/22/02  
PRINT DATE 08/22/02

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	%
<b>POWDER</b>		
01 <i>particulates not otherwise classified</i>	NE	60.0-100.0
02 <i>Residual monomers</i>	NE	0.5-5.0
03 <i>Polymers</i>	NE	60.0-100.0
<i>Due to the spherical shape of the particles forming this powder, spills should be cleaned up promptly to avoid slips and falls. (NOTE: ALL OTHER MSDS INFORMATION PERTAINS TO THE LIQUID.)</i>		
<b>LIQUID</b>		
04 <i>Methyl Methacrylate Monomer</i>	80-62-6	99
05 <i>N,N-Dimethyl-p-Toluidine</i>	99-97-8	<1
<i>* Regulated as a toxic chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.</i>		

### EMERGENCY OVERVIEW

**FLAMMABLE. HAZARDOUS POLYMERIZATION MAY OCCUR. IRRITANT BY INHALATION, IN CONTACT WITH SKIN AND EYE AND IF SWALLOWED. MAY CAUSE SENSITIZATION BY SKIN CONTACT. COLORLESS LIQUID WITH ACRID, PENETRATING ODOR.**

### 3. HAZARDS IDENTIFICATION

# Potential Health Effects

**EYE:** *Liquid and vapors can cause irritation ( tears, blurred vision, redness ) and possible corneal damage.*

**SKIN:** *May cause skin irritation ( itching and soreness ). Can cause skin sensitization.*

**INGESTION:** *Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain, central nervous system depression. May cause methemoglobinemia.*

**INHALATION:** *High concentration of vapors is severe irritant to respiratory tract and may cause dizziness, headache and anaesthetic effects. It may cause elevated methemoglobin in the blood.*

**CHRONIC (CANCER) INFORMATION:** *Prolonged and/or repeated exposure may lead to kidney, lung, liver and heart damage. Unlikely to present a cancer hazard to man.*

**TERATOLOGY (BIRTH DEFECT) INFORMATION:** *Developmental toxicity observed in animal tests but only at levels toxic to the mother.*

**REPRODUCTIVE INFORMATION:** *No information available but no adverse reproductive effects are anticipated.*

**CARCINOGENICITY INFORMATION:** *None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.*

#### 4. FIRST AID MEASURES

##### First Aid

##### INHALATION

*If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.*

##### SKIN CONTACT

*In case of contact, immediately wash skin with soap and water. Obtain medical attention if blistering occurs or redness persists. Wash contaminated clothing before reuse.*

##### EYE CONTACT

*In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.*

##### INGESTION

*If swallowed, do not induce vomiting. Immediately give two glasses of water. Never give anything by mouth to an unconscious person. Call a physician.*

#### 5. FIRE FIGHTING MEASURES

##### Flammable Properties

*Flash Point : 11.5 C (52.7 F)*

*Flammable limits in Air, % by Volume*

*LEL : 2.1*

*UEL : 12.5*

*Autoignition : 421 C (790 F)*

*Fine mists are explosive below the flash point.*

*Flammable liquid. Vapor forms explosive mixture with air.*

*Sealed containers exposed to elevated temperatures may rupture explosively due to polymerization. Vapors are heavier than air and may travel to ignition sources and flash back. Toxic vapors may be given off at high temperatures.*

##### Extinguishing Media

*Foam, Dry Chemical, CO<sub>2</sub>, Water spray (by trained personnel).*

##### Fire Fighting Instructions

*Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Fight fire from a distance, heat may rupture containers.*

#### 6. ACCIDENTAL RELEASE MEASURES

##### Safeguards (Personnel)

*NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.*

*Evacuate personnel, thoroughly ventilate area, and use self-contained breathing apparatus.*

##### Initial containment

*Remove source of heat, sparks, flame, impact, friction or electricity. Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal.*

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## 7. HANDLING AND STORAGE

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### Handling (personnel)

*Do not breathe vapor or mist. Do not get in eyes, on skin or clothing. Wash thoroughly after handling.*

### Handling (Physical Aspects)

*Close container after each use. Ground container when pouring. Keep away from heat, sparks and flames.*

### Storage

*Keep container in a cool place. DO NOT expose to direct sunlight. Store in well-ventilated place. Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations.*

*Maintain air space inside storage containers. Inhibitor requires air (oxygen) contact to function. Check inhibitor level after 6 months and return to original level.*

*Do not store in: aluminium and its alloys, copper and its alloys, rusty steel, mild steel, or tin.*

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Engineering Controls

*Keep container tightly closed.*

*Observe label precautions.*

*Use ventilation that is adequate to keep employee exposure to airborne concentrations below exposure limits.*

### Personal Protective Equipment

#### EYE/FACE PROTECTION

*Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying material.*

#### RESPIRATORS

*A NIOSH/MSHA approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain limited circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for and uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.*

#### PROTECTIVE CLOTHING

*Wear impervious clothing to prevent ANY contact with this product, such as gloves, apron, boots, or whole bodysuit. Nitrile rubber is better than PVC.*

#### Exposure Limits

*Methyl Methacrylate – Inhibited*

*PEL (OSHA) : 100 ppm, 410 mg/m<sup>3</sup>, 8 Hr. TWA*

*TLV (ACGIH) : 100 ppm, 410 mg/m<sup>3</sup>, 8 Hr. TWA*

*ICI (recommended) : 50ppm, 205 mg/m<sup>3</sup>, 15 min. STEL*

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Physical Data

*Boiling Point : 100.5 C (213 F) @ 760 mm Hg*

*Vapor Pressure : 28 mm Hg @ 20 C (68 F)*

*Vapor Density : 3.5 (Air = 1)*

*Melting Point : -48 C (-54 F)*

*Solubility in Water : 27.6 WT% @ 20 C (68 F)*

*Solubility Other : Miscible in most organic solvents*

*Odor Threshold : 0.5 – 1 ppm*

*Form : Liquid*

Color	: Colorless
Density	: 0.98 g/mL @ 15.5 C (60 F)
Partition Coefficient	: 1.38

## 10. STABILITY AND REACTIVITY

**Chemical Stability** *Unstable with heat.*

**Incompatibility with other materials**

*Incompatible with strong oxidizing agents and reducing agents. Material is a strong solvent and can soften paints and rubber.*

**Decomposition**

*Decomposes with heat.*

*Hazardous gases/vapors produced are carbon monoxide, carbon dioxide, acrid smoke, and irritating fumes.*

**Polymerization**

*Polymerization can occur. Conditions leading to polymerization are excessive heat, storage in absence of inhibitor, and inadvertent addition of catalyst. See L- 1031 (Additional information and References Section lists full title) for details on inhibitors and storage stability. Contamination of product may also cause hazardous polymerization.*

## 11. TOXICOLOGICAL INFORMATION

### *Animal Data*

*Inhalation 4 hour LD50: 7093 ppm in rats (very low toxicity by inhalation)*

*Skin absorption LD50: >35,500 mg/Kg in rabbits (very low toxicity by contact)*

*Oral LD50: 7900mg/Kg in rats (very low toxicity by ingestion)*

*Repeated exposure to high levels produces adverse effects on the heart, lungs, liver and kidneys.*

*Repeated exposure of animals by inhalation to levels at or above the occupational exposure level produces adverse effects on the nasal epithelium (levels of 100 and 400 ppm).*

*There is no reason to believe that methyl methacrylate represents a carcinogenic or mutagenic hazard to man based upon evidence from well conducted animal studies, relevant mutagenicity studies and adequate epidemiology studies in relevant cohorts.*

*Recent studies in animals have shown that high exposures do not produce embryo or fetotoxic nor teratogenic effects in the presence of maternal toxicity.*

*None of these effects are likely to occur in humans provided exposure is maintained at or below the occupational exposure limit.*

## 12. ECOLOGICAL INFORMATION

### *Ecotoxicological information*

#### **ENVIRONMENTAL FATE AND DISTRIBUTION**

*Product has low potential for bioaccumulation. The product is predicted to have high mobility in soil.*

#### **PERSISTENCE AND DEGRADATION**

*Not readily biodegradable*

*Chemical Oxygen Demand (COD): 88% (28 days)*

*Inherent Biodegradation: Dissolved Organic Carbon Removal (DOC removal): > 95% (28 days)*

#### **AQUATIC TOXICITY**

*Low toxicity to fish.*

*LC50 (fish): Typically > 100 mg/L*

*96 hour LC50, fathead minnow (static): 130 mg/L*

*Harmful to aquatic invertebrates.*

*EC50 48 hr. (Daphnia Magna): 69 mg/L*

*Low toxicity to algae.*

EC50 96 hr. (*Selenastrum Capricornutum*): 170 mg/L

**EFFECT ON EFFLUENT TREATMENT**

*Product is substantially removed in biological treatment processes.*

**13. DISPOSAL CONSIDERATIONS**

*Waste Disposal*

*Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush into surface water of sanitary sewer system. Incinerate material in accordance with Federal, State/Provincial and Local regulations. Do not incinerate in closed containers. Do not allow material to contaminate ground water system.*

**14. TRANSPORTATION INFORMATION**

*Shipping Information*

*DOT Shipping Description: Methyl Methacrylate Monomer, Inhibited, 3, UN1247, PGII*

*TMD Shipping Information:*

*Proper Shipping Name: Methyl Methacrylate Monomer*

*TMD Class : 3.2 (9.2)*

*I.D. No. (UN/NA) : UN1247*

*TMD Packing Group : II*

**15. REGULATORY INFORMATION**

*U.S. Federal Regulations*

*TSCA Inventory Status : Listed*

*TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312*

*Acute : Yes*

*Chronic : No*

*Fire : Yes*

*Reactivity : Yes*

*Pressure : No*

*State Regulations (U.S.)*

*No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substance lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:*

*Substances on the Pennsylvania Hazardous Substance List present at a concentration of 1% or more (0.01% for special hazardous substances): Methyl Methacrylate*

*Warning: Substances Known to the State of California to Cause Cancer: None known*

*Warning: Substances Known to the State of California to Cause Birth Defects or Other Reproductive Harm: None known*

*Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Methyl Methacrylate*

*Canadian Regulations*

*WHMIS Classification: B2: Flammable Liquid*

*D2B: Toxic*

*F: Dangerously Reactive Material*

*EC Regulations*

*EINECS: 201-297-1*

**EEC Classification:**

**Highly Flammable and Irritant.**

**Risk Phrases: R11 Highly flammable.**

*R36/37/38 Irritating to eyes, respiratory system and skin.*

*R43 May cause sensitization by skin contact.*

**Safety Phrases: S9 Keep container in well ventilated place.**

*S16 Keep away from sources of ignition.*

*No smoking.*

*S33 Take precautionary measures against static discharges.*

*S29 Do not empty into drains.*

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**16. OTHER INFORMATION**

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**NFPA, NPCA-HMIS**

**NFPA Rating**

**Health : 2**

**Flammability : 3**

**Reactivity : 2**

**NPCA-HMIS Rating**

**Health : 2**

**Flammability : 3**

**Reactivity : 2**

*Personal Protection rating to be supplied by user depending on use conditions.*

*See L-1031, Methyl Methacrylate Storage and Handling Bulletin for details on inhibitors and storage stability. Available from: Ineos Acrylics.*

Prepared by:  Chemist.

Issue Date: 8/29/02

THIS MATERIAL SAFETY DATA SHEET IS PREPARED IN COMPLIANCE WITH FEDERAL REGULATIONS (29 CFR 1910.1200), THE COMMONWEALTH OF PENNSYLVANIA REGULATIONS (TITLE 34. CHAPTERS 301-323) AND CANADIAN WHMIS REGULATIONS, ANY APPLICABLE STATE AND LOCAL REGULATIONS SHOULD BE CONSULTED. THE ABOVE INFORMATION MAY BE BASED ON INFORMATION PROVIDED BY COMPONENT SUPPLIERS AND IS BELIEVED TO BE CORRECT AS OF THE DATE HEREOF. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY USE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OF THESE DATA, THE RESULTS TO BE OBTAINED FROM THE USE OF THE MATERIAL, OR THE HAZARDS CONNECTED WITH SUCH USE. SINCE THE INFORMATION CONTAINED HEREIN MAY BE APPLIED UNDER CONDITIONS BEYOND OUR CONTROL AND WITH WHICH WE MAY BE UNFAMILIAR, AND SINCE DATA MADE AVAILABLE SUBSEQUENT TO THE DATE HEREOF MAY SUGGEST MODIFICATION OF THE INFORMATION, WE ASSUME NO RESPONSIBILITY FOR THE RESULT OF ITS USE. THIS INFORMATION AND MATERIAL IS FURNISHED ON THE CONDITION THAT THE PERSON RECEIVING IT SHALL MAKE HIS/HER OWN DETERMINATION AS TO THE SUITABILITY OF THE MATERIAL FOR HIS/HER PARTICULAR PURPOSE AND ON THE CONDITION THAT HE/SHE ASSUME THE RISK OF HIS/HER USE THEREOF.