

# MATERIALS SAFETY DATA SHEET

## SECTION 1 – PRODUCT IDENTIFICATION AND USE

**PRODUCT IDENTIFIER:** TECHNOVIT 4000 LIQUID 1 11 10 12  
**PRODUCT USE:** Resin for metallographic testing

**DISTRIBUTOR'S NAME:** MICRO STAR 2000 INC. **EMERGENCY PHONE NUMBER:** 905-660-1754  
**DISTRIBUTOR'S ADDRESS:** 225 Bradwick Drive, Unit 21  
Concord, Ontario  
L4K 1K7

## SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

### CHEMICAL CHARACTERIZATION:

**Description:** Product based on methacrylates

#### Dangerous Components:

CAS: 100-42-5 EINECS: 202-851-5	styrene	Xn; R 10-20-36/38	10-25%
CAS 80-62-6 EINECS: 201-297-1	methyl methacrylate	Xi, F; R 11-37/38-43	10-25%

**Additional Information:** For the wording of the listed risk phrases refer to section 16.

**WHIMS:** Class B, Div 3  
Class D, Div 2, Skin or eye irritation

## SECTION 3 – HAZARDS IDENTIFICATION

### HAZARD DESIGNATION:

Xn Harmful

### Information pertaining to particular dangers for man and environment:

The product has to be labeled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 10 Flammable  
R 20 Harmful by inhalation.  
R 36/38 Irritating to eyes and skin.  
R 43 May cause sensitization by skin contact.

### Classification System:

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies

## SECTION 4 – FIRST AID MEASURES

**GENERAL INFORMATION:** Symptoms of poisoning may even occur after several hours' therefore-medical observation for at least 48 hours after the accident.

**INHALATION:** Supply fresh air; consult doctor in case of symptoms.

**SKIN CONTACT:** Instantly wash with water and soap and rinse thoroughly.

**EYE CONTACT:** Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.

**INGESTION:** Do not induce vomiting; instantly call for medical help.

### SECTION 5 – FIRE FIGHTING MEASURES

**SUITABLE EXTINGUISHING AGENTS:** CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

**FOR SAFETY REASONS UNSUITABLE EXTINGUISHING AGENTS:** Water with a full water jet.

**SPECIAL HAZARDS CAUSED BY THE MATERIAL, ITS PRODUCTS OF COMBUSTION OR FLUE GASES:** Formation of toxic gases is possible during heating or in case of fire.

**PROTECTIVE EQUIPMENT:** Put on breathing apparatus.

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**PERSONAL PROTECTION:** Wear protective equipment. Keep unprotected persons away.

**ENVIRONMENTAL PRECAUTIONS:** Prevent material from reaching sewage systems and/or ground water.

**CLEANING METHODS:** Absorb with liquid-binding material (diatomite, universal binders, for small amounts tissues). Dispose of contaminated material as waste according to item 13.

**ADDITIONAL INFORMATION:** No dangerous materials are released.

### SECTION 7- HANDLING AND STORAGE

**HANDLING:** Keep containers tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.

**EXPLOSION AND FIRES:** Keep ignition sources away- do not smoke  
Protect against electrostatic charges.

**STORAGE:** Store cool (not above 25 C)

### SECTION 8 – ENGINEERING CONTROLS / PERSONAL PROTECTION

**Components with critical value that require monitoring at the workplace:**

**100-42-5 styrene**

MEL ()	Short-term value: 1080 mg/m3, 250 ppm Long-term value: 430 mg/m3, 100 ppm
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**80-62-6 methyl methacrylate**

OES ()	Short-term value: 416 mg/m3, 100 ppm Long-term value: 208 mg/m3, 50 ppm
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**ADDITIONAL INFORMATION:** The lists that were valid during the compilation were used as basis.

**PERSONAL PROTECTIVE EQUIPMENT  
GENERAL PROTECTIVE AND HYGIENIC MEASURES**

Keep away from beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Do not inhale gases/fumes/aerosols.  
Avoid contact with eyes and skin.

<b>INHALATION PROTECTION:</b>	Not necessary with efficient local exhaust. If exposition to vapor is possible use breathe protective make (filter A)
<b>SKIN CONTACT;</b>	If skin contact cannot be avoided, protective gloves are recommended to avoid possible sensitization.  Solvent resistant gloves The glove material has to be impermeable and resistant to the product/ the substance/the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
<b>MATERIAL OF GLOVES:</b>	The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies form manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
<b>PENETRATION TIME OF GLOVE MATERIAL:</b>	The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
<b>FOR THE PERMANENT CONTACT IN WORK AREAS WITHOUT HEIGHTENED RISK OF INJUURY (E.G. LABORATORY) GLOVES MADE OF THE FOLLOWING MATERIAL ARE SUITABLE: PVA gloves</b>	
<b>FOR THE PERMANENT CONTACT OF MAXIMUM OF 15 GLOVES MADE OF THE FOLLOING MATERIAL ARE SUIABLE:</b>	Butyl rubber, BR Fluoracarbon rubber (Viton) Nitrile rubber, NBR Chloroprene rubber, CR
<b>EYE PROTECTION:</b>	Protective goggles are recommended.
<b>BODY PROTECTION:</b>	Light weight protective clothing

**SECTION 9- PHYSICAL AND CHEMICAL PROPERTIES**

<b>General Information</b>	
Form	Fluid
Color	Yellow
Smell	Characteristic
<b>Change in condition</b>	
Melting point/Melting range:	Not determined
Boiling point/Boiling range	>100° C
<b>Flash point:</b>	27° C
<b>Ignition temperature:</b>	430° C
<b>Self-inflammability</b>	Product is not self igniting
<b>Danger of explosion</b>	
Product is not explosive. However, formation of explosive air/vapor mixtures is Possible	
<b>Critical values for explosion;</b>	
Lower	1.2 Vol%
Upper	12.5 Vol%
<b>Steam pressure at 20° C</b>	47 hPA

Density at 20° C	1.100 g/cm <sup>3</sup>
Solubility in/ Miscibility with water	Not miscible or difficult to mix
Solvent content of Organic Solvents	40.0%

## SECTION 10- STABILITY AND REACTIVITY

<b>CONDITIONS TO BE AVOIDED:</b>	No decomposition if used and stored according to specifications
<b>DANGEROUS REACTION:</b>	No dangerous reactions known
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	None
<b>ADDITIONAL INFORMATION:</b>	If stored longer than recommended and/or above recommended temperature, product may polymerize generating heat.

## SECTION 11- TOXICOLOGICAL INFORMATION

- ACUTE TOXICITY:

### LD/LC50 values that are relevant for classification:

#### 100-42-5 styrene

Oral	LD 50	500 mg/kg (rat)
Inhalative	LC50/4 h	24 mg/l (rat)

#### Primary irritant effect:

<b>SKIN:</b>	Irritant for skin and mucous membranes
<b>EYES:</b>	Irritant effect.
<b>SENSITIZATION:</b>	Sensitization possible by skin contact
<b>ADDITIONAL INFORMATION:</b>	The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version Harmful Irritant

## SECTION 12- ECOLOGICAL INFORMATION

**GENERAL NOTES:** Water hazard class 2 (calculated according to VwVwS): hazardous for water. Do not allow product to reach ground water, water bodies or sewage system. Danger to drinking water if even small quantities leak into soil.

## SECTION 13- DISPOSAL CONSIDERATION

<b>ENVIRONMENTAL TOXICITY DATA:</b>	See regulatory information below.
<b>WASTE DISPOSAL METHOD:</b>	In accordance with local, state, and federal regulations.
<b>CONTAINER DISPOSAL:</b>	In accordance with all local, provincial, and federal regulations.

**SECTION 14- TRANSPORTATION INFORMATION****LAND TRANSPORT :**

**ADR/RID-GGVS/E Class:** 3 (F1) Flammable liquids.  
**Kemler Number:** 30  
**UN-Number:** 1866  
**Packaging Group:** III  
**Label:** 3  
**Designation of goods:** 1866 RESIN SOLUTION, special provision 640 E

**AIR TRANSPORT ICAO-TI and IATA-DGR**

**ICAO/IATA Class:** 3  
**UN/ID Number:** 1866  
**Label:** 3  
**Packaging group:** III  
**Correct technical name:** RESIN SOLUTION

**SECTION 15- REGULATORY INFORMATION**

**DESIGNATION ACCORDING TO EC GUIDELINES:** The product has been classified and labeled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

**CODE LETTER AND HAZARD DESIGNATION OF PRODUCT:** Xn Harmful

**HAZARD-DETERMINING COMPONENTS OF LABELING:** methyl methacrylate  
styrene

**RISK PHRASES**

10 Flammable  
20 Harmful by inhalation  
36/38 Irritating to eyes and skin  
43 May cause sensitization by skin contact

**SAFETY PHRASES**

23 Do not breathe gas.

35 This material and its container must be disposed of in a safe way.  
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
51 Use only in well-ventilated areas.

**NATIONAL REGULATIONS****Technical instructions (air):**

Class	Share in%
NK	25-50

**Water hazard class:**

Water hazard class 2(calculated according to VwVwS): Hazardous for water.

## SECTION 16- OTHER INFORMATION

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**RELEVANT R-PHRASES**

10 Flammable  
11 Highly flammable  
20 Harmful by inhalation  
36/38 Irritating to eyes and skin  
37/38 Irritating to respiratory system and skin  
43 May cause sensitization by skin contact.

## SECTION 17- PREPARATION OF MATERIAL SAFETY DATA SHEET

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