MATERIALS SAFETY DATA SHEET

SECTION 1 – PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER: TECHNOVIT 4000 SYRUP 2
PRODUCT USE: Resin for metallographic testing

DISTRIBUTOR'S NAME: MICRO STAR 2000 INC.
DISTRIBUTOR'S ADDRESS: 225 Bradwick Drive, Unit 21
Concord, Ontario
L4K 1K7

EMERGENCY PHONE NUMBER: 905-660-1754

SECTION 2 – COMPOSITION / DATA ON COMPONENTS

CHEMICAL CHARACTERIZATION
Description: Product based on methacrylates

DANGEROUS COMPONENTS:

		Xi: R 36/34/38	50-75%
CAS: 80-62-6 EINECS: 201-297-1	methyl methacrylate	Xi: F; R 11-37/38-43	25-50%
CAS: 100-42-5 EINECS: 202-851-5	styrene	Xn: R 10-20-36/38	5-10%
CAS: 99-97-8 EINECS: 202-805-4	N,N-dimethyl-p-toluidine	T: R 23/24/25-33-52/53	< 1%

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

WHIMS:

SECTION 3 – HAZARD IDENTIFICATION

HAZARD DESIGNATION: Xn Harmful
F Highly Flammable

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 preparation of the EU" in the latest valid version.

R 11 Highly flammable.
R 20 Harmful by inhalation.
R 36/37/38 Irritating to eyes, respiratory system 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 or 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 power or water jet. Fight larger fires with water jet or alcohol-resistant foam.
CO2, sand, extinguishing powder. Do not use water.

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

SPECIAL HAZARD 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 PRECAUTIONS: Wear protective equipment. Keep unprotected person away.

ENVIRONMENTAL PROTECTIONS: Prevent material from reaching sewage system, holes and cellars.

CLEANING METHODS: Absorb with liquid-binding material (diatomite, universal binders, for small amounts tissues).
Dispose of contaminated material as waste according to item 13.
Do not flush with water or aqueous cleansing agents.

ADDITIONAL INFORMATION: No dangerous materials are released.

SECTION 7 – HANDLING AND STORAGE

HANDLING: Keep containers tightly sealed.
Ensure good ventilation / exhaustion at the workplace.
Prevent formation of aerosols.

EXPLOSION AND FIRES Keep ignition sources away – Do not smoke.
Protect against electrostatic charges.

STORAGE: Store cool (not above 25℃), dry conditions in well sealed containers.

SECTION 8 – ENGINEERING CONTROLS / PERSONAL PROTECTION

Components with critical values that require monitoring at the workplace:	
80-62-6 methyl methacrylate	
OES ()	Short-term value: 416 mg/m^3, 100 ppm Long-term value: 208 mg/m^3, 50 ppm
100-42-5 styrene	
MEL ()	Short-term value: 1080 mg/m^3, 250 ppm Long-term value: 430 mg/m^3, 100 ppm

PERSONAL PROTECTIVE EQUIPMENT:

GENERAL PROTECTIVE AND HYGIENIC MEASURES: Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.

INHALATION PROTECTION: Not necessary with efficient local exhaust. If exposition to vapors is possible, use breathing protective mask (filter A).

SKIN CONTACT If skin contact cannot be avoided, protective gloves are recommended to avoid possible sensitization.
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.

MATERIAL OF GLOVES: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from 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.

PENETRATION TIME OF GLOVE MATERIAL: The exact break trough time has to be found out by the manufacturer of the protective gloves and has be observed.

FOR THE PERMANENT CONTACT IN WORK AREAS WITHOUT HEIGHTENED RISK OF INJURY (E.G. LABORATORY) GLOVES OF THE FOLLOWING MATERIAL ARE SUITABLE: PVA gloves.

FOR THE PERMANENT CONTACT OF MAXIMUM OF 15 MINUTES GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
Butyl rubber, BR
Fluorocarbon rubber (Viton)
Nitrile rubber, NBR
Chloroprene rubber, CR

EYE PROTECTION: Protective goggles are recommended.

BODY PROTECTION: Light weight protective clothing.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

General Information:	
Form:	Fluid
Colour:	Blue
Smell:	Characteristic
Change in Condition:	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	101°C
Flash point:	15°C
Ignition temperature:	430°C
Self-inflammability:	Product is not selfigniting.
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
Critical values for explosion:	
Lower:	2.1 Vol %
Upper:	12.5 Vol %
Steam pressure at 20°C:	47 hPa
Density at 20°C:	1.000 g/cm^3
Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
Solvent content:	
Organic Solvents:	40.6 %

SECTION 10 – STABILITY AND REACTIVITY

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

SECTION 11 – TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:
PRIMARY IRRITANT EFFECTS:
SKIN: Irritant for skin and mucous membranes.

EYES: Irritant effect.

SENSITIZATION: Sensitization possible by skin contact.

ADDITIONAL TOXICOLOGICAL INFORMATION: The product shows the following dangers according to the calculation method of the General EC Classification Guideline for Preparations as issued in the latest version:
Harmful
Irritant

SECTION 12 – ECOLOGICAL INFORMATION

GENERAL: 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

ENVIRONMENTAL TOXICITY DATA: See regulatory information below.

WASTE DISPOSAL METHOD: In accordance with all local, state, and federal regulations.

CONTAINER DISPOSAL: In accordance with all local, state, and federal regulations.

SECTION 14 – TRANSPORTATION INFORMATION

Land Transport ADR/RID and GGVS/GGVE (cross-border/domestic):
ADR/RID-GGVS/E Class: 3 (F1) Flammable liquids
Kemler Number: 33
UN-Number: 1866
Packaging group: II
Label: 3
Designation of goods: 1866 RESIN SOLUTION, special provision 640D

Air Transport ICAO-TI and IATA-DGR:
ICAO/IATA: 3
UN/ID Number: 1866
Label: 3
Packaging Group: II
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
F Highly flammable

HAZARD-DETERMINING COMPONENTS: methyl methacrylate

RISK PHRASES:

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

SAFETY PHRASES:

9 Keep container in a well-ventilated place
16 Keep away from sources of ignition – No smoking
23 Do not breathe gas/fumes/vapor/spray (appropriate wording to be specified by the manufacturer)
24 Avoid contact with skin
37 Wear suitable gloves

NATIONAL REGULATIONS:

Technical instructions (air):

Class	Share in %
I	0-5
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
23/24/25 Toxic by inhalation, in contact with skin and if swallowed
33 Danger of cumulative effects
36/37/38 Irritating to eyes, respiratory system and skin
36/38 Irritating to eyes and skin
37/38 Irritating to respiratory system and skin
43 May cause sensitization by skin contact
52/53 Harmful to aquatic organisms, may cause long-term adverse effect in the aquatic environment

SECTION 17 – PREPARATION OF MATERIAL SAFETY DATA SHEET

PREPARED BY: R. Dickertmann PHONE NUMBER: 905-660-1754 DATE: February 15, 2008