SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers and users of this product.
PRODUCT NAME: #1052-M Solvent
PANNIER PART NUMBER: I1052-S010
PRODUCT USE: Flexographic Ink Solvent
CHEMICAL FAMILY: Mixture
CAS NO.: NOT AVAILABLE (MIXTURE)
Not recommended for: Consumer Use
Manufacturer/Supplier:
PANNIER CORPORATION
207 SANDUSKY STREET
PITTSBURGH, PA 15212-5823 U.S.A.
Emergency Telephone Number:
TRANSPORTATION: CHEMTREC : 1-800-424-9300 (North America)
1-703-527-3887 (International)

SECTION 2 - HAZARDS IDENTIFICATION

Chemical Name	CAS No.	Concentration
1-methoxy-2-propanol	107-98-2 99.	60%
2-methoxy-1-propanol	1589-47-5 0.	12%

Maximum 0.12% 2-methoxypropanol-1 .Stabilized with 25 ppm BHT.

Symbal

Signal Word Warning

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Emergency Overview
Appearance and Odour : Clear. Liquid. Ethereal.
Safety Hazards: Flammable liquid and vapour. Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.
Health Hazards: Vapours may cause drowsiness and dizziness.
Health Hazards Inhalation: Slightly irritating to respiratory system. Vapours may cause drowsiness and dizziness.
Skin Contact: Repeated exposure may cause skin dryness or cracking.
Eye Contact: Slightly irritating to the eye.
Signs and Symptoms: Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.
Aggravated Medical Condition: Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin. Eyes. Respiratory system.

SECTION 4 - FIRST AID MEASURES

Inhalation: Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Skin Contact: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.
Ingestion: If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Advice to Physician: Causes central nervous system depression. Potential for chemical pneumonitis. Call a doctor or poison control center for guidance.

SECTION 5 - FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.
Flash point: 30 °C / 86 °F (Abel)
Upper / lower Flammability or Explosion limits: 1.9 - 13.1 %(V)
Auto ignition temperature: 290 °C / 554 °F (ASTM E-659)
Specific Hazards: Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Suitable Extinguishing Media: Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.
Unsuitable Extinguishing Media: Data not available.
Protective Equipment for Firefighters: Wear full protective clothing and self-contained breathing apparatus.
Additional Advice: Keep adjacent containers cool by spraying with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.
Protective measures: Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and firefighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas indicator.
Clean Up Methods: For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
Additional Advice: See Chapter 13 for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

SECTION 7 - HANDLING AND STORAGE

General Precautions: Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling: Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Do NOT use compressed air for filling, discharging, or handling operations. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Handling Temperature: Ambient. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Bulk storage tanks should be diked (bunded). Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Storage: Keep away from aerosols, flammables, oxidizing agents, corrosives and from products harmful or toxic to man or to the environment. Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Storage Temperature: Ambient.
Product Transfer: Keep containers closed when not in use. Refer to guidance under Handling section.
Recommended Materials: For containers, or container linings use mild steel, stainless steel.
Unsuitable Materials: Aluminum Most plastics. Natural, butyl, neoprene or nitrile rubbers.
Container Advice: Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

Additional Information: Glycol ethers can be peroxide formers. Stabilized with 25 ppm BHT. Ensure that all local regulations regarding handling and storage facilities are followed. See additional references that provide safe handling practices: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity). CENELEC CLC/TR 50404 (Electrostatics – Code of practice for the avoidance of hazards due to static electricity).

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits
Material Source Type ppm mg/m3
1-methoxy-2-propanol ACGIH TWA 50 ppm
ACGIH STEL 100 ppm
Biological Exposure Index (BEI) Biological Limit Values (BLV) have not been established for this material.
Additional Information: Wash hands before eating, drinking, smoking and using the toilet.
Exposure Controls: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Firewater monitors and deluge systems are recommended. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping. Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle
Personal Protective Equipment: Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection: If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)].
Hand Protection: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Longer term protection: Butyl rubber. Nitrile rubber. Incidental contact/Splash protection: PVC For continuous contact we recommend gloves with breakthrough time of more 240 minutes with preference for >480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection: Chemical splash goggles (chemical monogoggles).
Protective Clothing: Chemical resistant gloves/gauntlets. Wear antistatic and flameretardant clothing.
Monitoring Methods: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances, biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analyzed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/ Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/ Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances, http://www.hse.gov.uk/ Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany. http://www.dguv.de/inhalt/index.jsp L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Environmental Exposure Controls: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

The physical and chemical property data are typical values and do not constitute a specification.

Appearance:	Clear. Liquid.
Odour:	Ethereal.
pH:	Not applicable
Boiling point:	117 - 125 °C / 243 - 257 °F
Melting / freezing point:	-96 °C / -141 °F
Flash point:	30 °C / 86 °F (Abel)
Upper / lower Flammability or Explosion limits:	1.9 - 13.1 %(V)
Auto-ignition temperature:	290 °C / 554 °F (ASTM E-659)
Vapour pressure:	1,170 Pa at 20 °C / 68 °F
Specific gravity:	0.92 at 20 °C / 68 °F
Density:	920 - 923 kg/m3 at 20 °C / 68 °F (ASTM D-4052)
Water solubility:	at 20 °C / 68 °F Completely miscible.
Solubility in other solvents:	Data not available.
Vapour density (air=1)	3.1

Electrical conductivity: Electrical conductivity: > 10 000 pS/m, A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid., This material is not expected to be a static accumulator.

Volatile organic carbon:	100 %
Coefficient of expansion	Data not available.
Evaporation rate (nBuAc=1):	0.75 (ASTM D 3539, nBuAc=1)

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use. Glycol ethers can be peroxide formers. Potential exists for runaway reaction at elevated temperatures in the presence of strong bases and salts of strong bases. Reacts with strong oxidising agents. Oxidises on contact with air to form unstable peroxides.
Conditions to Avoid: Exposure to air. Avoid heat, sparks, open flames and other ignition sources.
Materials to Avoid: Strong oxidising agents. Aluminum Acids. Strong bases. Salts of strong bases.
Hazardous Decomposition Products: Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Hazardous Reactions: Hygroscopic.
Sensitivity to Static Discharge: Yes, in certain circumstances product can ignite due to static electricity.

SECTION 11 - TOXICOLOGICAL INFORMATION

Basis for Assessment: Information given is based on product testing.
Acute Oral Toxicity: May be harmful if swallowed. LD50 >2000 - <=5000 mg/kg
Acute Dermal Toxicity: Low toxicity: LD50 >5000 mg/kg
Acute Inhalation Toxicity: Low toxicity if inhaled. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Skin corrosion/irritation: Not irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Serious eye damage/irritation: Expected to be slightly irritating.
Respiratory Irritation: Not expected to be a respiratory irritant.
Sensitisation: Not a skin sensitiser.
Repeated Dose Toxicity: Not expected to be a hazard. Kidney: caused kidney effects in male rats which are not considered relevant to humans
Germ cell mutagenicity: No evidence of mutagenic activity.
Carcinogenicity: Not carcinogenic in animal studies.
Material: **Carcinogenicity Classification**

1-methoxy-2-propanol: ACGIH Group A4: Not classifiable as a human carcinogen.
1-methoxy-2-propanol: GHS / CLP**:** No carcinogenicity classification
2-methoxy-1-propanol: GHS / CLP**:** No carcinogenicity classification
Reproductive and Developmental Toxicity: Causes foetotoxicity in animals at doses which are maternally toxic. (1-methoxy-2-propanol) Causes adverse effects on the foetus based on animal studies. (2-methoxypropanolacetate, 2-methoxy-1-propanol)

SECTION 12 - ECOLOGICAL INFORMATION

Acute Toxicity Fish: Low toxicity: LC/EC/IC50 > 1000 mg/l
Aquatic crustacea: Low toxicity: LC/EC/IC50 > 1000 mg/l
Algae/aquatic plants: Low toxicity: LC/EC/IC50 > 1000 mg/l
Microorganisms: Low toxicity: LC/EC/IC50 > 1000 mg/l
Mobility: If product enters soil, it will be highly mobile and may contaminate groundwater. Dissolves in water.
Persistence/degradability: Readily biodegradable meeting the 10 day window criterion. Oxidises rapidly by photo-chemical reactions in air.
Bioaccumulation: Not expected to bioaccumulate significantly.
Other Adverse Effects: Data not available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Material Disposal: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.
Container Disposal: Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recoverer or metal reclaimer.
Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be in compliance.

SECTION 14 - TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)

Identification number	UN 3092
UN proper shipping name	1-methoxy-2-propanol
Class / Division	3
Packing group	III
Emergency Response Guide No.	129

IMDG

Identification number	UN 3092
UN proper shipping name	1-methoxy-2-propanol
Class / Division	3
Packing group	III
Marine Pollutant:	No

IATA (Country variations may apply)

Identification number	UN 3092
UN proper shipping name	1-Methoxy-2-propanol
Class / Division	3
Packing group	III

Additional Information: This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

SECTION 15 - REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
Federal Regulatory Status Notification Status
AICS Listed.
DSL Listed.
INV (CN) Listed.

EINECS Listed. 203-539-1
ENCS (JP) Listed. (2)-404
ENCS (JP) Listed. (7)-97
ISHL (JP) Listed. (2)-404
ISHL (JP) Listed. (7)-97
JEX (JP) Listed. (2)-404
KECI (KR) Listed. KE-23379
NZIOC Listed. HSR001187 HSNO Approved
PICCS (PH) Listed.
TSCA Listed.
SARA Hazard Categories (311/312)
Immediate (Acute) Health Hazard. Fire Hazard.
State Regulatory Status
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65) This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
New Jersey Right-To-Know Chemical List 1-methoxy-2-propanol (107-98-2) Listed. Special hazard.
Pennsylvania Right-To-Know Chemical List 1-methoxy-2-propanol (107-98-2) Listed.

SECTION 16 - OTHER INFORMATION

HMIS Rating (Health, Fire, Reactivity): 1, 3, 0
NFPA Rating (Health, Fire, Reactivity): 0, 3, 0
SDS Regulation: The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
Uses and Restrictions: Use only in industrial processes.
SDS Distribution: The information in this document should be made available to all who may handle the product
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