Section 1 - Product and Company Identification

Product name： Propylene glycol monomethyl ether
Other names：--
Product use：Ink dissolvent, Leather dye.
Supplier's name：San Fu Chemical Co., Ltd.
Supplier's address：1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.
Supplier's phone：886-6-6231821 Emergency phone：886-6-6231821
FAX.：886-6-6231822

Section 2 - Hazards Identification

Classification：

1. Flammable Liquids Category 3
2. Serious eye damage/ irritation Category 2A

The Most Important Hazards and effect

Label element：

- Hazard symbol： Flame, Exclamation Mark

- Signal word：Warning

Hazard statement：

1. Flammable liquids and vapor
2. Cause eye irritation

Precautionary statement：

1. Store in well ventilated area
2. Away from kindling- no smoking
3. Keep away from contact with eyes.

Others Hazard：--

Section 3 - Composition/Information On Ingredients

pure Substance：

Chemical name：Propylene glycol monomethyl ether
Synonyms：1-Methoxy-2-hydroxypropane、2-Methoxy-1-methylethanol、PGME
CAS No.：107-98-2
Ingredient contributing to the hazard(%)：100%

Section 4 - First Aid Measures

The First-aid Information：

- Inhalation：Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

- Skin Contact：Wash skin with plenty of water .
- Eye Contact：Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
- Ingestion：If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
- General advice**:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

The Most Important Symptoms and Hazardous Effects：

- Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.
- Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Protection of First-aiders：

1. Personnel are not allowed to enter the disaster area to move the patient without chemical protective clothing and respirator.
2. Wear proper protective equipments to practice the first aid in the safety area.

Notes to a Physician：--

Section 5 - Fire Fighting Measures

Extinguishing Media：Water fog ,CO_2, Chemical powder, foam . Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

Specific Hazards when Fire-fight：

1. Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide, Carbon dioxide.

2.Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.When product is stored in closed containers, a flammable atmosphere can develop. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

Specific Fire-fighting Procedure：

Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning

liquids may be moved by flushing with water to protect personnel and minimize property damage
Specific Protection of Firefighters： Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6 - Accidental Release Measures

Personal Precautions： Isolate area. Refer to Section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental Precautions：Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods for Cleaning up： Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.

Section 7 - Handling and Storage

Handling： **1.General Handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. Never use air pressure for transferring product. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically bond and ground all containers and equipment before transfer or use of material. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non- sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Keep away from heat, sparks and flame. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. This product is a poor conductor of electricity and can become electrostatically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. **2.Other Precautions:** Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.
Storage： Flammable mixtures may exist within the vapor space of containers at room temperature. Keep

container closed. Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel.

Section 8 - Exposure Controls & Personal Protection

Engineering measures：

1. Provide locally exhausted device.
2. Provide entire exhausted device.

Control parameters			
TWA	STEL	Ceiling	Biological standards
100 ppm	125 ppm	--	--

Personal protective equipment：

- ■ Respiratory Protection：
  Should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge.
- ■ Hand Protection：Wear chemical protective gloves.
- ■ Eye Protection：Wear chemical protective goggles
- ■ Skin and Body Protection：Wear chemical protective cloth.

Hygiene measures：

1. Remove contaminated clothes, clean thoroughly before reuse or disposal. Must advise the danger to the laundry worker.
2. No smoking & eating in work place.
3. Wash hands thoroughly after handing this substance.
4. Maintain a clean work environment.

Section 9 - Physical & Chemical Properties

Appearance：liquid	Odor：etherr
Color：Transparent	Melting Point: -590℃
pH value：--	Boiling point/boiling range：120℃
Flammability: --	Flash point：32 ℃
Decomposition temp：--	Test method：closed cup
Auto ignition temp：286℃	Explosion properties：1.6%~13.8%
Vapor pressure：11.8mmHg @25℃	Vapor density：(air=1)3.11
Density：0.917（25℃）	Solubility：completely miscible with water
log Kow：-0.53	Evaporation Rate：0.7 (Butyl acetate =1)

Section 10 - Stability & Reactivity Data

Stability：Stable under recommended storage conditions. See Storage, Section 7.
Possible hazardous reactions under specific conditions：Polymerization will not occur.
Conditions to avoid： Exposure to elevated temperatures can cause product to decompose.Generation of gas during decomposition can cause pressure in closed systems.Avoid static discharge.
Materials to avoid: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.
Hazardous decomposition products：Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.

Section 11 - Toxicological Information

Route of exposure：Skin, inhalation, ingestion, eyes
Symptoms：Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. In animals, effects have been reported on the following organs: Kidney. Liver.
Immediate Toxicity： 1. Skin： Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause slight skin irritation with local redness. Did not cause allergic skin reactions when tested in guinea pigs. 2. Inhalation：-- 3. Eye： May cause slight temporary eye irritation. Corneal injury is unlikely. 4. Ingestion： 4.1 Low toxicity 4.2 Swallowed with large amount may inhibit the nervous system. Symptoms are the same with inhalation cause. ● LD_{50}: 4,016mg/kg（rat，oral） ● LC_{50}:> 25.8mg/L/6H (rat，inhalation) ● LD_{50}: >2,000mg/kg（rabbit，dermal）
Specific effects： 1. Did not cause cancer in laboratory animals. 2. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals 3. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. 4. In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Section 12 - Ecological Information

Ecotoxicology：Material is practically non-toxic to aquatic organisms on an acute basis. ■ LC_{50}(fish)：>2,000 mg/L/96H ■ EC_{50}(Aquatic Invertebrates)：-- ■ Bioconcentration factor (BCF)：--
Persistence and degradability： --

■ Half-Life (Air)：-- ■ Half-Life (Water surface)：-- ■ Half-Life (Groundwater)：-- ■ Half-Life (Soil)：--
Bioaccumulative potential：Bioconcentration potential is low.
Mobility in soil：Potential for mobility in soil is very high.
Other adverse effects：--

Section 13 - Disposal Considerations

Methods of disposal： 1. Incineration. 2. Buried. 3. Follow the local law and regulation.

Section 14 - SDS Transport Information

UN classification number：3029
Proper D.O.T Shipping Name：--
Hazard Class：Category 3 Flammable liquid
Packing Group：--
Marine pollution：none
Specific precautionary transport measures and conditions：--

Section 15 - Regulatory Information

Regulations： 1. Occupational Safety and Health Act 2. Regulations for the Labelling and Hazard Communication of Hazardous Chemicals 3. Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace 4. Road Traffic Safety Regulations 5. Industrial Waste Storage and Disposal Regulations 6. Public Hazardous Materials and Flammable Pressurized Gases Establishment Standards and Safety Control Regulations. 7. Assessment and Classification Administration of Hazardous Chemicals.

Section 16 - Other Information

Literature references	1.CHEMINFO Database，CCINFO Disc，2005-3 2.RTECS Database，TOMES PLUS Disc，Vol.65，2005 3.HSDB Database，TOMES PLUS Disc，Vol.65 ，2005 4.Material Safety Data Sheets，Genium Publishing Corparation，1997 5.NIOSH/OSHA, Occupational Health Guidelines for Chemical Hazards,1981 6.ChemWatch Database，2005-1

Prepared by	Suppler：San Fu Chemical Co., Ltd.	
	Address：1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.	
	TEL：886-6-6231821	FAX：886-6-6231822
	Name：X.Z.Lin	
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