SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier
   Product Name: Glycol Ether PM Acetate
   Synonym(s): Propylene glycol methyl ether acetate; PMA; PGMEA; Methoxyisopropyl acetate; 1-Methoxy-2-propyl acetate; 1-Methoxy-2-propanol acetate; Methoxy-1-methylethyl acetate; 2-Methoxy-1-methylethyl acetate; 1-Methoxy-2-acetoxypropane; 2-Acetoxy-1-methoxypropane
   REACH Registration Number: No data available at this time.

1.2 Relevant identified uses of the substance or mixture and uses advised against
   General use: Industrial applications
   Uses advised against: None known

1.3 Details of the supplier and of the safety data sheet
   Manufacturer/Distributor
   Silver Fern Chemical, Inc.
   2226 Queen Anne Avenue North
   Suite C
   Seattle, WA 98109 USA
   1-866-282-3384
   Website - www.silverfernchemical.com; email address - info@silverfernchemical.com

1.4 Emergency telephone number: INFO-TRAC +1-800-535-5053; Outside USA & Canada +1-352-323-3500

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture
   Product definition: Substance
   Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008
   Flammable liquid - Category 3 [H226]

2.2 Label Elements
   Hazard Symbol(s): GHS02
   Signal Word: Warning
   Hazard Statement(s): H226 - Flammable liquid and vapor
   Precautionary Statements:
   [Prevention]
   P201 - Keep away from heat, sparks, open flames and hot surfaces. No smoking.
   P233 - Keep container tightly closed.
   P240 - Ground and bond container and receiving equipment.
   P241 - Use explosion-proof electrical, ventilating, lighting and mixing equipment.
   P242 - Use only non-sparking tools.
   P243 - Take precautionary measures against static discharge.
   P280 - Wear protective gloves, protective clothing, eye protection and face protection.
   P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water or shower.
   P370 + P378 - In case of fire: Use water fog or spray, foam, dry chemical or carbon dioxide for extinction.
   [Response]
   P403 + P235 - Store in well-ventilated place. Keep cool.
   P501 - Dispose of contents and containers in accordance with national and local regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
   None known

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>% by Weight</th>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>Annex Number</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;99.5</td>
<td>Glycol Ether PM Acetate</td>
<td>180-65-6</td>
<td>203-603-9</td>
<td>607-195-00-7</td>
<td>H226</td>
</tr>
</tbody>
</table>

Effective Date: 27 January 2017
Supercedes: 08 July 2015

Safety Data Sheet
Glycol Ether PM Acetate
There are no ingredients present in this product which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3.2 Mixtures
Not applicable

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

**Inhalation:** If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Contact a doctor, paramedical personnel or Poison Control Center if the victim feels unwell.

**Eyes:** Immediately flush eyes with large amounts of water or saline solution for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. If irritation persists, seek medical advice, preferably from an ophthalmologist.

**Skin:** Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water and continue rinsing. Wash contaminated clothing and shoes thoroughly before reuse. If irritation persists, seek medical attention.

**Ingestion:** Rinse mouth with water if the victim is conscious. Remove dentures, if present. DO NOT induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the victim on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Seek medical attention if the victim feels unwell or if a large quantity of material has been swallowed.

4.2 Most important symptoms and effects, both acute and delayed

**Potential health symptoms and effects**

**Eyes:** May cause eye irritation with inflammation, itching, swelling, pain and blurred vision. Slight corneal injury may occur.

**Skin:** May cause skin irritation with localized redness, itching and discomfort. Prolonged contact with large amounts may cause dizziness or drowsiness.

**Inhalation:** Inhalation of mist or vapor causes irritation of the upper respiratory tract. Symptoms may include headache, cough, shortness of breath, dizziness and narcosis. May cause damage to the mucous membranes of the nose and nasal cavity.

**Ingestion:** May cause irritation of the digestive tract. This substance has very low toxicity if swallowed. Harmful effects are not anticipated from swallowing small amounts.

**Chronic:** None known

4.3 Indication of any immediate medical attention and special treatment needed

**Advice to Doctor and Hospital Personnel**

Treat symptomatically and supportively.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishable media

**Suitable methods of extinction:** Use extinguishing media such as water spray or fog, carbon dioxide, foam and dry chemical.

**Unsuitable methods of extinction:** Water jets or streams may spread the fire.

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapor. Vapors are heavier than air and can travel along the ground to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas causing a flash fire. Closed containers may explode due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

**Explosion hazards:** Avoid sources of ignition. Vapors may form an explosive mixture with air, especially in confined spaces.

5.3 Advice for firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Water contaminated by this material must be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Ventilate the area. Remove all sources of ignition. Wear appropriate protective clothing and equipment designated in Section 8.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

6.3 Methods and materials for containment and cleaning up

Clean up spills immediately. Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material using non-sparking tools and place into an approved container(s) for proper disposal. Observe possible
material restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections
For indications about waste treatment, see Section 13.

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for safe handling
Wear all appropriate personal protective equipment specified in Section 8. Do not get in eyes or on skin or clothing. Do not inhale mist or vapor. No smoking. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator.

Advice on protection against fire and explosion
Avoid sources of ignition. Vapors may form an explosive mixture with air, especially in confined spaces.

7.2 Conditions for safe storage, including any incompatibilities
Store in dry, cool, well-ventilated areas away incompatible materials (see Section 10.5), food and drink. Keep away from heat and ignition sources. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers are hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.

7.3 Specific end uses
Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Contains no substances with established occupational exposure limits

8.2 Exposure controls
Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear safety glasses with unperforated side shields or protective splash goggles during use.

Hand Protection: Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing. Wear protective boots if the situation requires.

Respiratory protection: Always use an approved respirator when vapor/aerosols are generated. Where risk assessment shows air-purifying respirators are appropriate use a full-faced respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, colorless liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Ether</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>132.2 g/mol</td>
</tr>
<tr>
<td>Chemical Formula</td>
<td>C₆H₁₂O₃</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing/Melting Point, Range</td>
<td>-66 °C (-87 °F) @ 760 mm Hg</td>
</tr>
<tr>
<td>Initial Boiling Point</td>
<td>146 °C (295 °F)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>0.3 (n-BuOAc = 1)</td>
</tr>
</tbody>
</table>

Effective Date: 27 January 2017
Supercedes: 08 July 2015

Safety Data Sheet
Glycol Ether PM Acetate
SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity
No special reactivity has been reported.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4 Conditions to avoid
Heat, sources of ignition and contact with incompatible materials.

10.5 Incompatible materials
Strong bases, strong oxidizing agents

10.6 Hazardous decomposition products
Thermal decomposition products include oxides of carbon.

SECTION 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute Oral Toxicity
LD₅₀, rat - >5,000 mg/kg

Acute inhalation toxicity
LC₅₀, rat - >23.5 mg/l, 6 h

Acute dermal toxicity
LD₅₀, rabbit - >5,000 mg/kg

Skin irritation
May cause skin irritation.

Eye irritation
May cause eye irritation.

Sensitization
No data available

Genotoxicity in vitro
No data available

Mutagenicity
No data available

Specific organ toxicity - single exposure
No data available

Specific organ toxicity - repeated exposure
Effects have been reported on the liver, kidneys and nasal tissues in laboratory animals.

Aspiration hazard
No data available

11.2 Further information
This product contains no substances present at levels greater than or equal to the 0.1% threshold (de minimis) that are identified as a probable, possible, potential or confirmed carcinogens by ACGIH, IARC, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicates it causes adverse developmental or fertility effects.

Handle in accordance with good industrial hygiene and safety practice.
SECTION 13 - DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

RCRA P-Series: No listing
RCRA U-Series: No listing

SECTION 14 - TRANSPORT INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

US DOT (Domestic Ground Transportation)
Proper Shipping Name: Esters, n.o.s. (Propylene glycol monomethyl ether acetate)
Hazard Class: 3
UN/NA: UN3272
Packing Group: III
NAERG: Guide #127
Packaging Exceptions: 49 CFR 173.150

IMO/IMDG (Water Transportation)
Proper Shipping Name: Esters, n.o.s. (Propylene glycol monomethyl ether acetate)
Hazard Class: 3
UN/NA: UN3272
Packing Group: III
Marine Pollutant: No
EMS Number: F-E, S-D

ICAO/IATA (Air Transportation)
Proper Shipping Name: Esters, n.o.s. (Propylene glycol monomethyl ether acetate)
Hazard Class: 3
UN/NA: UN3272
Packing Group: III

RID/ADR (Rail Transportation)
Proper Shipping Name: Esters, n.o.s. (Propylene glycol monomethyl ether acetate)
Hazard Class: 3
UN/NA: UN3272
Packing Group: III

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Safety Data Sheet
Glycol Ether PM Acetate
15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200.


EPA Risk Management Planning Standard: This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Toxic Substance Control Act (TSCA) Inventory: All the components of this material are listed on the TSCA Inventory. It is not subject to TSCA 12(b) Export Notification.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.4(f)(2) and Chemical Code Number Not listed

Drug Enforcement Administration (DEA) List s1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number Not listed

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals Not listed

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories: Fire Hazard

SARA 313 Information: None of the components of the product exceed the threshold (de minimis) reporting level of Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: None of the components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains no CERCLA reportable substances.

Clean Air Act (CAA)

This product does not contain any chemicals that are listed as Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).

This product does not contain any Class 1 Ozone depletors.

Clean Water Act (CWA)

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product contains no chemical(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

Other U.S. State Inventories

PM Acetate (CAS #180-65-6) is not listed on any State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollution lists.

Canada

WHMIS Hazard Symbol and Classification

B3 - Flammable liquid with flash points greater than 38 °C (100 °F) but inferior to 93 °C (199.4 °F)

Canadian National Pollutant Release Inventory (NPRI): PM Acetate (CAS #108-65-6) is listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 1

Global Chemical Inventory Lists

<table>
<thead>
<tr>
<th>Country</th>
<th>Inventory Name</th>
<th>Inventory Listing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada:</td>
<td>Domestic Substance List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada:</td>
<td>Non-Domestic Substance List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>Europe:</td>
<td>Inventory of New and Existing Chemicals (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States:</td>
<td>Toxic Substance Control Act (TSCA)</td>
<td>Yes</td>
</tr>
<tr>
<td>Australia:</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
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</tr>
<tr>
<td>New Zealand:</td>
<td>New Zealand Inventory of Chemicals (NZIoC)</td>
<td>Yes</td>
</tr>
<tr>
<td>China:</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan:</td>
<td>Inventory of Existing and New Chemical Substances (ENCs)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea:</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
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<tr>
<td>Philippines:</td>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Yes - All components of this product are in compliance with the inventory requirements administered by the governing country.

No - One or more components of this product are not on the inventory or are exempt from listing.
15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS)

HMIS Hazard Rating Legend

Health 2  Flammability 1  Physical Hazard 0  Personal Protection 0

NFPA Hazard Rating Legend

Health 1  Flammability 2  Instability 0  Special 0

Abbreviation Key

ACGIH American Conference of Governmental Industrial Hygienists
ADR Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)
CAS Chemical Abstract Services
CFR Code of Federal Regulations
DOT Department of Transportation
EMS Guide Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA Environmental Protection Agency
ERG Emergency Response Guide Book
FDA Food and Drug Administration
GHS Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
HCS Hazard Communication Standard
IARC International Agency for Research on Cancer
IATA International Air Transport Association half maximal
ICAO International Civil Aviation Organization
IDLH Immediately Dangerous to Life and Health
IMDG International Maritime Dangerous Goods
IMO International Maritime Organization
mppcf Millions of Particles Per Cubic Foot
NA North America
NIOSH National Institute for Occupational Safety
NTP National Toxicology Program
OSHA Occupational Safety and Health Administration
PBT Persistent, Bioaccumulating and Toxic
PEL Permissible exposure limit
PMCC Pensky-Martens Closed Cup
ppm Parts Per Million
RCRA Resource Conservation and Recovery Act
RID Dangerous Goods by Rail
RQ Reportable Quantity
TCC/Tag Tagliabue Closed Cup
TLV Threshold Limit Value
TSCA Toxic Substance Control Act
TWA Time-weighted Average
UN United Nations
VOC Volatile Organic Compounds
vPvB Very Persistent and Very Bioaccumulating
WHMIS Workplace Hazardous Materials Information System

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The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly