ClearOhm™, Overcoat-P PGME TH (R&D Use Only)

Section 1: Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>ClearOhm™, Overcoat-P PGME TH (R&amp;D Use Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonym:</td>
<td>Solvent-based Ink</td>
</tr>
<tr>
<td>Contact Information:</td>
<td>Cambrios Technologies Corp.</td>
</tr>
<tr>
<td></td>
<td>930 East Arques Avenue</td>
</tr>
<tr>
<td></td>
<td>Sunnyvale, Ca, USA</td>
</tr>
<tr>
<td>Emergency Assistance</td>
<td>Chemtrec</td>
</tr>
<tr>
<td>Phone:</td>
<td>1-800-424-9300</td>
</tr>
<tr>
<td>International:</td>
<td>1-703-527-3887</td>
</tr>
<tr>
<td>For non-emergency assistance, Phone:</td>
<td>408-738-7400</td>
</tr>
<tr>
<td>Fax:</td>
<td>408-245-2220</td>
</tr>
</tbody>
</table>

Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>CAS#:</th>
<th>EC NUMBER (EINECS):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene Glycol Monomethyl Ether (PGME)</td>
<td>&gt; 90%</td>
<td>107-98-2</td>
<td>203-539-1</td>
</tr>
<tr>
<td>Additives</td>
<td>&lt; 10%</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

Potential Health Effects:
- Skin contact: Acute Exposure: May cause skin irritation.
  Chronic Exposure: No information available.
- Eye contact: Acute Exposure: Eye irritation.
  Chronic Exposure: Eye irritation.
- Ingestion: Acute Exposure: No information available.
  Chronic Exposure: No information available.
- Inhalation: Acute Exposure: irritation, nausea, headache, drowsiness, dizziness, loss of coordination.
  Chronic Exposure: No information available.

CARCINOGEN STATUS:
OSHA: No
NTP: No
IARC: No

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=3 REACTIVITY=0

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes.
with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact:** Flush with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:** If conscious, wash out mouth with water. Seek medical attention immediately.

### Section 5: Fire Fighting Measures

- **Flash Points:** 93 F (34 C) (PGME)
- **Lower Flammable Limit:** 1.6% (PGME)
- **Upper Flammable Limit:** 13.8% (PGME)
- **Flammability Class (OSHA):** IC (PGME)

**Fire Fighting Media and Instructions:** Use regular dry chemical, carbon dioxide, water, regular foam

### Section 6: Accidental Release Measures

Use appropriate protective equipment and methods to clean up spilled substances promptly. Absorb spill onto an appropriate material. Collect and dispose of all waste in accordance with applicable laws.

**Large Spill/Small Spill:** For indoor spills, provide increased ventilation as required to minimize exposure. Cleanup the spill as indicated in the appropriate land or water section below. Dispose of absorbent and other waste in an appropriate chemical waste container. Wear proper personal protective equipment. Wash thoroughly after handling.

**Land Spill:** Sweep spilled material and transfer to D.O.T. container for disposal. Avoid raising dust.

**Water Spill:** Do not allow release to water. Remove from water by skimming.

### Section 7: Handling and Storage

**Precautions:**
Wear suitable protective clothing. Use material in a well ventilated area. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.

**Storage:**
Keep container tightly closed. Keep container in a cool, well-ventilated area. Storage Temperature recommended is 15 - 27°C (59 - 81F).

### Section 8: Exposure Controls/Personal Protection

**ENGINEERING CONTROLS:**
The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces. Use explosion-proof ventilation equipment.

**PERSONAL PROTECTION**

**RESPIRATORY PROTECTION:**
Under conditions of frequent use or heavy exposure, Respiratory protection may be needed. Respiratory protection is ranked in order from minimum to
maximum. Consider warning properties before use.
Any chemical cartridge respirator with organic vapor cartridge(s).
Any chemical cartridge respirator with a full facepiece and organic Vapor cartridge(s).
Any air-purifying respirator with a full facepiece and an organic Vapor canister.
For Unknown Concentrations or Immediately Dangerous to Life or Health. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Any self-contained breathing apparatus with a full facepiece.

SKIN PROTECTION:
Wear impermeable gloves and clothing during activities where there is potential for direct skin contact with chemical.

EYE PROTECTION:
Wear primary eye protection such as splash resistant safety goggles with a secondary protection faceshield. Provide an emergency eye wash station and quick drench shower in the immediate work area.

EXPOSURE GUIDELINE (S):
OSHA HAZARDS (29 CFR 1910.1200) Exposure Limits 8 hrs. TWA (ppm)

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>OSHA PEL</th>
<th>ACGIH STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPA</td>
<td>400 ppm</td>
<td>200 ppm</td>
</tr>
<tr>
<td>DAA</td>
<td>50 ppm</td>
<td>50 ppm</td>
</tr>
<tr>
<td>Silver</td>
<td>0.01 mg/m3</td>
<td>0.1 mg/m3</td>
</tr>
<tr>
<td>Additive</td>
<td>not established</td>
<td>not established</td>
</tr>
</tbody>
</table>

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid
Odor: Aromatic odor
Molecular Weight: NA
Color: Transparent
pH: NA
Boiling Point: NA
Melting Point: NA
Specific Gravity: NA
Vapor Pressure: NA
Solubility: acetone, benzene, carbon tetrachloride, ether, methanol, organic solvents

Section 10: Stability and Reactivity Data

Stability: Stable under ordinary conditions of use and storage.
Instability Temperature: Not available.
Hazardous Polymerization: Will not occur.
Conditions of Instability: Excess heat, incompatible materials
Incompatibility with various substances: Strong oxidizing agents.
Corrosivity: None.
Special Remarks on Reactivity: Not available.
Special Remarks on Corrosivity: Not available.
Section 11: Toxicological Information

Routes of Entry: Inhalation, Ingestion.
Toxicity to Animals:

<table>
<thead>
<tr>
<th>Solvent PGME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity:</td>
</tr>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Oral</td>
</tr>
</tbody>
</table>

Additive: No Information available.

Chronic Effects on Humans: Not available.
Other Toxic Effects on Humans: May be harmful if inhaled. May be harmful if swallowed.
Special Remarks on Chronic Effects on Humans: Not available.
Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects:

| Skin: May cause skin irritation. |
| Eyes: May cause mechanical eye irritation. |
| Inhalation: May cause respiratory tract irritation. |
| Ingestion: May be harmful if swallowed. |

Section 12: Ecological Information

Solvent PGME:
ECOTOXICITY DATA:
FISH TOXICITY: 5000 ug/L 24 year(s) (Stress) Sea lamprey (Petromyzonmarinus)

Additive: No information available.

Section 13: Disposal Considerations

Waste Disposal:
The user of this product must properly characterize the waste generated from the use of this product in accordance with all applicable federal, state and/or local laws and regulations in order to determine the proper disposal of the waste in accordance with all applicable federal, state and/or local laws and regulations.

Section 14: Transport Information

Package and transport in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

| DOT Classification: Resin solution, 3, UN1866, III (Propylene Glycol Monomethyl Ether) |
| IATA: Resin Solution |
| Identification Number: UN1866 |

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200: Ensure that the hazards associated with this product are transmitted to employees by means of a hazard communications
program, in accordance with federal and state Occupational Safety and Health Administration (OSHA) regulations.

CERCLA/SUPERFUND HAZARD CATEGORY: At the time of this document's preparation, none of the ingredients of this product were listed in 40 CFR 302.4. The list should be periodically checked for applicable updates.

SARA 313 INFORMATION: At the time of this document's preparation, none of the ingredients of this product were listed in 40 CFR 372. The list should be periodically checked for applicable updates.

TOXIC SUBSTANCES CONTROL ACT (TSCA) All of the compounds in this product are on the TSCA Inventory and/or are subject to a Low Volume Exemption. The material shall be used as research and development only. All users must utilize the worker protection measures and environmental release controls specified in this Material Safety Data Sheet and in EPA and OSHA regulations. Acknowledgment of receipt of this Material Safety Data Sheet shall be considered acknowledgment that the user will comply with these requirements.

CALIFORNIA PROPOSITION 65: At the time of this document's preparation, none of the ingredients of this product were included on the California Proposition 65 list of chemicals known to cause cancer or reproductive toxicity. The list should periodically be checked for applicable updates.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:
EC CLASSIFICATION (ASSIGNED): Flammable
EC Classification may be inconsistent with independently-researched data.


<table>
<thead>
<tr>
<th>Substance</th>
<th>Maximum Limit (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd)</td>
<td>100</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>1000</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>1000</td>
</tr>
<tr>
<td>Hexavalent Chromium</td>
<td>1000</td>
</tr>
<tr>
<td>Poly Brominated Biphenyls</td>
<td>1000</td>
</tr>
<tr>
<td>Poly Brominated Diphenyl Ethers (PBDE)</td>
<td>1000</td>
</tr>
</tbody>
</table>

EC RISK AND SAFETY PHRASES:
R 10 Flammable.
R37 Irritating to respiratory system
R51/53 Toxic to aquatic organisms, may cause long term effects in aquatic environment
S 2 Keep out of the reach of children.
S 24 Avoid contact with skin.

GERMAN REGULATIONS:
WATER HAZARD CLASS (WGK):
STATE OF CLASSIFICATION: Annex 3
CLASSIFICATION UNDER HAZARD TO WATER: 1
Section 16: Other Information

Created: 04/21/2009

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