MATERIAL SAFETY DATA SHEET

I. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: Pen-cote® L 1000 Liquid Binder

SYNONYM(S): Carbohydrate dispersion blended with proprietary ingredient

COMPANY: Penford Products Co.
1001 1st St. SW
Cedar Rapids, IA 52404
Phone: 319-398-3700
Fax: 319-398-3797
www.penford.com

24-HOUR EMERGENCY (SPILL, LEAK, FIRE, EXPOSURE, ACCIDENT) TELEPHONE:
INSIDE USA AND CANADA: 800-424-9300 (CHEMTREC)
OUTSIDE USA AND CANADA: +1 703-527-3887 (CHEMTREC)

This material is to be used for specified/approved applications only.

II. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
May cause skin and eye irritation.

POTENTIAL HEALTH EFFECTS

INHALATION:
ACUTE: No adverse effects are anticipated. Avoid unnecessary exposure.
CHRONIC: No toxicological information on significant adverse effects is available.

SKIN CONTACT: Prolonged or repeated contact may cause irritation, reddening, inflammation.

SKIN ABSORPTION: No adverse effects anticipated.

EYE CONTACT: May cause irritation.

INGESTION: No toxicological information on significant adverse effects is available.

HMIS CLASSIFICATION
Health Hazard: 1
Fire Hazard: 0
Reactivity Hazard: 0
MSDS – Pen-cote® L 1000 Liquid Binder

III. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispersed carbohydrate (non-hazardous)</td>
<td>20-51.5%</td>
</tr>
<tr>
<td>Proprietary ingredient</td>
<td>0-10%</td>
</tr>
<tr>
<td>Water</td>
<td>48.5-51%</td>
</tr>
</tbody>
</table>

IV. FIRST AID MEASURES

INHALATION: Move to fresh air. If symptoms persist, seek medical attention.

SKIN CONTACT: Wash with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush with cold water. If irritation persists, seek medical attention.

INGESTION: Rinse mouth with water. If symptoms develop, seek medical attention.

V. FIRE FIGHTING MEASURES

FIRE EXTINGUISHING MEDIA: Water (dried product only)

UNUSUAL FIRE/EXPLOSION HAZARDS, SPECIAL FIRE-FIGHTING PROCEDURES: If allowed to dry, the product presents special firefighting issues. Irritating toxic substances may be emitted upon thermal decomposition. Exposed firefighters should wear NIOSH approved self contained breathing apparatus with full face piece and full protective clothing. Provide local or general ventilation to keep below nuisance dust limit of 15 mg/m³.

VI. ACCIDENTAL RELEASE MEASURES

PROCEDURE FOR RELEASE OR SPILL: Use suggested personal protective equipment. Contact local wastewater treatment facility before discharging to sanitary sewer. If approved by local authorities, for small spills, dilute with at least 10 parts of water and flush to sewer. This wet product makes road surfaces slippery, and it will remove blacktop as it dries. Transportation spills are best handled by damming up the material, collecting it, and thorough water washing of road surfaces. See section XIII for disposal considerations.

NEUTRALIZING CHEMICALS: Not required.

VII. HANDLING & STORAGE

HANDLING: No special requirements.

STORAGE: Store at temperature of 60°F to 110°F. Product thickening may occur below 70°F. Bacterial growth may occur with long-term storage.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS: N/A

VENTILATION: Use local exhaust

EYE PROTECTION: Use safety goggles.

RESPIRATORY PROTECTION: Use NIOSH approved respirator in misty situations.
MSDS – Pen-cote® L 1000 Liquid Binder

SKIN PROTECTION: Wear clean, body-covering clothing. Use impervious gloves when prolonged or repeated contact could occur.

IX. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE and ODOR: Clear to slightly hazy brown liquid. Slight odor

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>BOILING POINT</td>
<td>212°F, 100°C</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>17.5 mmHg @20°C</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>0.624 @ 80°F</td>
</tr>
<tr>
<td>WATER SOLUBILITY</td>
<td>Soluble</td>
</tr>
<tr>
<td>pH</td>
<td>5.0 to 9.0</td>
</tr>
<tr>
<td>FLAMMABLE LIMITS</td>
<td>N/A</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>1.10-1.25</td>
</tr>
<tr>
<td>% VOLATILE (VOL.)</td>
<td>0</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>N/A</td>
</tr>
<tr>
<td>PERCENT SOLIDS</td>
<td>20-51.5%</td>
</tr>
</tbody>
</table>

X. STABILITY AND REACTIVITY

STABILITY CONSIDERATIONS: Dried product is combustible.

HAZARDOUS POLYMERIZATION: Will not occur

DECOMPOSITION PRODUCTS: CO2, H2O, and nitrogen oxides, and ammonia.

XI. TOXICOCLOGICAL INFORMATION

CARCINOGENICITY: This material is not considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA.

XII. ECOLOGICAL INFORMATION

AQUATIC TOXICITY CLASSIFICATION: N/A

XIII. DISPOSAL CONSIDERATIONS

WASTE CLASSIFICATION: Unused product and packaging do not exhibit a characteristic of and are not listed as EPA hazardous waste. Consult state and local regulations for local requirements.

DISPOSAL METHOD: Prior to disposal, all disposal procedures should be reviewed with state and local regulatory agencies. Large spills may plug sanitary sewers. Divert to pond and dry. Large quantities may require special waste authorizations. If local approval is obtained, large spills may be flushed to a sanitary sewer or, if contained, vacuumed up and taken to an approved waste treatment facility. Material will have a high BOD5 demand and may need to be discharged over an extended period of time to prevent surcharging or shock loading the waste treatment system.

XIV. TRANSPORT INFORMATION

DOT (US): Not regulated.

XV. REGULATORY INFORMATION

TSCA: All ingredients/components are listed on the TSCA registry.
SUPERFUND AMENDMENT AND REAUTHORIZATION ACTION OF 1986 (SARA, TITLE III):

SARA 302: No ingredients/components are subject to the reporting requirements of SARA 302.
SARA 304: No ingredients/components are subject to the reporting requirements of SARA 304.
SARA 311/312 Physical and Health Hazards:

- Fire: No
- Pressure: No
- Reactivity: No
- Immediate: Yes
- Delayed (Chronic): No

SARA 313: No ingredients/components above threshold (De Minimis) reporting levels.

CERCLA REPORTABLE QUANTITY (RQ): No ingredients/components have a CERCLA RQ.

XVI. OTHER INFORMATION

The information contained in this bulletin is, to our best knowledge, true and accurate. However, since the conditions of use are beyond our control, we disclaim all liability in connection with the use of the information, recommendations contained herein. Furthermore, nothing contained herein shall be construed as a recommendation to use a product in conflict with any existing patents covering material or its use.