MATERIAL SAFETY DATA SHEET

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of this product and the safety and health of any person exposed to this solution.

Date: July 1, 2009
By: Mark H. Genser
Compliance Section

PRODUCT: PHOSPHOROSILICAFILM $1 \times 10^{21}$

Section I - Hazardous Ingredients

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS#</th>
<th>NATURE OF HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Acetate</td>
<td>141-78-6</td>
<td>FLAMMABLE</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>64-17-5</td>
<td>FLAMMABLE</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>67-56-1</td>
<td>FLAMMABLE</td>
</tr>
<tr>
<td>Phosphorus Pentoxide</td>
<td>1314-56-3</td>
<td>IRRITANT</td>
</tr>
</tbody>
</table>

Section II - Physical Data

Boiling Point: 176° F  
Specific Gravity: 0.88 
Vapor Pressure: 50.4 mmHg (20° C)  
Percent Volatile by Volume: 80% 
Vapor Density: (AIR = 1) 1.66 
Solubility in Water: SOLUBLE 
Appearance and Odor: CLEAR SOLUTION, ALCOHOL-VINEGAR ODOR

Section III - Health Hazard Data
Threshold Limit Values:

- **Ethyl Acetate**: OSHA STD - air: TWA 400 ppm (skin)
- **Ethyl Alcohol**: OSHA STD - air: TWA 1000 ppm (skin)
- **Methyl Alcohol**: OSHA STD - air: TWA 200 ppm

Effects of Overexposure:

**INHALATION:** Exposure to more than above listed threshold limit may cause headache, drowsiness and lassitude, loss of appetite, throat irritation and inability to concentrate.

**INGESTION:** Can cause depression of central nervous system, nausea, vomiting, diarrhea. See Emergency First Aid Procedures below for further information.

**EYE CONTACT:** Liquid or vapor may cause irritation.

**SKIN CONTACT:** May cause irritation and defatting of skin on prolonged contact.

**OTHER:** Individual responses to methyl alcohol vary. Ingestion of less than 30 ml has been fatal to humans. In general, a few ounces may cause blindness or death. As little a 4 ml may be toxic if ingested.

*Emergency First Aid Procedures*

**FOR OVEREXPOSURE BY:**

**SWALLOWING:** This product contains methyl alcohol. If victim is conscious and able to swallow, have victim drink water or milk to dilute. Never give anything by mouth if victim is unconscious or having convulsions. **CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY.** Induce vomiting only if advised by physician or poison control center.

**INHALATION:** Immediately remove victim to fresh air. If victim has stopped breathing, give artificial respiration, preferably mouth-to-mouth. **GET MEDICAL ATTENTION IMMEDIATELY.**

**CONTACT WITH EYES OR SKIN:** Immediately flush affected at least 15 minutes. Remove and clean or dispose of contaminated clothing in accordance with appropriate
federal, state and local regulations. *GET MEDICAL ATTENTION IMMEDIATELY.*

Section IV - Fire and Explosion Hazard Data

FLASH POINT

FLAMMABLE LIMITS:  
LeL: 2.2%  
UeL: 10.7%

131° F (open cup)

EXTINGUISHING MEDIA:

Dry chemical, Carbon Dioxide, or Alcohol "foam". Water may be ineffective, but should be used to keep fire-exposed containers and surfaces cool. If a leak or spill has not ignited, use water spray to disperse vapors and to protect men attempting to stop leak. Water spray may be used to flush spills away from exposure and to dilute spills to non-flammable mixtures (NFPA-49 1975).

SPECIAL FIREFIGHTING PROCEDURES:

Firefighter should wear self-contained breathing apparatus in the positive mode with full facepiece when there is a possibility of exposure to smoke, fumes or hazardous decomposition products.

Section V - Reactivity Data

STABILITY: Stable  
INCOMPATIBILITY: Strong Oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: As with all organic solvents, combustion will produce Carbon Dioxide, Carbon Monoxide and water.

HAZARDOUS POLYMERIZATION: Will not occur.

Section VI - Spill or Leak Procedures

IF A LEAK OR SPILL OCCURS: Wear appropriate protective clothing as described in Section VII below. Eliminate all ignition sources. Small spills (up to one gallon) may be collected with absorbent material. For larger uncontrolled releases, flush spill area with water spray. Prevent runoff from entering drains, sewers and streams. Use water spray to disperse vapors. DISCARD CONTAMINATED CLOTHING ONLY IN ACCORDANCE WITH FEDERAL, STATE AND
LOCAL REGULATIONS.

WASTE DISPOSAL METHOD: Observe all federal, state and local laws regarding hazardous waste removal and recycling.

Section VII -Special Protection Information

RESPIRATORY PROTECTION: Use appropriate NIOSH-approved respirator for organic vapor if exposure is likely to exceed acceptable limits.

VENTILATION:

- General: At least 10 air changes per hour for good general room ventilation.
- Local Exhaust: If needed to control vapor.

SKIN AND EYE PROTECTION: Safety glasses should be worn if there is any danger of splashing. Persons with sensitive skin should wear gloves and protective clothing.

Section VIII -Special Precautions

HANDLING AND STORAGE: Store this solution in a cool, dry place. As with any chemical, use reasonable care in storage, application and disposal.

Section IX -Shipping Regulations

PROPER SHIPPING NAME: ETHANOL SOLUTION, UN 1170

IATA REGULATIONS

LABELS: FLAMMABLE LIQUID

QUANTITY LIMITS: 

<table>
<thead>
<tr>
<th></th>
<th>Pkg. Inst.</th>
<th>Pkg. Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Aircraft:</td>
<td>60 Liters/package</td>
<td>309</td>
</tr>
<tr>
<td>Cargo Aircraft:</td>
<td>220 Liters/package</td>
<td>310</td>
</tr>
</tbody>
</table>

DOT REGULATIONS - ETHANOL SOLUTION, UN 1170

LABELS: FLAMMABLE LIQUID