Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Polyurethane Protective Tape Adhesion Promoter 86A Packet
MANUFACTURER: 3M
DIVISION: Aerospace Aircraft Maintenance Division
ADDRESS: 3M Center
          St. Paul, MN  55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 02/14/2007
Supercedes Date: 11/29/2004
Document Group: 18-2931-6

Product Use:
Intended Use: Industrial Adhesion Promoter without toluene.
Specific Use: adhesion promoter

SECTION 2: INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
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<tr>
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<td>40 - 70</td>
</tr>
<tr>
<td>SOLVENT</td>
<td>71-23-8</td>
<td>15 - 40</td>
</tr>
<tr>
<td>POLYAMIDE RESIN</td>
<td>68989-76-4</td>
<td>5 - 10</td>
</tr>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>1 - 5</td>
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</table>

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: 10 ml fluid on cotton pad
Odor, Color, Grade: CLEAR SOLVENT ODOR
General Physical Form: Liquid - absorbed on to a cotton pad.
Immediate health, physical, and environmental hazards: Flammable liquid and vapor. Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back. Flammable solid. May cause severe eye irritation. May cause target organ effects.

3.2 POTENTIAL HEALTH EFFECTS
Eye Contact:
Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

May be absorbed through skin and cause target organ effects.

Inhalation:
Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May be absorbed following inhalation and cause target organ effects.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>750 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>57 °F [Test Method: Closed Cup] [Details: Based on liquid]</td>
</tr>
</tbody>
</table>
5.2 EXTINGUISHING MEDIA
Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Closed containers exposed to heat from fire may build pressure and explode. Flammable solid.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Remove all ignition sources such as flames, smoking materials, and electrical spark sources. Use only non-sparking tools. Ventilate the area with fresh air. Contain spill. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Cover spill area with a fire-extinguishing foam designed for use on solvents, such as alcohols and acetone, that can dissolve in water. An AR - AFFF type foam is recommended. Cover or dilute with water. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a toxic, corrosivity or flammability hazard. Collect as much of the spilled material as possible using non-sparking tools. Clean up residue with detergent and water. Flush area thoroughly with water. Seal the container. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Keep away from heat, sparks, open flame, pilot lights and other sources of ignition. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. Avoid breathing of vapors, mists or spray. Avoid static discharge. Avoid eye contact with vapors, mists, or spray. For industrial or professional use only. Avoid contact with oxidizing agents.

7.2 STORAGE

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact with vapors, mists, or spray.
The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection
Avoid skin contact.
Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.
Gloves made from the following material(s) are recommended: Neoprene, Nitrile Rubber, Natural Rubber.

8.2.3 Respiratory Protection
Avoid breathing of vapors, mists or spray.
Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece or fullface air-purifying respirator with organic vapor cartridges. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Authority</th>
<th>Type</th>
<th>Limit</th>
<th>Additional Information</th>
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<tr>
<td>SOLVENT</td>
<td>ACGIH</td>
<td>TWA</td>
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<td>STEL</td>
<td>400 ppm</td>
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<tr>
<td>SOLVENT</td>
<td>OSHA</td>
<td>TWA</td>
<td>400 ppm</td>
<td>Table Z-1A</td>
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<tr>
<td>SOLVENT</td>
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<td>TWA</td>
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<td>SOLVENT</td>
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<td>STEL</td>
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</table>

SOURCE OF EXPOSURE LIMIT DATA:
ACGIH: American Conference of Governmental Industrial Hygienists
CMRG: Chemical Manufacturer Recommended Guideline
OSHA: Occupational Safety and Health Administration
AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**Specific Physical Form:** 10 ml fluid on cotton pad
**Odor, Color, Grade:** CLEAR SOLVENT ODOR
**General Physical Form:** Liquid - absorbed on to a cotton pad.
**Autoignition temperature:** 750 °F
**Flash Point:** 57 °F [Test Method: Closed Cup] [Details: Based on liquid only.]
**Flammable Limits - LEL:** 2 % volume
**Flammable Limits - UEL:** 12.7 % volume
**Boiling point:** Approximately 181 °F
Density: 0.82 g/ml
Vapor Density: 2.1 [Ref Std: AIR=1]
Vapor Density: No Data Available
Vapor Pressure: 33 mmHg [@ 68 °F]
Vapor Pressure: No Data Available
Specific Gravity: 0.82 [@ 68 °F] [Ref Std: WATER=1]
pH: Not Applicable
Melting point: Not Applicable
Solubility In Water: No Data Available
Solubility in Water: Appreciable
Evaporation rate: No Data Available
Volatile Organic Compounds: 746 g/l [Test Method: calculated SCAQMD rule 443.1]
Percent volatile: 94 % weight
VOC Less H2O & Exempt Solvents: 746 g/l [Test Method: calculated SCAQMD rule 443.1]
Viscosity: 50 - 100 centipoise

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Sparks and/or flames

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>During Combustion</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS
**Waste Disposal Method:** Reclaim solvent if feasible. Incinerate in a permitted hazardous waste incinerator. As a disposal alternative, dispose of waste product in a permitted hazardous waste facility.

**EPA Hazardous Waste Number (RCRA):** D001 (Ignitable)

Since regulations vary, consult applicable regulations or authorities before disposal.

**SECTION 14: TRANSPORT INFORMATION**

**ID Number(s):**
70-2022-7001-6, 70-2022-7012-3

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

**SECTION 15: REGULATORY INFORMATION**

**US FEDERAL REGULATIONS**
Contact 3M for more information.

**311/312 Hazard Categories:**
Fire Hazard - Yes  Pressure Hazard - No  Reactivity Hazard - No  Immediate Hazard - Yes  Delayed Hazard - No

**STATE REGULATIONS**
Contact 3M for more information.

**CHEMICAL INVENTORIES**
The components of this product are in compliance with the chemical notification requirements of TSCA.

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

Contact 3M for more information.

**INTERNATIONAL REGULATIONS**
Contact 3M for more information.
WHMIS: Hazardous

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification
Health: 2 Flammability: 3 Reactivity: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification
Health: 2 Flammability: 3 Reactivity: 0 Protection: X - See PPE section.

Hazardous Material Identification System (HMIS) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS(r) ratings are to be used with a fully implemented HMIS(r) program. HMIS(r) is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:
Section 1: Division name was modified.
Copyright was modified.
Section 15: TSCA section 12[b] text was deleted.
Section 15: TSCA section 12[b] information was deleted.

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