MATERIAL SAFETY
DATA SHEET

DIVISION: INDUSTRIAL TAPE AND SPECIALTIES DIVISION

TRADE NAME: 3M Super 77-N Spray Adhesive (IPA)

3M I.D. NUMBER: 62-4498-4830-8

ISSUED: JULY 1, 1993
SUPERSEDES: DECEMBER 18, 1992
DOCUMENT: 11-2377-7

1. INGREDIENT C.A.S. NO. PERCENT

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. NO.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1-TRICHLOROETHANE</td>
<td>71-55-6</td>
<td>50.0</td>
</tr>
<tr>
<td>CHLORODIFLUOROMETHANE</td>
<td>75-45-6</td>
<td>30.0</td>
</tr>
</tbody>
</table>

NON-VOLATILE COMPONENTS - N.J.

<table>
<thead>
<tr>
<th>Trade Secret (T.S.) Registry No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>04499600-5460P ++</td>
<td>7.0</td>
</tr>
<tr>
<td>123-91-1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

NOTE: ++ resin, antioxidant, resin and synthetic polymer. Not hazardous according to Canadian WHMIS criteria. Non-WHMIS controlled.

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372:

1,1,1-TRICHLOROETHANE
1,4-DIOXANE

2. PHYSICAL DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOILING POINT</td>
<td>Liquid in aerosol container, clear-light amber, sweet odor</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>Compressed gas</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>4.60 Air = 1</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>0.40 Ether = 1</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER</td>
<td>Very low</td>
</tr>
<tr>
<td>SP. GRAVITY</td>
<td>1.300 Water = 1</td>
</tr>
<tr>
<td>PERCENT VOLATILE</td>
<td>ca. 89 % by wt</td>
</tr>
<tr>
<td>VISCOSITY</td>
<td>N/D</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>APPEARANCE AND ODOR:</td>
<td>None</td>
</tr>
</tbody>
</table>

3. FIRE AND EXPLOSION HAZARD DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH POINT</td>
<td>None</td>
</tr>
<tr>
<td>FLAMMABLE LIMITS - LEL:</td>
<td>7.50 % by vol</td>
</tr>
<tr>
<td>FLAMMABLE LIMITS - UEL:</td>
<td>15.00 % by vol</td>
</tr>
<tr>
<td>AUTOIGNITION TEMPERATURE:</td>
<td>N/D</td>
</tr>
<tr>
<td>EXTINGUISHING MEDIA:</td>
<td>Water spray, Carbon dioxide, Dry chemical, Foam</td>
</tr>
<tr>
<td>SPECIAL FIRE FIGHTING PROCEDURES:</td>
<td>Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat</td>
</tr>
</tbody>
</table>

Abbreviations: N/D - Not Determined N/A - Not Applicable
3. FIRE AND EXPLOSION HAZARD DATA (continued)

and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
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.

NFPA-HAZARD-CODES: HEALTH 3  FIRE 1  REACTIVITY 1
UNUSUAL REACTION HAZARD: none

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS TO AVOID:
Heat

HAZARDOUS POLYMERIZATION: Will Not Occur

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide  Hydrogen Chloride  Phosgene  Chlorine

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Call (612) 733-1110 or (612) 733-6100 for 24-hour spill assistance. Extinguish all ignition sources. Cover with absorbent material. Collect spilled material. Place in a U.S. DOT-approved container and seal.

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator in the presence of a combustible material. Facility must be capable of handling aerosol cans. Combustion products will include HCl. Dispose of empty cans in a sanitary landfill. Dispose of completely absorbed waste product in a facility permitted to accept chemical wastes.

ENVIRONMENTAL DATA:
1,1,1-Trichloroethane (CAS #71-55-6) is listed as a priority pollutant by US EPA Clean Water Act, Section 307.

REGULATORY INFORMATION:
Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable).

SARA HAZARD CLASS:
FIRE HAZARD: No  PRESSURE: Yes  REACTIVITY: No  ACUTE: Yes  CHRONIC: Yes

Abbreviations:  N/D - Not Determined  N/A - Not Applicable
6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

IF SWALLOWED:
Do not induce vomiting. Drink two glasses of water. Call a physician.

OTHER FIRST AID:
NOTE TO PHYSICIANS: Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact with vapor, spray, or mist. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid prolonged or repeated skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: polyethylene/ethylene vinyl alcohol, polyvinyl alcohol, polytetrafluoroethylene (Teflon), fluoroelastomer (Viton).

VENTILATION PROTECTION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits. If exhaust ventilation is not adequate, use appropriate respiratory protection.

RESPIRATORY PROTECTION:
Avoid inhalation 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-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Do not ingest.

RECOMMENDED STORAGE:
Store at temperatures below 120 degrees F (49 degrees C). Keep out of the reach of children.

Abbreviations: N/D - Not Determined  N/A - Not Applicable
7. PRECAUTIONARY INFORMATION (continued)

FIRE AND EXPLOSION AVOIDANCE:
Do not pierce or burn container, even after use. Do not spray near flame or incandescent material.

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
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<th>UNIT</th>
<th>TYPE</th>
<th>AUTH</th>
<th>SKIN*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1-TRICHLOROETHANE</td>
<td>350</td>
<td>ppm</td>
<td>TWA</td>
<td>ACGIH</td>
<td></td>
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<td>1,1,1-TRICHLOROETHANE</td>
<td>450</td>
<td>ppm</td>
<td>STEL</td>
<td>ACGIH</td>
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<td>1,1,1-TRICHLOROETHANE</td>
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<td>OSHA</td>
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TRADE SECRET (T.S.) REGISTRY NO. 04499600-5460P++

* SKIN NOTATION: Listed substances indicated with "Y" under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Intentional concentration and inhalation may be harmful or fatal.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

Single overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Abbreviations: N/D - Not Determined N/A - Not Applicable
8. HEALTH HAZARD DATA (continued)

WHILE THE FOLLOWING EFFECTS ARE ASSOCIATED WITH ONE OR MORE OF THE INDIVIDUAL INGREDIENTS IN THIS PRODUCT AND ARE REQUIRED TO BE INCLUDED ON THE MSDS BY THE U.S. OSHA HAZARD COMMUNICATION STANDARD, THEY ARE NOT EXPECTED EFFECTS DURING FORESEEABLE USE OF THIS PRODUCT.

Prolonged or repeated overexposure, above recommended guidelines, may cause:

Heart Effects: signs/symptoms can include arrhythmia, heart attack and death.

Kidney Effects: signs/symptoms can include reduced urine volume, blood in urine and back pain.

Liver Effects: signs/symptoms can include yellow skin (jaundice) and tenderness of upper abdomen.

IF SWALLOWED:

Ingestion is not a likely route of exposure to this product.

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Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

CANCER:

1,4-DIOXANE (123-91-1) is a potential cancer hazard causing nasal cavity, liver, skin and gall bladder tumors by the drinking water and topical routes of exposure in laboratory animal studies (NTP anticipated human carcinogen, IARC possible human carcinogen 2B, Calif. Proposition 65).

OTHER HEALTH HAZARD INFORMATION:

Warning: Contains 1,1,1-trichloroethane, a substance which harms public health and the environment by destroying ozone in the upper atmosphere.

Abbreviations: N/D - Not Determined N/A - Not Applicable

The information on this Data Sheet represents our current data and best opinion as to the proper use in handling of this material under normal conditions. Any use of the material which is not in conformance with this Data Sheet or which involves using the material in combination with any other material or any other process is the responsibility of the user.