

*** MATERIAL SAFETY DATA SHEET ***

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER..... 82-9810
 PRODUCT NAME..... PERMABOND (R) 105
 CAS NUMBER OF PRODUCT..... Unassigned
 SYNONYMS..... SUPER GLUE

National Starch and Chemical Company
 Permabond International Division
 FINDERNE AVENUE, P.O. Box 6500
 BRIDGEWATER, New Jersey 08807
 USA
 Emergency Telephone:
 908-585-5000 (24 hours)

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL FAMILY..... Cyanoacrylate Adhesive

COMPONENT	CAS NUMBER	CONCENTRATION RANGES (%)
ETHYL CYANOACRYLATE	7085-85-0	>1

COMMENTS: Exposure limits based on ACGIH data for methyl cyanoacrylate.

3. HAZARDS IDENTIFICATION

EYE..... On contact, will bond eyelids together. Vapors are lachrymatory.
 SKIN CONTACT..... On contact, immediate bonding of the skin will occur. Frequent or prolonged contact may irritate the skin.
 INHALATION..... Vapors may be irritating to respiratory system and nasal passages.
 INGESTION..... On contact, immediate bonding of mouth could occur.

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4. FIRST-AID MEASURES

EYE..... Flush with large amounts of water while holding eyelids open. Get medical attention immediately. Cured adhesive will not bond well to surface of eye, but corneal damage from abrasion may result. Do not wear contact lenses when working with this material.
 SKIN CONTACT..... No attempt should be made to remove material from skin or to remove contaminated clothing, as the bonded skin can be easily torn. Wash with large volumes of soap and water while flexing bonded skin parts. This procedure will slowly release bonded areas. DO NOT mechanically remove cured adhesive or attempt to pull skin apart.
 INHALATION..... Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention.
 INGESTION..... Immediate bonding of mouth will occur. Get medical attention.

5. FIREFIGHTING MEASURES

AUTOIGNITION..... Not Applicable
 FLASH POINT..... 167 F (Setaflash Closed Tester)
 EXTINGUISHING MEDIA..... CO2; Dry chemical; Foam
 SPECIAL FIREFIGHTING PROCEDURES..... Fire fighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes
 FIRE & EXPLOSION HAZARDS..... Cloths used to wipe up spills may cause rapid polymerization that could generate sufficient heat to ignite the cloth. Combustion may release noxious or toxic vapors. See Reactivity.
 UPPER EXPLOSION LIMIT (X)..... Not Applicable
 LOWER EXPLOSION LIMIT (X)..... Not Applicable

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5. FIREFIGHTING MEASURES (Continued)

NFPA FLAMMABILITY HAZARD CLASS..... 1 = Slight

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES..... SMALL SPILLS: wipe up with cloth. Immediately soak cloth with water to polymerize the adhesive. Caution! Cloth containing adhesive may undergo autoignition if not soaked with water. LARGE SPILLS: flood area with water. When cured, remove film with a scraper. Wear NIOSH approved respirator for organic vapors if needed, and protective clothing.

For safety and environmental precautions, please review entire Material Safety Data Sheet for necessary information.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE..... Less than 80 F
 HANDLING/STORAGE..... Store in a cool, dry area away from heat, sparks or fire.
 VENTILATION REQUIREMENTS..... Local

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	EXPOSURE LIMITS	RECOMMENDED TEST METHODS
ETHYL CYANOACRYLATE	2 PPM (ACGIH-TWA) 4 PPM (ACGIH-STEL)	

VENTILATION REQUIREMENTS..... Local
 EYE PROTECTION REQUIREMENTS..... Safety glasses, goggles or face shield to protect against splashing.
 GLOVE REQUIREMENTS..... Wear polyethylene gloves. Do not

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

CLOTHING REQUIREMENTS..... wear rubber or cloth gloves. No special clothing required for low volume activity.
 CHANGE/REMOVAL OF CLOTHING..... Remove contaminated clothing carefully and launder before reuse.
 WASH REQUIREMENTS..... Wash hands before eating, drinking, smoking, or using toilet facilities.
 RESPIRATOR REQUIREMENTS..... Avoid prolonged or repeated breathing of vapor or mists. If exposure may or does exceed occupational exposure limits, use a NIOSH approved respirator to prevent overexposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

PURE SUBSTANCE OR MIXTURE..... Mixture
 PHYSICAL FORM..... Liquid
 APPEARANCE/ODOR..... Transparent liquid; pungent odor
 ODOR THRESHOLD..... Not available.
 PH AS IS..... N/A (not applicable)
 pH IN (1X) SOLUTION..... N/A
 BOILING POINT..... 140 F at 3 mm Hg
 MELTING/FREEZING POINT..... N/A
 SOLUBILITY IN WATER..... Insoluble
 PARTITION COEFFICIENT (n-octanol/water)..... Not Applicable
 SPECIFIC GRAVITY..... 1.050
 BULK DENSITY..... 8.75 lbs/gal
 EVAPORATION RATE..... N/A
 VAPOR PRESSURE (mmHg)..... 0.3 (68 F)
 VAPOR DENSITY (air = 1)..... >1
 VISCOSITY..... 50 cps
 VOLATILES..... Nil
 VOLATILE ORGANIC COMPOUNDS..... Nil
 AUTOIGNITION..... Not Applicable
 FLASH POINT..... 167 F (Setaflash Closed Tester)
 OXIDIZING PROPERTIES..... Not Applicable

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10. STABILITY AND REACTIVITY

STABILITY..... Stable
 MATERIALS TO AVOID..... Water, alkaline materials, peroxides
 NFPA REACTIVITY HAZARD CLASS..... 2 = Moderate
 HAZARDOUS DECOMPOSITION PRODUCTS... Decomposes upon heating to release toxic fumes of nitrogen oxides, carbon monoxide and carbon dioxide.

HAZARDOUS POLYMERIZATION
 CONDITIONS..... Contamination of adhesive with alkaline materials, peroxides or water can result in rapid polymerization. In large quantities, this could lead to an uncontrollable rise in temperature and a buildup of pressure in closed containers.

11. TOXICOLOGICAL INFORMATION

PRODUCT TOXICOLOGY

NOTES ON ORAL TOXICITY..... The adhesive solidifies and immediately bonds in the mouth.
 NOTES ON DERMAL TOXICITY..... Immediately bonds skin.
 NOTES ON INHALATION TOXICITY..... Irritating to mucous membranes and eyes. Vapor exposures of 40-60 ppm in air is very objectionable, producing lacrimation, rhinorrhea, and blurred vision. Lower concentrations, near the TLV, caused irritation of the eyes and nose.
 NOTES ON EYE IRRITATION..... Vapors cause irritation and lacrimation. Immediately bonds eyelids. Cyanoacrylates will not bond to the eye but may cause corneal scratching.

CHRONIC (LONG TERM) EFFECTS OF EXPOSURE

ROUTE OF ENTRY..... Inhalation; Skin contact; Eye contact; Ingestion
 EFFECTS OF CHRONIC EXPOSURE..... No chronic effects are known.

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11. TOXICOLOGICAL INFORMATION (Continued)

TARGET ORGANS..... Skin; Eyes; Respiratory system
 SPECIAL HEALTH EFFECTS..... None known.

12. ECOLOGICAL INFORMATION

Not available.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS..... Waste disposal should be in accordance with existing federal, state and local environmental regulations.
 EMPTY CONTAINER WARNINGS..... Empty containers may contain product residue; follow MSDS and label warnings even after they have been emptied.

14. TRANSPORTATION INFORMATION

DOT INFORMATION

DOT SHIPPING NAME..... None.
 DOT HAZARD CLASS..... Not regulated
 DOT REPORTABLE QUANTITY..... None.

UNITED NATIONS INFORMATION

U.N. NUMBER..... N/A
 U.N. CLASS..... N/A

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15. REGULATORY INFORMATION

TSCA..... All components are on the TSCA inventory.
 SARA/TITLE III..... This product contains no substances at or above the reporting threshold under Section 313, based on data available.

The information given and the recommendations made herein apply to our product(s) alone and are not combined with other product(s). Such are based on our research and on data from other reliable sources and are believed to be accurate. No guaranty of accuracy is made. It is the purchaser's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.

16. OTHER INFORMATION

MSDS DATE..... February 22, 1994
 CHANGES SINCE PREVIOUS ISSUE..... Section 14

FOR REGULATORY INFORMATION, CONTACT:

Philip A. Toscano
 Assistant Regulatory Coordinator
 Permabond International Division
 National Starch & Chemical Company
 Finderne Avenue, P.O. Box 6500
 Bridgewater, NJ 08807
 USA
 Telephone: 908-685-5379
 FAX: 908-685-5306