

*** MATERIAL SAFETY DATA SHEET ***

National Starch and Chemical Company
Pernabond International Division
Finderne Avenue, P.O. Box 4500
Bridgewater, NJ 08807
Corporate and emergency telephone: 908-685-5000

1. PRODUCT IDENTIFICATION

PRODUCT NUMBER..... 82-9950
PRODUCT NAME..... PERMABOND (R) QFS 10
CHEMICAL FAMILY..... Accelerator/Activator
CAS NUMBER OF PRODUCT..... Unassigned
SYNONYM NAME(S)..... None

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	PERCENT	EXPOSURE LIMITS
Ethyl acetate	141-78-6	99.1	400,000 ppm (ACGIH TWA) 400,000 ppm (OSHA PEL)

3. PHYSICAL DATA

PURE MATERIAL OR MIXTURE..... Mixture
PHYSICAL FORM..... Liquid
APPEARANCE/PHYSICAL DESCRIPTION.. Clear liquid; pleasant fruity odor
MOLECULAR WEIGHT..... N/A (not applicable)
PH AS IS..... N/A
PH IN 1% SOLUTION..... N/A
BOILING-POINT..... 171 F
MELTING/FREEZING POINT..... N/A
SOLUBILITY IN WATER..... Slightly soluble
SPECIFIC GRAVITY (WATER = 1)..... .900
BULK DENSITY..... 7.5 lbs/gal
VOLATILES..... >99%
EVAPORATION RATE..... 6.0 (Butyl Acetate)
VAPOR PRESSURE (mmHg)..... 73 at 20 C
VAPOR DENSITY (AIR = 1)..... 3.0

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5. HEALTH EFFECTS DATA (Continued)

effects such as eye irritation or nausea. Care should be taken not to exceed the TLV.
ACUTE EFFECTS--INGESTION..... Irritating and/or toxic vapors may be released at elevated temperatures. Irritating to mouth, throat and stomach. May cause gastric tract disorder and/or damage. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting, may cause bronchopneumonia or pulmonary edema.

FIRST AID PROCEDURES

EYE..... Immediately flush eyes with large amounts of water for at least 15 minutes, lifting upper and lower lids. Get prompt medical attention.
SKIN CONTACT..... Flush with large amounts of water; use soap if available. Remove grossly contaminated clothing, including shoes, and launder before re-use. Discard shoes. If irritation persists, get medical attention.
INHALATION..... Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention. Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention.
INGESTION..... DO NOT induce vomiting. If individual is conscious, give milk or water to dilute stomach contents. Keep warm and quiet. Get prompt medical attention.
DO NOT attempt to give anything by mouth to an unconscious person.

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3. PHYSICAL DATA (Continued)

VOLATILE ORGANIC COMPOUNDS..... 7.43 lbs/gal (892 g/l)

4. FIRE AND EXPLOSION DATA

AUTOIGNITION..... 800 Fahrenheit
FLASH POINT..... 24 Fahrenheit; Method: Setflash closed tester
UPPER EXPLOSIVE LIMIT (X)..... 11.5
LOWER EXPLOSIVE LIMIT (X)..... 2.2
EXTINGUISHING MEDIA..... Dry chemical; CO2; Water fog; Foam
SPECIAL FIREFIGHTING PROCEDURES.. Fire fighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes; Cool exposed equipment with water spray
FIRE & EXPLOSION HAZARDS..... Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Combustion may release noxious or toxic vapors. See reactivity, section 7.
NFPA FLAMMABILITY HAZARD CLASS... 3 = High

5. HEALTH EFFECTS DATA

SHORT TERM EFFECTS OF EXPOSURE

ROUTE OF ENTRY..... Inhalation; Ingestion; Skin contact; Eye contact
ACUTE EFFECTS--EYE..... Irritating, and may injure eye tissue if not removed promptly.
ACUTE EFFECTS--SKIN CONTACT..... Frequent or prolonged contact may irritate and cause dermatitis. Repeated or prolonged contact may cause defatting of the skin, which may lead to skin irritation and/or dryness.
ACUTE EFFECTS--INHALATION..... Overexposure may be irritating to respiratory passages and cause other

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5. HEALTH EFFECTS DATA (Continued)

LONG-TERM EFFECTS OF EXPOSURE

EFFECTS OF CHRONIC EXPOSURE..... See toxicology section.
TARGET ORGANS..... Central nervous system; Liver; Kidneys

SPECIAL HEALTH EFFECTS

CARCINOGEN (OSHA guidelines)..... No

TOXICOLOGY INFORMATION

RAW MATERIAL NAME..... Ethyl acetate
ORAL LD50, SPECIES TESTED..... 5.6 g/kg Rat
NOTES ON ORAL TOXICITY..... No hazard in normal industrial use.
NOTES ON DERMAL TOXICITY..... Repeated or prolonged contact may cause defatting of the skin, which may lead to skin irritation and/or dryness.
INHALATION LC50, SPECIES TESTED.. 16000.0 ppm 6.00 hours Rat; 1000.0 ppm .50 hours Guinea pig
NOTES ON INHALATION TOXICITY..... Irritating to eyes and respiratory tract. High vapor concentrations are irritating to the eyes and the respiratory tract. May cause headaches and dizziness, are anesthetic and may have other central nervous system effects.
NOTES ON EYE IRRITATION..... Irritating, and will injure eye tissue if not removed promptly.

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6. ECOLOGICAL INFORMATION

Not noted.

7. RECOMMENDATIONS FOR PERSONAL PROTECTIVE EQUIPMENT

CONDITIONS UNDER WHICH PPE REQ'D. Normal work conditions;
Maintenance/Repair; Spill/Cleanup

EYE PROTECTION REQUIREMENTS..... Wear chemical goggles.

GLOVE REQUIREMENTS..... Impervious neoprene or rubber gloves are recommended.

CLOTHING REQUIREMENTS..... Standard industrial hygiene procedures should be practiced.

CHANGE/REMOVAL OF CLOTHING..... Change clothing, if contaminated, to prevent skin contact. Launder clothing before reuse.

WASH REQUIREMENTS..... Wash 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.

VENTILATION REQUIREMENTS..... Local: Explosion-proof exhaust ventilation.

8. REACTIVITY

STABILITY..... Stable

INCOMPATIBILITIES..... Strong oxidizers, acids or bases.
Mixing with large volumes of cyanoacrylate adhesive may cause a violent reaction.

HFPA REACTIVITY HAZARD CLASS..... 0 = Insignificant

HAZARDOUS DECOMPOSITION PRODUCTS..... Thermal decomposition could produce carbon monoxide, carbon dioxide, and unidentified organic compounds.

HAZARDOUS POLYMERIZATION..... Will not occur

12. OTHER REGULATORY

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.

13. REGULATORY CONTACT

MSDS DATE..... 02/21/94

REVISED MSDS SECTIONS..... Section 11

FOR REGULATORY INFORMATION, CONTACT:
Philip A. Toscano
Assistant Regulatory Coordinator
Permabond International Division
National Starch & Chemical Company
Finderne Avenue, P.O. Box 6500
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908-685-5379

-ADDITIONAL INFORMATION-

THE INFORMATION GIVEN AND THE RECOMMENDATIONS MADE HEREIN APPLY TO OUR PRODUCT(S) ALONE AND 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.

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9. SPILL AND LEAK PROCEDURES

SPILL OR LEAK PROCEDURES..... Shut off ignition sources. Stop leak if you can do it without risk. For small liquid spills, take up with sand or other absorbent material. For larger spills, dike far ahead of spill for later disposal. No smoking, flames or flares in hazard area! Keep unnecessary people away.

WASTE DISPOSAL METHODS..... Waste disposal should be in accordance with existing federal, state and local environmental regulations.

10. HANDLING AND STORAGE PRECAUTIONS

STORAGE TEMPERATURE..... Room temp.

SPECIAL SENSITIVITY..... Avoid excessive heat.

HANDLING/STORAGE..... Store in a cool, dry area away from heat, sparks or fire.

11. SHIPPING INFORMATION

DOT INFORMATION

DOT SHIPPING NAME..... ETHYL ACETATE SOLUTION

DOT HAZARD CLASS..... 3 PKG GRP II

DOT REPORTABLE QUANTITY..... 5000 lbs.

UNITED NATIONS INFORMATION

U.N. NUMBER..... 1173

U.N. CLASS..... 3