

TRADE NAME: Norland Optical Adhesive 81

SYNONYMS: NOA 81

PRODUCT USE: Ultraviolet Cure Adhesive

HEALTH	1
FLAMMABILITY	1
REACTIVITY	1
PROTECTIVE	B

Hazard Rating

- 4 - Extreme
- 3 - Serious
- 2 - Moderate
- 1 - Slight
- 0 - Minimal
- B - Gloves & Eye Protection

II. HAZARDOUS COMPONENTS

COMPONENTS	CAS#	COMPONENTS	OSHA PEL	ACGIH TLV	LD50	LC50
Mercapto-ester*	*	45-70%	NE	NE	>50mg/kg (rats)	NAv

NA = Not Applicable NAv = Not Available NE = Not Established

* The specific chemical identity and concentration is being withheld from this data sheet as a Trade Secret. None of the ingredients are listed as carcinogens in NTP, IARC or OSHA or any state's list of chemicals known to cause reproductive toxicity.

III. PHYSICAL DATA

BOILING POINT (°C): NA

SPECIFIC GRAVITY (H2O) = 1: 1.2

VAPOR PRESSURE (mm Hg): <0.1 @ 20°C

PHYSICAL STATE: Liquid

VAPOR DENSITY (AIR=1): >1

EVAPORATION RATE: <Butyl Acetate

pH: NA

PERCENT VOLATILE BY VOLUME: <.1

ODOR THRESHOLD (ppm): NA_v

FREEZING POINT (°C): NA_v

ODOR AND APPEARANCE: Clear liquid; sulfurous odor.

COEFFICIENT OF WATER/OIL DISTRIBUTION: NA_v

IV. FIRE AND EXPLOSION DATA

FLASH POINT: 175°C/350°F open cup

FLAMMABILITY: No

EXTINGUISHING MEDIA: Carbon Dioxide, foam, dry chemical.

UPPER FLAMMABLE LIMIT (% By Volume): NA

LOWER FLAMMABLE LIMIT (% By Volume): NA

AUTO IGNITION TEMPERATURE (°C): NA

HAZARDOUS COMBUSTION PRODUCTS: Could generate carbon monoxide and hydrogen sulfide. A small amount of HCN will be generated at incomplete combustion.

EXPLOSION DATA:

Sensitivity to Impact: None

Sensitivity to Static Discharge: None

V. REACTIVITY DATA

CHEMICAL STABILITY: Stable

INCOMPATIBILITY WITH OTHER SUBSTANCES: Exposure to u.v., sunlight or temperatures above 65°C may cause a nonhazardous polymerization reaction.

HAZARDOUS DECOMPOSITION PRODUCTS: None

VI. HEALTH HAZARD DATA

ROUTES OF ENTRY: Inhalation or skin.

EFFECTS OF EXPOSURE:

ACUTE: May cause dermatitis, shortness of breath, fainting, headaches and nausea.

CHRONIC: Repeated or prolonged skin contact may cause sensitization.

EXPOSURE LIMITS: None established for mixture.

LD50 (Mixture): No data for mixture

LC50 (Mixture): No data for mixture

CARCINOGENICITY: No

TERATOGENICITY: No

REPRODUCTIVE TOXICITY: No

MUTAGENICITY: No

IRRITANCY OF PRODUCTS: Moderate eye and skin irritant. Inhalation of vapors or mists may cause irritation of the respiratory tract.

SENSITIZATION TO PRODUCT: Can cause an allergic reaction.

SYNERGISTIC PRODUCTS: The use of certain alcohols in conjunction with this product can increase the risk of skin irritation and/or sensitization as they remove the protective oils on the skin.

VII. FIRST AID MEASURES

SPECIFIC MEASURES:

EYE CONTACT: If the material gets in the eyes, immediately wash the eyes with copious amounts of water, occasionally lifting the lower and upper eyelids. Continue for 15 minutes. Get medical attention immediately.

SKIN CONTACT: If the material gets on the skin, immediately wash the area with soap and water and flush with water. If the material gets on clothing, remove the clothing and wash the affected area with soap and water. If irritation develops, get medical attention. Discard or wash contaminated clothing before reuse.

INGESTION: If the material has been swallowed, dilute with milk or water if the victim is alert. See doctor as soon as possible.

INHALATION: If overcome by vapors or fumes, remove to fresh air. Get medical attention if symptoms persist.

VIII. PRECAUTIONS FOR SAFE HANDLING AND USE

PERSONAL PROTECTIVE EQUIPMENT:

GLOVES: Nitrile or butyl rubber.

RESPIRATOR: Not required under normal operating conditions. Respiratory protection may be needed under certain conditions where significant exposure to fumes or mists may occur. An air purifying respirator equipped with

organic vapor cartridges is recommended. Selection and use must comply with any existing federal standards for respiratory protection.

EYE: Safety glasses.

FOOTWEAR: Leather shoes.

CLOTHING: Cover arms and legs.

OTHER: NA

ENGINEERING CONTROLS: Use local and mechanical exhaust to minimize exposure to vapors or mists.

LEAK AND SPILL PROCEDURE: Contain material with absorbents. Place in container for disposal. Clean up with soap and water and flush area with water.

WASTE DISPOSAL: Material may be cured solid by exposure to u.v. light. Cured material may be disposed of in landfill. Comply with all regulations.

HANDLING PROCEDURES AND EQUIPMENT: Do not reuse container. This product is for industrial use only. Practice good housekeeping and vigorous personal hygiene to minimize contact with material.

STORAGE REQUIREMENTS: Store at 5-25°C. Keep away from sunlight.

SPECIAL SHIPPING INFORMATION: UN NUMBER - Not regulated.

IX. PREPARATION DATE OF MSDS

PREPARED BY: Material Safety Department

TELEPHONE: 609-395-1966

EMERGENCY TELEPHONE: 609-395-1966

DATE: November 1, 2009

SUPERSEDES: November 1, 2007

The data included herein are presented according to Norland Products' practices current at the time of preparation hereof, are made available solely for the consideration, investigation and verification of the original recipients hereof and do not constitute a representation or warranty for which Norland Products assumes responsibility. It is the responsibility of a recipient of this data to remain currently informed on chemical hazard information, to design, and update its own safety program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right to know and environmental protection.

All components of this product are in compliance with the Toxic Substances Control Act (TSCA) inventory.