Union Ink Company
453 Broad Avenue
Ridgefield, NJ 07657

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURING LOCATION:

Union Ink Company
453 Broad Avenue
Ridgefield, NJ 07657
201-945-5766

HAZARDOUS MATERIAL INFORMATION SYSTEM:

Health:	**3**
Flammability:	**1**
Reactivity:	**0**
Personal Protection:	**X***

* See Section 8 for PPE

IN CASE OF EMERGENCY CONTACT: 800-424-9300 (CHEMTREC)

PRODUCT NAME:	Union EF Nylobond	**DATE REVISED:**	10/11/2010
CHEMICAL FAMILY:	Alkylsulphonic acid ester of phenols	**SUPERSEDES:**	None
PRODUCT CODE:	NYBE-9120	**VERSION:**	1

PREPARED BY: Kimberly C. Leitch (704) 553-0046 ext. 155

2. HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENT	CAS #	% BY WEIGHT	TLV	PEL
Toluene Diisocyanate Mixed Isomers	26471-62-5	0.1-1%	0.005 ppm	0.02 ppm

The above ingredients are defined as hazardous by OSHA 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: **DANGER!** **Color:** Yellow **Form:** Liquid **Odor:** pungent, strong.
Toxic gases or fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Causes eye irritation. May cause lung damage.

3. HAZARDS IDENTIFICATION (CONTINUED)

EYE CONTACT: Isocyanate vapor will irritate the membranes of the eyes. May cause corneal injury. Prolonged vapor contact may cause conjunctivitis.

SKIN CONTACT: May cause skin irritation or dermatitis. May cause allergic skin reaction or skin sensitization. Cured material may be difficult to remove.

INHALATION: Isocyanate vapor will irritate the membranes of the nose, throat, and lungs, causing possible runny nose, sore throat, coughing, chest discomfort, shortness of breath, asthma like symptoms, and reduced lung function. Isocyanate vapor may induce an allergic response, and repeated exposure may lead to sensitization. Isocyanate vapor may cause lung damage.

INGESTION: May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

4. FIRST AID MEASURES

EYES: Flush with lukewarm water for 15 minutes. Remove contact lenses, if necessary. Get medical attention.

SKIN: Remove contaminated clothing. Wash with soap and lukewarm water. If irritation develops or persists, get medical attention.

INHALATION: Remove to fresh air. Get medical attention. The onset of symptoms may be delayed for several hours up to two days after exposure. Extreme asthmatic reactions can be life threatening.

INGESTION: If the chemical is confined to the mouth, wash out mouth, and do not swallow mouth wash. If swallowed, give liquids if victim is conscious. Do not induce vomiting except on the orders of a physician.

MEDICAL CONDITIONS AGGRAVATED: Isocyanate sensitization, asthma, respiratory disorders, skin allergies, eczema.

NOTE TO PHYSICIAN: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/ steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial ederna impairing vision.
Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.
Inhalation: Treat symptomatically.
Ingestion: Treat symptomatically.
An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

5. FIRE FIGHTING MEASURES

FLASH POINT (° F): 437° F (Closed cup)

OSHA FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Dry chemical, CO_2, High expansion (proteinic) chemical foam, Water spray for cooling in large fires.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self contained breathing apparatus and full protective clothing. Decontaminate equipment and clothing prior to reuse.

EXPLOSION LIMITS IN AIR - LOWER (%): 0.90% **UPPER (%):** 9.50%

AUTO IGNITION TEMP (° F): 806° F

UNUSUAL FIRE AND EXPLOSION HAZARDS: TDI and other toxic vapors generated by decomposition or combustion may present an inhalation health hazards.
Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (C02 formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can he extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Ventilate spill area. Wear full protective equipment during clean up. Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify your supervisor and/or management. Control source of the leak. Contain the spill to prevent spread into drains, sewers, water supplies, or soil.

MAJOR SPILL OR LEAK (STANDING LIQUID): To minimize vapor, cover the spillage with fire fighting foam Released material may be pumped into closed, but not sealed, metal container for disposal. Follow wet surface procedures below.

MINOR SPILL OR LEAK (WET SURFACE): Cover spill area with absorbent material. Saturate absorbent material with neutralization solution (see below) and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of neutralization solution with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination.
Apply lid to containers loosely and allow containers to vent for 72 hours to let carbon dioxide (C02) escape.

NEUTRALIZATION SOLUTION:
1. Colorimetric Laboratories Inc. (CLI) decontamination solution.
2. A mixture of 75% water, 20% non-ionic surfactant (e.g. Poly-Tergent SL-62, Tergitol TMN-10) and 5% n-propanol.
3. A mixture of 80% water, 20% non-ionic surfactant (e.g. Poly-Tergent SL-62, Tergitol TMN-10).
4. A mixture of 90% water, 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.

6. ACCIDENTAL RELEASE MEASURES (CONTINUED)

Infotrac (1-800-535-5053) must be notified when this product is unintentionally released from its container during the course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

7. HANDLING AND STORAGE

HANDLING: Insure that the level of isocyanate vapor does not exceed the permitted maximum. The odor threshold is generally above the MEL (Maximum Exposure Level), so do not use odor as an indicator.

STORAGE: Do not store near heat or flame. Keep containers tightly closed to prevent moisture contamination. Do not reseal if contamination is suspected. Store between 70° F and 95° F in a well ventilated area. Storage life: six months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION EQUIPMENT: At room temperature, airborne TDI can exceed the TLV; therefore, in inadequately ventilated environments, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection standard (29 CFR 1910.134).

PROTECTIVE GLOVES: Recommended

EYE AND FACE PROTECTION: Splash proof recommended

OTHER PROTECTIVE EQUIPMENT: Apron or coverall to avoid skin contact.

VENTILATION: Good mechanical ventilation and exhaust should be provided in the areas where this product is handled or heated to maintain diisocyanate levels below the TLV and PEL. At normal room temperatures (70 F) TDI levels quickly exceed the TLV or 'PEL unless properly ventilated. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation Manual) should be consulted for guidance about adequate ventilation. To ensure that published exposure limits have not been exceeded, monitoring for airborne diisocyanate should become part of the overall employee exposure characterization program.

MEDICAL SURVEILLANCE: A history of eczema or respiratory allergies are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma or prior isocyanate sensitization should be restricted from work with isocyanates.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Range/Point: 485-489° F
Vapor Pressure: 13 hPa at 55° C

9. PHYSICAL AND CHEMICAL PROPERTIES (CONTINUED)

Vapor Density (AIR=1):	>1
Freezing Point:	Low temperature properties not determined
Physical State:	Liquid
Color:	Yellow
% Volatile by Weight:	Not determined
VOC (lbs/gal):	Not determined
Evaporation Rate (Butyl Acetate=1):	Not determined
Specific Gravity @ 25° C:	1.13
Weight per gallon:	9.40

10. STABILITY AND REACTIVITY

STABILITY: The product is stable under normal conditions. Contact with moisture, or temperatures above 350° F may cause polymerization.

HAZARDOUS POLYMERIZATION: Will not occur

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS: CO, CO_2, oxides of nitrogen, traces of HCN, TDI vapors.

INCOMPATIBILITY (MATERIALS TO AVOID): Water, amines, strong bases, alcohols, copper alloys, aluminum.

CONDITIONS TO AVOID: Elevated temperatures, moisture.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Toxicity and carcinogenicity data is for TDI mixed isomers.

CARCINOGENICITY: NTP: Anticipated carcinogen IARC: 2B possible carcinogen

ACUTE ORAL LD50: 4,130 mg/kg (rat, female); 5,110 mg/kg (rat, male)

ACUTE DERMAL LD50: >9400 mg/kg (rabbit)

ACUTE INHALATION LC50: 0.48 mg/l, 1 hr. (rat, male/female); 3.5 mg/l, 4 hr. (rat)

12. ECOLOGICAL INFORMATION

BIODEGRADATION: 0%, Exposure time: 28 Days

BIOACCUMULATION: Not expected to bio-accumulate

ACUTE AND PROLONGED TOXICITY TO FISH:

LC50: 164 mg/l (Fathead minnow, 96 hrs.)
LC50: >100 mg/l (Zebra fish, 96 hrs.)

12. ECOLOGICAL INFORMATION

ACUTE AND PROLONGED TOXICITY TO AQUATIC INVERTEBRATES:

EC50: 12.5 mg/l (Water flea, 48 hrs.)
EC50: >508 mg/l (Water flea, 96 hrs.)

TOXICITY TO MICROORGANISMS:

EC50: >100 mg/l (Activated sludge microorganisms, 3 hrs.)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: This product is not a listed hazardous waste. Under RCRA, it is the responsibility of the user of a product to determine, at the time of disposal, whether the product falls under any of the hazardous waste classifications (ignitability, corrosivity, reactivity, and toxicity). This is because the user's processes might change the characteristics of the product. Dispose of this material in accordance with all applicable local, state, and federal regulations.

EMPTY CONTAINER PRECAUTIONS: Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse empty containers without a thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

14. TRANSPORT INFORMATION

Not regulated in amounts less than 12,500 pounds.

LAND TRANSPORT (DOT):

DOT SHIPPING NAME: Environmentally Hazardous Substance, liquid, NOS (contains Toluene Diisocyanate Mixed Isomers)
DOT HAZARD CLASS: 9
UN/NA NUMBER: UN3082
DOT PACKING GROUP: III

RSPA/DOT REGULATED COMPONENTS: Toluene Diisocyanate Mixed Isomers RQ: 100 lbs.
EA0001 Reportable Quantity: 12,500 lbs.

AIR FREIGHT TRANSPORTATION (ICAO/IATA):

PROPER SHIPPING NAME: Environmentally Hazardous Substance, liquid, NOS (contains Toluene Diisocyanate Mixed Isomers)
HAZARD CLASS: 9
UN/NA NUMBER: UN3082
PACKING GROUP: III
HAZARD LABEL(S): Miscellaneous

OCEAN TRANSPORTATION (IMDG):

PROPER SHIPPING NAME: Environmentally Hazardous Substance, liquid, NOS (contains Toluene Diisocyanate Mixed Isomers)
HAZARD CLASS: 9
UN/NA NUMBER: UN3082
PACKING GROUP: III
HAZARD LABEL(S): Miscellaneous

15. REGULATORY INFORMATION

TSCA STATUS: All components of these products are on the US TSCA Inventory.

CALIFORNIA PROPOSITION 65: Toluene-2,4-diisocyanate; CAS# 584-84-9

SARA 302 EXTREMELY HAZARDOUS SUBSTANCES LIST: None

SARA (311,312) HAZARD CLASS: Acute, Chronic

SARA SECTION 313 TOXIC CHEMICALS: Toluene diisocyanate mixed isomers: <1%

CARCINOGENS ACCORDING TO NTP, IARC, OR OSHA: Toluene diisocyanate mixed isomers:

CERCLA RQ Toluene diisocyanate mixed isomers: 100 lbs

AUSTRALIAN INVENTORY CHEMICAL SUBSTANCES: Unknown

CANADIAN INVENTORY: Unknown

EINECS REGULATIONS: This product only contains substances which are on the EINECS.

JAPAN: Unknown

KOREAN CHEMICAL INVENTORY: Unknown

16. OTHER INFORMATION

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:
While Union Ink believes that the data contained herein are factual, and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Union Ink assumes legal responsibility. Since the use of this information and these opinions and the use of the product are not within the control of Union Ink, it is the user's obligation to determine the conditions of safe use of the product.

17. LABEL INFORMATION

SINGLE WORD: Harmful

EYES: Irritating to eyes

SKIN: Irritating to skin. May cause sensitization by skin contact.

INHALATION: May cause sensitization by inhalation

HANDLING: NIOSH approved respirator if exposure limits are exceeded.

RIGHT-TO-KNOW CHEMICALS: Toluene diisocyanate mixed isomers: CAS # 26471-62-5 <1%