



MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

077 RATE ENHANCER

For use with Ultraviolet Curable Screen Printing Inks

North America:

NOR-COTE INTERNATIONAL, INC.

506 Lafayette Avenue

Crawfordsville, Indiana 47933 USA

Phone: 765-362-9180 (day phone)

MSDS Issuer: EHS Department

Emergency Phone (United States):

800-424-9300

CHEMTREC

Europe:

NOR-COTE INTERNATIONAL LTD.

Unit 8 Warrior Park, Eagle Close

Chandlers Ford Industrial Estate

Eastleigh, Hampshire

SO53 4NF England

Tel: +44 (0) 23 80270542 (day phone)

Emergency Phone (Outside U.S.):

703-527-3887 CHEMTREC

Asia:

NOR-COTE INTERNATIONAL PTE. LTD.

Blk 4012 Ang Mo Kio Ave 10,

#05-08 Techplace 1,

Singapore 569628

Tel: +65 6291-0898 (day phone)

Emergency Phone (Outside U.S.):

703-527-3887 CHEMTREC

SECTION 2 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Product is a pale straw liquid with mild amine odor that may severely irritate eyes. Product may be slightly toxic if swallowed.

ROUTES OF ENTRY: Dermal, Inhalation, Ingestion

ACUTE HEALTH EFFECTS:

- **Skin Contact:** Practically non-toxic if absorbed through skin and practically non-irritating to skin.
- **Eye Contact:** May cause severe eye irritation. Protect eyes from repeated or prolonged contact.
- **Inhalation:** May be harmful if inhaled. DO NOT INHALE VAPORS.
- **Ingestion:** May be harmful if swallowed.

CHRONIC: Not available

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: No data available. Repeated and prolonged overexposure may increase the potential for adverse health effects.

HMIS ® RATING: Health - 2 Flammability - 1 Physical Hazard - 1 PPE - C

SECTION 3 COMPOSITION

INGREDIENT	PERCENT BY WEIGHT	CAS#	EC#	Symbol	Risk Phrase
Methyldiethanolamine	99-100%	105-59-9	203-312-7	Xi	R36

SECTION 4 FIRST AID MEASURES

SKIN CONTACT: Remove and isolate contaminated clothing and shoes. Remove excess material from skin with clean cloth. Flush skin with running lukewarm water. Wash affected areas using mild soap.

EYE CONTACT: Flush the eye and under lids with warm water for 15 minutes. Remove any contact lenses during the flushing. Get immediate medical attention if symptoms persist.

INHALATION: Move subject to fresh air and keep warm. If subject is not breathing, administer artificial respiration. If breathing is difficult, have qualified personnel administer oxygen and get medical attention.

INGESTION: If appreciable quantities are swallowed, seek immediate medical attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

SECTION 5 FIRE FIGHTING MEASURES

FLASHPOINT: 240°F (115.6°C)

METHOD: PMCC

FLAMMABLE/EXPLOSIVE LIMITS (Volume % in air): UPPER - 8.8 LOWER - 1.4

EXTINGUISHING METHOD: Water spray, carbon dioxide (CO₂), foam or dry chemical

AUTO-IGNITION TEMPERATURE: 770°F (410°C)

OSHA CLASSIFICATION: This product is classified as a Class IIIB combustible liquid.



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FIRE AND EXPLOSION HAZARDS: When burned, the hazardous oxides of carbon and nitrogen can occur from combustion.
FIRE FIGHTING INSTRUCTIONS: Evacuate area of all non-emergency personnel. Fire fighters must wear full emergency equipment with self-contained breathing apparatus. At elevated temperatures hazardous polymerization may occur causing container rupture and in extreme cases, explosion. Fight fires from upwind and cool intact containers with water spray or stream at maximum range.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Remove all sources of ignition and ventilate area. Avoid skin and eye contact. Use respiratory protection. Absorb with inert materials such as dry clay or sand and place in closed container for disposal as solid waste in accordance with all applicable regulations.

SECTION 7 HANDLING AND STORAGE

HANDLING: Avoid any unnecessary contact. Use protective clothing specified in Section 8. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

STORAGE: The material is not hazardous under normal storage conditions; however, material should be stored in closed containers, in secure area to prevent container damage and subsequent spillage.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS: Not established

ENGINEERING CONTROLS/VENTILATION: Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposure. Dilution ventilation is acceptable, but local mechanical exhaust ventilation is preferred, if practical, at sources of air contamination.

EYE PROTECTION: Use splash-proof safety goggles or safety glasses that are ANSI approved to prevent eye contact. Eyewash availability is also recommended.

HAND PROTECTION: Use nitrile, butyl or other gloves that are resistant to chemicals in Section 2. Replace immediately if punctured or torn or when a change of appearance (color, elasticity, shape) occurs. A minimum of 0.45mm thick gloves for long duration exposure (up to 4 hours) or mechanical handling activities; single use, disposable gloves for short duration exposures not exceeding 30 minutes or where splashes are likely, are recommended.

SKIN PROTECTION: Protective or disposable outer clothing is recommended.

RESPIRATORY PROTECTION: Use of NIOSH approved respirators is recommended where exposure is exceeded. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Respiratory protection programs must comply with 29 CFR 1910.134.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, PHYSICAL STATE AND ODOR: Pale straw liquid with mild amine odor

BOILING POINT (°F): 240-255°C (464-491°C)

FREEZING POINT: -21°C (-5.8°F)

SPECIFIC GRAVITY: 1.04 @ 20°C

EVAPORATION RATE: Not established

VAPOR PRESSURE: <0.01 mmHg @ 20°C

VAPOR DENSITY: 4

SOLUBILITY IN WATER: Complete

VOC CONTENT: Not determined

pH: Not established

DENSITY: 3.95 kg/gal (8.70 lb/gal)

MOLECULAR WEIGHT: 119.2

SECTION 10 REACTIVITY / STABILITY HAZARD DATA

STABILITY: This material is stable under recommended storage and handling conditions.

INCOMPATIBILITY: Avoid contact with strong oxidizing agents, strong acids and strong alkalis.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition giving off toxic and corrosive products such as ammonia, carbon dioxide, and nitrogen dioxides.



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SECTION 11 TOXICOLOGICAL INFORMATION

Acute Oral LD50 – Slightly toxic to rats (4,780 mg/kg)

Acute Dermal LC50 – Practically non-toxic to rabbits (6,300 mg/kg)

Acute Inhalation – No deaths in rats following exposure to saturated vapor for 8-hours.

Eye Irritation – Severely irritating to rabbits (59/110)

Skin Irritation – Practically non-toxic to rabbits (4-hr exposure, 0.2/0.8)

No skin allergy was observed in guinea pigs following repeated exposure. Severe irritation, but no systemic effects were observed following repeated application to the skin of rats. No birth defects were observed in the offspring of rats following application to the skin during pregnancy, even a doses which produced adverse effects on the mothers. No genetic changes were observed in test using bacteria or animals.

SECTION 12 ECOLOGICAL INFORMATION

No determination has been made on ecological impact of this product, however ingredients of this product are toxic and harmful to aquatic organisms and may cause long term adverse effects in aquatic environment. Prevent contamination of the environment with this product, i.e. soil, surface waters, etc.

SECTION 13 DISPOSAL CONSIDERATIONS

If material, as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261 as supplied. Dispose of this material in accordance with all applicable federal, state, provincial, and local laws and regulations.

SECTION 14 TRANSPORTATION INFORMATION

Transport this product in accordance with all applicable laws and regulations. This product, as supplied, is not regulated nor classified as a hazardous material/dangerous good by United States Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO), the Canadian Transportation of Dangerous Goods Act (TDG), or the International Air Transport Association (IATA).

SECTION 15 REGULATORY INFORMATION

This Material Safety Data Sheet has been formatted to the best of our ability in accordance with American National Standards Institute (ANSI), European Communities (EC), and contains hazard criteria and all information required by the Canadian Controlled Products Regulation (CPR) in regard to this product.

California Proposition 65 RTK: This product may contain trace chemicals not added as a part of the formulation but remaining as residuals from the manufacturing process of our raw materials suppliers, that are considered by the state of California to cause cancer: None Known

Clean Air Act- Hazardous Air Pollutants (HAP): This product and its components do not contain any known Hazardous Air Pollutants.

Clean Air Act – Ozone Depleting Substances (ODS): This product and its components do not contain Ozone Depleting Substances.

Clean Water Act – Priority Pollutants (PP): This product and its components do not contain Priority Pollutants.

Coalition of Northeastern Governors (CONEG): This product meets the requirements of CONEG pertaining to heavy metals total content of no more than 100 PPM. No heavy metals are added as a part of the formulation, but raw materials may contain residual parts per million as naturally occurring elements.

Food and Drug Administration (FDA) Food Packaging Status: The ingredients in this product have not been cleared by the FDA for use in food packaging and/or other applications as an indirect food additive.

Global Inventories: All components of this product are listed or in compliance with the following chemical inventories:

Australian Inventory of Chemical Substances (AICS)

Canadian Domestic Substance List (DSL)

European Inventory of Existing Commercial Substances (EINECS)

Japanese Existing and New Chemical Substances (ENCS)

South Korea Toxic Chemical Control Law (TCCL) Existing Chemicals List (ECL)

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III:



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Section 302 – Extremely Hazardous Substances (EHS): None

Section 304 – CERCLA Hazardous Substances: None

Section 311/312 – Hazard Categories: Acute hazard.

Section 313 – Toxic Chemicals: None

Toxic Substances Control Act (TSCA)

Section 5(e): This product is not regulated under the Consent Order/Significant New Use Rule.

Section 8(b) – Inventory Status: All chemicals in this product are TSCA listed.

SECTION 16 OTHER INFORMATION

HMIS® ratings are a registered trade and service mark of the National Paint and Coatings Association with the following scale:

* = Chronic health effect	PPE Index
4 = Severe Hazard	A = Safety Glasses
3 = Serious Hazard	B = Safety Glasses and Gloves
2 = Moderate Hazard	C = Safety Glasses, Gloves and Protective Apron
1 = Slight Hazard	D = Face Shield, Gloves and Protective Apron
0 = Minimal Hazard	E = Safety Glasses, Gloves and Respirator

Definitions

TWA – Time Weighted Average

TLV – Threshold Limit Value

STEL – Short Term Exposure Limit

CAS# - Chemical Abstract Service Number

NTP – National Toxicology Program

PEL – Permissible Exposure Limit

IARC - International Agency for Research on Cancer

ANSI – American National Standards Institute

EU Risk/Safety Phrases

Xi = Irritant

R36 = Irritating to eyes.

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Disclaimer: To the best of our knowledge, the product information contained herein is based upon data believed to be reliable, however Nor-Cote makes no warranty and disclaims any liability whatsoever for its accuracy or completeness. Since the actual use of the product is beyond our control, no guarantee expressed or implied, is made by Nor-Cote as to the effects of such uses nor does Nor-Cote assume liability arising out of the use of this product by others. It remains the responsibility of the user to ensure that the use of the product herein is in accordance with all applicable laws and regulations.