



MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

078

PC Adhesion Modifier

For use with U.V. Curable Screenprinting 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:
CHEMTREC (United States)
800-424-9300

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:
CHEMTREC (Outside U.S.)
703-527-3887

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)

SECTION 2 INGREDIENTS

COMMON NAME	CHEMICAL NAME	PERCENT BY WEIGHT	CAS#	EXPOSURE LIMITS	EINECS#
Acrylated Monomer	Proprietary	27%	Proprietary	Not established	Proprietary
V-Pyrol	N-Vinyl-2-Pyrrolidone	73%	88-12-0	0.05 PPM (VAPOR) ACGIH	201-800-4

SECTION 3 HAZARDS IDENTIFICATION

ROUTES OF ENTRY: Dermal, Inhalation, Ingestion

GENERAL HEALTH EFFECTS: Irritant to skin, eyes and respiratory tract. Effects may be delayed for several hours.

ACUTE

- **Skin Contact:** Harmful if absorbed through skin. Ingredients are potential irritant and can cause allergic skin reaction. Repeated or prolonged contact may cause sensitization.
- **Eye Contact:** May cause severe eye irritation. Protect eyes from repeated or prolonged contact.
- **Inhalation:** Harmful if inhaled. DO NOT INHALE VAPORS.
- **Ingestion:** May be harmful if swallowed.

CHRONIC: Animal studies for NVP indicate that inhalation can cause liver and nasal damage. Possible cancer hazard associated with NVP, based on animal studies.

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

EC HAZARD SYMBOLS:



XN-HARMFUL



N - DANGEROUS TO THE ENVIRONMENT

EC RISK/SAFETY PHRASES:

R20/21/22, R36/37, R40, R43, R51/53
S20/21, S23, S61, S26, S36/37, S24

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: >200° F (> 93.3°C)

METHOD: Open Cup

AUTO-IGNITION TEMPERATURE: Not established

FLAMMABLE/EXPLOSIVE LIMITS (Volume % in air): Not established

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



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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.

STORAGE: Store away from heat and sunlight to prevent spontaneous polymerization. Store below 120° F (49° C). Protect containers from physical damage. Storage of containers should conform to flammable and combustible liquid regulations.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

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. RadTech recommends a minimum of 0.45mm thick, nitrile gloves for long duration exposure (up to 4 hours on most UV/EB-curing acrylates) or mechanical handling activities. Single use, disposable nitrile gloves are recommended by RadTech for short duration exposures not exceeding 30 minutes, in situations where only splashes are likely.

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

SKIN PROTECTION: Protective or disposable outer clothing is recommended.

RESPIRATORY PROTECTION: Use local exhaust to control vapors and mists. Use of NIOSH approved respirators for organic vapors, is recommended where TLV is exceeded.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Moderate viscosity with mild odor

BOILING POINT (°F): Not available

SPECIFIC GRAVITY: 1.06847

VAPOR PRESSURE (mm Hg): Not established

SOLUBILITY IN WATER: Not soluble

pH: NA

PHYSICAL STATE: Liquid

FREEZING POINT: Not available

EVAPORATION RATE: <1

VAPOR DENSITY: Heavier than air

VOC: < 7.0 grams/liter

DENSITY: 4.04 kg/gal (8.9 lb/gal)

SECTION 10 REACTIVITY / STABILITY HAZARD DATA

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

CONDITIONS TO AVOID: Excessive heat, ignition sources and contamination with dirt and other foreign materials.

INCOMPATIBILITY: Avoid contamination or inappropriate mixing with strong oxidizing agents, peroxides, strongly caustic materials and metal corrosion products including rust. Do not expose to UV light during storage.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal oxidation or pyrolysis (as in fire) may yield carbon dioxide, carbon monoxide and volatile organic fragments which are flammable, irritating or toxic.

HAZARDOUS POLYMERIZATION: Under certain conditions (excess temperatures and contamination) hazardous polymerization may occur. Avoid high temperature and contamination with foreign materials.

SECTION 11 TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA: Slightly toxic by ingestion. Prolonged or repeated exposure may result in sensitization. Possible cancer hazard associated with NVP based on animal studies.

LD50 Dermal – Not determined

LC50 Oral – Not determined

REPRODUCTIVE TOXICITY: Not determined

TERATOGENICITY: Not determined

MUTAGENICITY: Not determined

CARCINOGENICITY: IARC? No

NTP? No

OSHA? No



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SECTION 12 ECOLOGICAL INFORMATION

No determination has been made on ecological impact. However, it is highly recommended to prevent contamination of the environment with this product, i.e. soil, landfills, drains, sewers, surface waters, etc.

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose of this product in accordance with all applicable laws and regulations.

SECTION 14 TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION: Not regulated as a hazardous substance. Is regulated as a hazardous material (contains N-Vinyl-2-Pyrrolidone CAS#88-12-0)

Export Shipping Class: 6.1

DOT (49 CFR)/IATA/IMDG Hazard Class: 6.1

UN Number: 2810

Export Shipping Name: Toxic Liquid Organic N.O.S.

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.

INTERNATIONAL REGULATIONS

Canadian Inventory Status: All components of this product are currently listed on the Canadian Domestic Substance List (DSL) and/or the Canadian Non-Domestic Substance List (NDSL).

Canadian Workplace Hazardous Materials Information System (WHMIS): N-vinyl-2-pyrrolidone is classified as a D1B and D2B material. (See section 2).

European Inventory Status: All components of this product are listed on the European Inventory of Existing Commercial Substances (EINICS) or are exempt from the listing. This product is classified and labeled in accordance with EC directives.

Japanese Inventory Status: All components of this product are listed on the Ministry of International Trade and Industry (MITI) Existing and New Chemical Substances (ENCS) Inventory.

U.S. FEDERAL REGULATIONS

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.

Clean Air Act- Hazardous Air Pollutants (HAP): This product and its components do not contain any 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: This product has not been cleared by the FDA for use in food packaging and/or other applications as an indirect food additive.

Occupational Safety and Health Act (OSHA): This product is classified as a Class III B combustible liquid.

Resource Conservation and Recovery Act (RCRA): This product is not regulated as a hazardous substance under 40 CFR 261.

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

Section 302 – Extremely Hazardous Substances (EHS): This product is not regulated as an EHS.

Section 304 - CERCLA: This product is not regulated for emergency release notification.

Section 311/312 – Hazard Communication Standard (HCS): This product is classified as an acute hazard.

Section 313 – Toxic Chemical List (TCL): This product contains the following components that are regulated under the Toxic Chemical Release Reporting requirements 40 CFR 372: None



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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

EU Risk/Safety Phrases

R20/21/22 = Harmful by inhalation, in contact with skin or if swallowed.

R36/37 = Irritating to eyes, respiratory system.

R40 = Limited evidence of a carcinogenic effect.

R43 = May cause sensitization by skin contact.

R51/53 = Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S20/21 = When using, do not eat, drink, or smoke.

S23 = Do not breathe vapour.

S24 = Avoid contact with skin.

S26 = In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37 = Wear suitable protective clothing and gloves

S61 = Avoid release to the environment. Refer to special instructions/safety data sheets.

Canadian WHMIS Classification

D1B = Toxic material causing immediate and serious toxic effects.

D2B = Toxic material causing other toxic effects.

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

Revision History:

09/03/2004 – Changed MSDS format and added CHEMTREC as emergency contact.

10/26/2004 – EC Hazard Symbol changed to Xn-Harmful instead of Xi- Irritant in Section 3. Added specific gravity and density to Section 9.

11/05/2008 – Deleted Malaysia, Updated UK & Asia address.

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.