MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

076
FLEXIBILIZING AGENT

North America:
NOR-COTE INTERNATIONAL, INC.
506 Lafayette Avenue
Crawfordsville, Indiana 47933
United States
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 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Product is a liquid with mild acrylic odor that may be harmful if inhaled or swallowed. Product may cause serious damage to eyes, allergic skin reactions and/or irritation to respiratory system. Avoid breathing vapors. Avoid spillage to sewers or waterways.

ROUTES OF ENTRY: Dermal, Inhalation, Ingestion

ACUTE HEALTH EFFECTS: Irritant to skin, eyes and respiratory tract. Effects may be delayed for several hours.
- **Skin Contact:** Potential irritant and can cause allergic skin reaction. Repeated or prolonged contact may cause sensitization.
- **Eye Contact:** Liquid, vapors, or mists may cause eye irritation. Protect eyes from repeated or prolonged contact.
- **Inhalation:** May be harmful if inhaled. May cause irritation to upper respiratory tract upon prolonged or repeated inhalation.
- **Ingestion:** May be harmful if swallowed. Gastrointestinal tract irritation may result.

CHRONIC HEALTH EFFECTS: No data available for mixture. Animal studies for N-Vinyl Pyrrolidone indicate that inhalation can cause liver and nasal damage. Possible cancer hazard associated with NVP, based on animal studies.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: 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#	EINECS#	Symbol	Risk Phrase
N-Vinyl-2-Pyrrolidone (NVP)	5%	88-12-0	201-800-4	Xn, N	R20/21/22, R37, R40, R41, 48/20
Urethane Acrylate	45%	Proprietary	Proprietary	Xn, N	R40, R41, 48/20
Isobornyl Acrylate	50%	5888-33-5	227-561-6	Xi; N	R36/37/38, R51/53

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: Not determined, but expected to be >200° F (> 93.3°C) based on raw material data.
FLAMMABLE/EXPLOSIVE LIMITS (Volume % in air): Not established

EXTINGUISHING METHOD: Water fog, carbon dioxide (CO2) or dry chemical
AUTO-IGNITION TEMPERATURE: Not established
OSHA CLASSIFICATION: Class IIIB Combustible

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 90° F (32° C). Protect containers from physical damage. Storage of containers should conform to flammable and combustible liquid regulations.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS: Not established for mixture.

Component	Exposure Limit
N-Vinyl pyrrolidone	0.05 PPM (VAPOR) ACGIH
Acrylated Oligomers	Not established
Isobornyl Acrylate	Not established

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.

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

SKIN PROTECTION: Protective or disposable outer clothing is recommended.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination.

RESPIRATORY PROTECTION: Use of NIOSH approved respirators for organic vapors is recommended where exposure limits are exceeded.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Moderate viscosity with mild odor
BOILING POINT (°F): Not established
SPECIFIC GRAVITY: 1.04816
VAPOR PRESSURE (mm Hg): Not established
SOLUBILITY IN WATER: Not soluble
pH: Not established
PHYSICAL STATE: Liquid
FREEZING POINT: Not established
EVAPORATION RATE: <1
VAPOR DENSITY: Heavier than air
VOC: Not established, but expected to be <5%
DENSITY: 3.96 kg/gal (8.73 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.
LD50 – Not determined for mixture
LC50 – Not determined for mixture
CARCINOGENICITY: **IARC?** Not listed **NTP?** Not listed **OSHA?** Not listed
MUTAGENICITY: Not determined for mixture
REPRODUCTIVE EFFECTS: Not determined for mixture

NVP, one component of this product is a possible cancer hazard based upon animal studies. Acute Oral LD50 is 1470 mg/kg (rat). Acute Dermal LD50 is 560 mg/kg (rabbit). Acute Inhalation LC50 is 3.2 mg/l (rat). Negative results and no chromosome-damaging effects were found with mutagenicity studies. Carcinogenicity studies (Rat, 2-year inhalation) showed tumors observed in nasal mucosa of both sexes at 20 ppm and in males at 10pm. Liver and laryngeal tumors at 20ppm and liver damage at 5ppm in both sexes.

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

If product 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), or the Canadian Transportation of Dangerous Goods Act (TDG).

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.

Canadian Inventory Status: Components of this product are currently listed on the Canadian Domestic Substance List (DSL) or the Canadian Transitional List.

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 known Hazardous Air Pollutants.

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

European Inventory Status: All components of this product are listed on the European Inventory of Existing Commercial Substances (EINICS).

Japanese Inventory Status: All components of this product are listed on the Existing and New Chemical Substances List (ENCS).

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.

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 Known

Toxic Substances Control Act (TSCA) 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.
R36/37/38 = Irritating to eyes, respiratory system and skin.
R40 = Limited evidence of a carcinogenic effect.
R41 = Risk of serious damage to eyes.
R43 = May cause sensitization by skin contact.
R48/20 = Harmful: danger of serious damage to health by prolonged exposure through inhalation
R50/53 = Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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
AIHA – American Industrial Hygiene Association
WEEL – Workplace Environmental Exposure Level

Supersedes: June-1-2007

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.