



MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

M24 MATTE CLEAR UV CURABLE SCREEN PRINTING INK

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) Emergency Phone: CHEMTREC (Outside U.S.) 703-527-3887
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SECTION 2 INGREDIENTS

COMMON NAME	% BY WT.	CAS#	EXPOSURE LIMITS	EINECS#	Symbol	R Phrase
Acrylated Urethane Diacrylate	24-26%	Proprietary	Not established	Proprietary	Xi	R36/38
1,6-Hexanediol Diacrylate	5-7%	13048-33-4	AIHA WEEL - 1mg/m3 skin	235-921-9	Xi	R36/38, R43
Ethoxylated Diacrylate	24-26%	Proprietary	Not established	Proprietary	N	R51/53
Photoinitiator mixture	3-5%	Proprietary	Not established	Proprietary	Xn	R21/22, R36
Silica, Amorphous	3-5%	Proprietary	ACGIH TLV 10 mg/m3 particulate OSHA PEL 20 mppcf	Proprietary	NA	NA
Matting Polymer	9-12%	proprietary	Not established	Proprietary	NA	NA

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:** 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 cause irritation to upper respiratory tract upon prolonged or repeated inhalation.
- **Ingestion:** May be harmful if swallowed. Gastrointestinal tract irritation may result.

CHRONIC: No data 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

EC HAZARD SYMBOLS:



Xi - IRRITANT



N - DANGEROUS TO THE ENVIRONMENT

EC RISK/SAFETY PHRASES:

- R22 = Harmful if swallowed
 R36/37/38 = Irritating to eyes, respiratory system and skin.
 R43 = May cause sensitization by skin contact.
 R51/53 = Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 S24 = Avoid contact with skin.
 S26 = In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S36/S37 = Wear suitable protective clothing and gloves
 S61 = Avoid release to the environment. Refer to special instructions/safety data sheets.

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.



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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 tested, but expected to be >220° F (> 104.4°C)

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

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

AUTO-IGNITION TEMPERATURE: Not established

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. 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 is recommended. Single use, disposable nitrile gloves are recommended 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: 1.160

VAPOR PRESSURE (mm Hg): Not established

SOLUBILITY IN WATER: Not soluble

pH: Not available

PHYSICAL STATE: Liquid

FREEZING POINT: Not available

EVAPORATION RATE: <1

VAPOR DENSITY: Heavier than air

VOC: < 7.0 grams/liter

DENSITY: 4.385 kilograms/gallon

SECTION 10 REACTIVITY / STABILITY HAZARD DATA

STABILITY: This material is stable under recommended storage and handling conditions. See section 7.

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.



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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: Primary Dermal Irritation/Corrosion (Rabbits) testing indicated that the M24 Modified Primary Irritation Index to be 1.84 (0-8 scale). M-24 is considered slight irritation to skin. Primary Eye Irritation/Corrosion (Rabbits) testing indicated M-24 to be an ocular moderate irritant but not corrosive.

LD50 – Not determined **LC50** – Not determined

REPRODUCTIVE TOXICITY: Not determined **TERATOGENICITY:** Not determined **MUTAGENICITY:** Not determined

CARCINOGENICITY: **IARC?** Not listed **NTP?** Not listed **OSHA?** Not listed

HDODA, one component of this product, was positive in a mouse lymphoma test indicating possible mutagenic potential. An Ames test for mutagenicity produced equivocal results. An 80 week carcinogenicity study in mice showed no increased incidence of tumors. HDODA was not fetotoxic or teratogenic when administered orally to mice at a maternally toxic dose.

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

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) 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: Not all components of this product are listed on the Canadian Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).

Canadian Workplace Hazardous Materials Information System (WHMIS): The following components are WHMIS controlled substances: None known

U.S. REGULATIONS

California Proposition 65 RTK: This product is not regulated by the state of California under Prop 65.

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.



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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 – Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA): This product is not regulated for notification of the release of hazardous quantities greater than the reportable quantities under 40 CFR 302.4.

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

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

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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.