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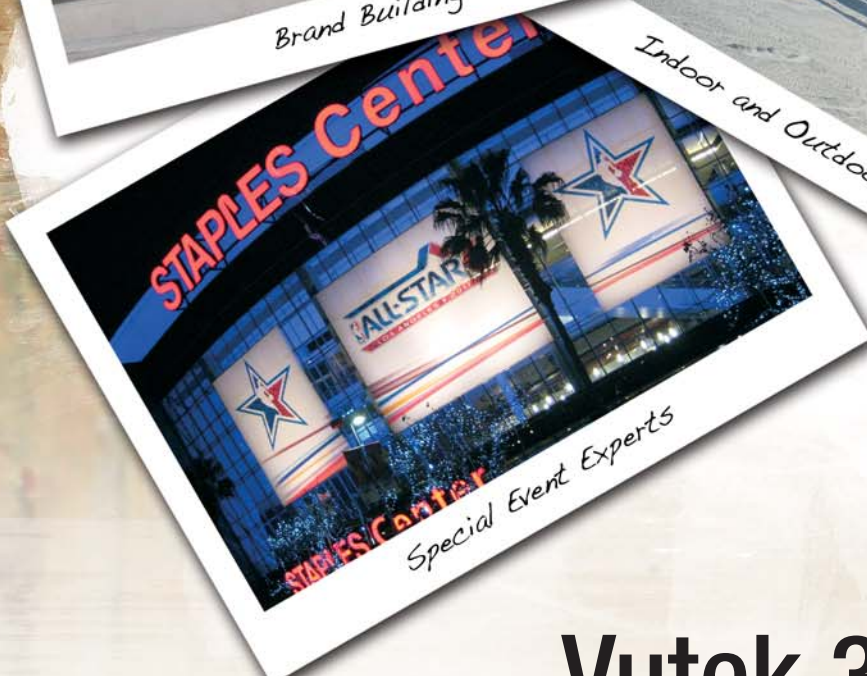
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Vutek 320 UV Ink MSDS



Digital Printing Systems

Material Safety Data Sheet

Material Name: PressVu 320 UV Cured Inks

MSDS ID: VU-0019

*** Section 1 - Chemical Product and Company Identification ***

Product Code: IP-VC(x) 01/01/01/01

Chemical Name: PressVu 320 UV Cured Inks

Product Use: Printing ink for PressVu 320 Printers

Manufacturer Information:

VUTEk, Inc.
One VUTEk Place
Meredith, NH 03253

Emergency # 1-800-424-9300 (CHEMTREC)

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals.

For non-emergency inquiries call VUTEk, Inc. at 603-279-4635. Ask for Ink Support Group.

*** Section 2 - Hazards Identification ***

Physical State: Liquid

Colors: Cyan, Magenta, Yellow, Black,

Odor: Acrylate Odor

Emergency Overview

Avoid inhalation of mists/vapors and contact with skin and eyes. This product may cause sensitization by inhalation and skin contact. Non-combustible, substance itself does not burn. Toxic fumes may be released in case of fire.

Potential Health Effects: Eyes

Avoid contact with eyes. Liquid or vapors may irritate the eyes. Symptoms include itching, burning, redness and tearing.

Potential Health Effects: Skin

Avoid contact with skin. Product contains components which may be absorbed through the skin. Prolonged or repeated skin contact may cause skin irritation or allergic skin sensitization reaction.

Potential Health Effects: Ingestion

Ingestion of this product is unlikely. However, ingestion of product may produce gastrointestinal irritation and disturbances.

Potential Health Effects: Inhalation

This product may cause sensitization by inhalation. Low vapor pressure makes inhalation unlikely at standard temperatures and pressures.

HMIS Ratings: Health: 2 Fire: 1 Physical Hazard: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***



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CAS #	Component	Percent
2399-48-6	THFFA	28-40
84170-74-1	(PO)NPGDA	4-14
Proprietary	Aliphatic urethane diacrylate	5-15
Proprietary	Acrylate Ester	2-10
Proprietary	Yellow Pigment *	0-6
Proprietary	Magenta Pigment *	0-6
Proprietary	Carbon black *	0-6
Proprietary	Cyan Pigment *	0-6
2223-82-7	NPGDA	<1
64742-95-6	Petroleum naphtha, light aromatic	<1

Component Information/Information on Non-Hazardous Components

Information concerning non-hazardous ingredients, as defined by 29CFR1910.1200, is considered a Trade Secret.

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

Remove all contaminated clothing. Wash affected area(s) thoroughly with mild soap and water. If irritation develops, get medical attention. Wash contaminated clothing before reuse.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- DO NOT induce vomiting. Give several glasses of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration.

First Aid: Inhalation

Remove affected person to fresh air. Call a physician if symptoms develop or persist. If the affected person is not breathing, apply artificial respiration. Call 911 for emergency medical service.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 - PHYSICAL & CHEMICAL PROPERTIES for Flammability Properties.

Acrylate monomers may be released upon combustion. Irritating and/or toxic gases may be emitted upon the product's decomposition. Closed containers exposed to heat and fire may melt and/or burn, releasing product.

Use water to cool fire-exposed containers and to protect personnel. °

Hazardous Combustion Products

See Section 10 - STABILITY and REACTIVITY for hazardous combustion and thermal decomposition information.

Extinguishing Media

Dry chemical, carbon dioxide. Water may be an ineffective extinguishing medium.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus and face mask. Avoid breathing vapors or mists of this product.

NFPA Ratings: Health: 2 Flammability: 1 Reactivity: 1 Other: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe



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*** Section 6 - Accidental Release Measures ***

Evacuation Procedures

Evacuate spill area of unprotected and untrained personnel. Ventilate the contaminated area. Remove or disable all sources of ignition.

Containment Procedures

Contain the discharged material. Do not allow the spilled product to enter public drainage system or open water courses. Cover with inert absorbent such as dry clay, sand, diatomaceous earth or commercial sorbents. For a large spill or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors.

Personal Precautions

Wear appropriate protective equipment and clothing during clean-up. Remove soiled clothing and launder before reuse. Do not inhale vapor, fumes, or dust from the spilled material.

Clean-Up Procedures

The spill should be cleaned up by qualified personnel only. Sweep, gather or collect up spilled material and place in covered container appropriate for disposal. Avoid the generation of dusts during clean-up. Thoroughly wash the area with water after a spill or leak clean-up. Do not flush spill to drain. Put material in covered and labeled containers approved for transportation.

Special Procedures

Regulations vary. Consult local authorities before disposal. Follow all Local, State, Federal and Provincial regulations for disposal. Determine if release qualifies as a reportable incident according to local, state and federal regulations.

*** Section 7 - Handling and Storage ***

Handling Procedures

Use good industrial hygiene practices when handling this material. Avoid getting this material into contact with your skin and eyes. Use this product with adequate ventilation. When using this material, do not eat, drink or smoke. Wash hands after handling and before eating.

Storage Procedures

Store in a cool, dry, well-ventilated area. Store this product in air-tight containers away from sources of heat and light. Store away from strong oxidizers. Store away from direct sunlight.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

Carbon black * (Proprietary)

ACGIH: 3.5 mg/m³ TWA

OSHA: 3.5 mg/m³ TWA

NIOSH: 3.5 mg/m³ TWA; 0.1 mg/m³ TWA (as PAH, carbon black in presence of polycyclic aromatic hydrocarbons)

Engineering Controls

Use general dilution and local exhaust ventilation to effectively remove and prevent buildup of any vapors, mists or spray generated from the handling/processing of this product. If ventilation is not adequate, use respiratory protection equipment.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Avoid contact with eyes. Wear safety glasses with side shields. Chemical goggles are recommended when splash potential exists. Use of full face shield is also recommended. Eye wash fountain is recommended.



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Personal Protective Equipment: Skin

Avoid contact with skin. Select and use gloves and/or protective clothing to prevent skin contact. Consult with glove/clothing manufacturer for selection and compatibility testing of appropriate materials. Normal work clothing (long sleeved shirts and long pants) is recommended.

Personal Protective Equipment: Respiratory

Avoid breathing of vapors, mist or spray. If ventilation is not sufficient to effectively prevent buildup of vapor, mist, fume or dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment: General

When using this material, do not eat, drink or smoke. Wash thoroughly after handling this product.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Colored Liquid	Odor:	Acrylate Odor
Physical State:	Liquid	pH:	not determined
Vapor Pressure:	<10 mmHG @20°C	Vapor Density:	>1 (air=1)
Boiling Point:	not determined	Solubility (H2O):	negligible
Specific Gravity:	1.07	Freezing Point:	not determined
Evaporation Rate:	negligible	VOC:	negligible
Octanol/Water Coeff.:	not determined	Flammability Limit - UFL:	not determined
Flammability Limit - LFL:	not determined	Flash Point Method:	closed cup
Flash Point:	220-240°F (104.4-115.5°C)	Auto Ignition:	not determined

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable when stored under proper conditions. See SECTION 7 - Handling & Storage.

Chemical Stability: Conditions to Avoid

Avoid oxidizing agents. Avoid conditions of excessive heat. Avoid direct light and sunlight.

Incompatibility

This product may react with oxidizing agents.

Hazardous Decomposition

Carbon monoxide, carbon dioxide, various hydrocarbon fragments as well as thick smoke.

Possibility of Hazardous Reactions

Polymerization and congealing of product can occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

Toxicology studies on humans and/or animals have not been conducted on this product/product family.

A: General Product Information

Skin sensitization, characterized by redness, inflammation, itching and/or burning may result from prolonged or repeated contact with this material.

B: Component Analysis - LD50/LC50

Magenta Pigment * (Proprietary)

Oral LD50 Rat: >20 mL/kg

Carbon black * (Proprietary)

Oral LD50 Rat: >15400 mg/kg; Dermal LD50 Rabbit: >3 g/kg

NPGDA (2223-82-7)



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Oral LD50 Rat: 5190 µL/kg; Dermal LD50 Rabbit: 283 µL/kg

Petroleum naphtha, light aromatic (64742-95-6)

Inhalation LC50 Rat: >5.2 mg/L/4H; Inhalation LC50 Rat: 3400 ppm/4H; Oral LD50 Rat: 8400 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Carcinogenicity

No carcinogenicity data available for this product.

A: General Product Information

This product contains trace amounts (<0.5%) of a light Petroleum Naptha (CAS 64742-95-6). Although not listed by ACGIH, NTP, IARC this component may be of concern under other regulatory standards.

B: Component Carcinogenicity

Carbon black * (Proprietary)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

NIOSH: potential occupational carcinogen (in presence of polycyclic aromatic hydrocarbons)

IARC: Monograph 65, 1996 (Group 2B (possibly carcinogenic to humans))

*** Section 12 - Ecological Information ***

Ecotoxicity

Environmental toxicity and/or biodegradation studies have not been conducted on this product/product family.

A: General Product Information

This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Discarded material is not expected to be a characteristic hazardous waste under RCRA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Discarded product and/or wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. Regulations vary. Consult local authorities before disposal. Waste must be handled in accordance with all federal, state, provincial, and local regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not regulated as dangerous goods.

IATA Information

Shipping Name: Not regulated as dangerous goods.



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*** Section 15 - Regulatory Information ***

US Federal Regulations

No information available for the product.

Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

Acute Health: no **Chronic Health:** yes **Fire:** no **Pressure:** no **Reactive:** yes

State Regulations

A: General Product Information

This product does not meet the definition of photochemically reactive as defined under Rule 102 of California SCQMD.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Carbon black *	Proprietary	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Carbon black *	Proprietary	1 % (English Item 309, French Item 1271)

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
THFFA	2399-48-6	Yes	NDSL	EINECS
(PO)NPGDA	84170-74-1	Yes	DSL	No
Yellow Pigment *	Proprietary	Yes	DSL	EINECS
Magenta Pigment *	Proprietary	Yes	DSL	EINECS
Carbon black *	Proprietary	Yes	DSL	EINECS
Cyan Pigment *	Proprietary	Yes	DSL	EINECS
NPGDA	2223-82-7	Yes	NDSL	EINECS
Petroleum naphtha, light aromatic	64742-95-6	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State, Provincial and local laws.



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This product is for industrial or professional use only.

This MSDS has been prepared to meet the OSHA Hazard Communication Standard 29 CFR 1910.1200 and follows the format of ANSI Z400-2004.

MSDS History

Revisions:

1. Section 3 - Composition revised
2. Section 11 - Toxicological Information updated for new composition.

Key/Legend

* Applies only to appropriate color ink.

ACGIH = American Conference of Governmental Industrial Hygienists; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average; VLE = Occupational Exposure Limit; VLA-ED = Occupational Exposure Limit

End of Sheet VU-0019