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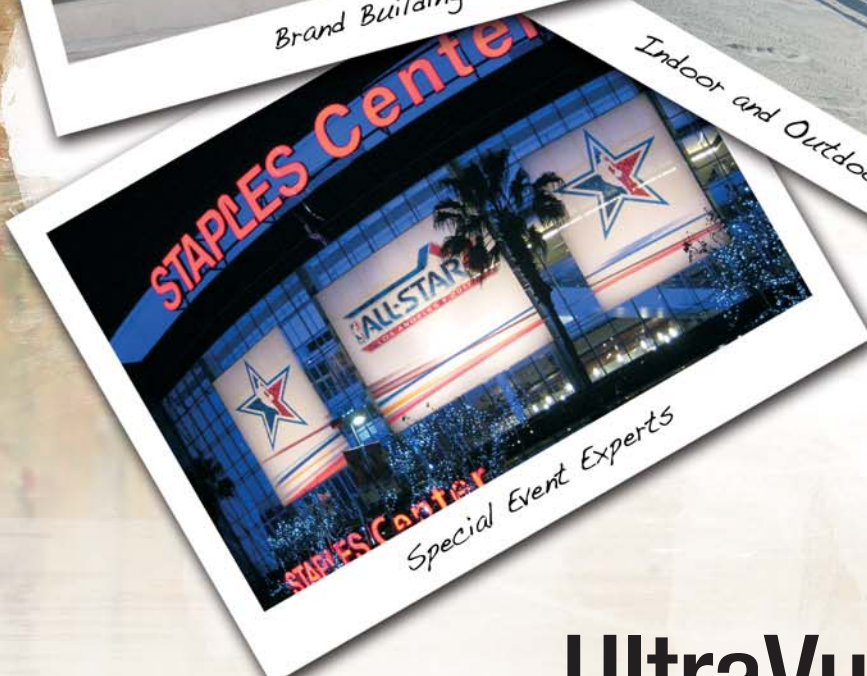
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UltraVu 5 Ink MSDS



Digital Printing Systems

Material Safety Data Sheet

Material Name: UltraVu 5 Inks

MSDS ID: VU-0005

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

Product Code: IP-SJ(x) 60-61

Chemical Name: UltraVu 5 Inks

Product Use: Printing ink for VUTEK UltraVu 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, Lt-Cyan, Lt-Magenta Lt-Yellow, Lt-Black

Odor: Mild Solvent Odor

Emergency Overview

Combustible liquid. Closed containers exposed to heat and fire may build pressure and explode.

This product is irritating to the eyes, respiratory system and skin. Do not get in eyes, on skin, or on clothing.

Potential Health Effects: Eyes

Avoid contact with eyes. Contact can cause moderate to severe irritation and possible injury to the eyes.

Potential Health Effects: Skin

Avoid contact with skin. This product may cause irritation to the skin. Prolonged or excessive skin contact with this product may cause mild skin irritation.

Potential Health Effects: Ingestion

Not a likely route of entry. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Potential Health Effects: Inhalation

Avoid breathing vapors or mists of this product. This product may cause irritation to the respiratory system.

HMIS Ratings: Health: 1 Fire: 2 Physical Hazard: 0

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

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

CAS #	Component	Percent
112-07-2	Ethylene glycol, monobutyl ether acetate	50-75
108-94-1	Cyclohexanone	10-30
97-64-3	Ethyl lactate	5-15



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9003-22-9	VYHH	1-10
Trade Secret	Magenta Pigment *	0-7
Trade Secret	Carbon black *	0-6
Trade Secret	Yellow Pigment *	0-5
Trade Secret	Cyan Pigment *	0-5

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Glycol ethers, Flammable substances meeting the definition of risk phrase R10.

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

Remove contact lenses, if possible. Flush immediately with water for at least 15 minutes. Do not rub eyes. If irritation develops, get medical attention.

First Aid: Skin

Remove contaminated clothing and immediately flush skin with copious amounts of water. 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 ingested, get immediate medical attention. DO NOT induce vomiting unless instructed to do so by medical personnel. 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.
Combustible liquid. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. Closed containers exposed to heat and fire may build pressure and explode.

Hazardous Combustion Products

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

Extinguishing Media

Alcohol foam. Dry chemical. Carbon dioxide. Water spray (fog).

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus and face mask.

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

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

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

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



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Evacuation Procedures

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

Containment Procedures

Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. 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. Avoid inhalation of vapor, fumes, dust and/or mists 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. 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. When using this material, do not eat, drink or smoke. Avoid contact with skin and eyes. Use this product with adequate ventilation.

Storage Procedures

Keep the container tightly closed. Store in a cool, dry, well-ventilated area. Store away from strong oxidizers. Areas containing this material should have fire-safe practices and electrical equipment in accordance with Electrical and Fire Protection Codes.

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

A: Component Exposure Limits

Ethylene glycol, monobutyl ether acetate (112-07-2)

ACGIH: 20 ppm TWA

NIOSH: 5 ppm TWA; 33 mg/m³ TWA

Cyclohexanone (108-94-1)

ACGIH: 20 ppm TWA

50 ppm STEL

Skin - potential significant contribution to overall exposure by the cutaneous route

OSHA: 25 ppm TWA; 100 mg/m³ TWA

Prevent or reduce skin absorption

NIOSH: 25 ppm TWA; 100 mg/m³ TWA

Potential for dermal absorption

Carbon black * (Trade Secret)

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)



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Engineering Controls

Provide adequate local exhaust ventilation at transfer points and open containers. 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. When splash potential exists, full face shield also recommended.

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 vapors, mists or aerosols, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment: General

When using this material, do not eat, drink or smoke. Avoid inhalation of mists/vapors and contact with skin and eyes. Wash thoroughly after handling this product.

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

Appearance: Colored Liquid	Odor: Mild Solvent Odor
Physical State: Liquid	pH: not determined
Vapor Pressure: <2.0 mmHg	Vapor Density: > 3.0 (air=1)
Boiling Point: > 300 °F (>148.9 °C)	Melting Point: not determined
Solubility (H2O): moderate	Specific Gravity: 0.95-0.97
Freezing Point: not determined	Evaporation Rate: <1.0 (nBuAc=1)
VOC: 7.0 - 7.4 lbs/gal	Octanol/Water Coeff.: not determined
Flammability Limit - UFL: ~9.0%	Flammability Limit - LFL: ~1.0%
Flash Point Method: closed cup	Flash Point: 142 - 145°F (61.2 - 62.8°C)
Auto Ignition: >600°F (>315.5°C)	

Physical Properties: Additional Information

Call VUTEk for specific VOC values per color.

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

Chemical Stability

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

Chemical Stability: Conditions to Avoid

Keep away from heat, ignition sources and incompatible materials.

Incompatibility

This product may react with oxidizing agents.

Hazardous Decomposition

Carbon monoxide, carbon dioxide and other hydrocarbon fragments.

Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

*** Section 11 - Toxicological Information ***



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Acute Dose Effects

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

Component Analysis - LD50/LC50

Ethylene glycol, monobutyl ether acetate (112-07-2)

Oral LD50 Rat: 1600 mg/kg; Dermal LD50 Rabbit: 1480 mg/kg

Cyclohexanone (108-94-1)

Inhalation LC50 Rat: 10.7 mg/L/4H; Inhalation LC50 Rat: 8000 ppm/4H; Oral LD50 Rat: 800 mg/kg; Dermal LD50 Rabbit: 948 mg/kg

Ethyl lactate (97-64-3)

Oral LD50 Rat: >5 g/kg; Dermal LD50 Rabbit: >5 g/kg

Magenta Pigment * (Trade Secret)

Oral LD50 Rat: >20 mL/kg

Carbon black * (Trade Secret)

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

Carcinogenicity

No carcinogenicity data available for this product.

Component Carcinogenicity

Ethylene glycol, monobutyl ether acetate (112-07-2)

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans

Cyclohexanone (108-94-1)

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans

IARC: Monograph 71, 1999; Monograph 47, 1989 (Group 3 (not classifiable))

VYHH (9003-22-9)

IARC: Supplement 7, 1987; Monograph 19, 1979 (Group 3 (not classifiable))

Carbon black * (Trade Secret)

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.

Component Analysis - Ecotoxicity - Aquatic Toxicity

Ethylene glycol, monobutyl ether acetate (112-07-2)

Test & Species

Conditions

72 Hr EC50 freshwater algae >500 mg/L

(Scenedesmus subspicatus)

48 Hr EC50 water flea 37 mg/L

Cyclohexanone (108-94-1)

Test & Species

Conditions



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96 Hr LC50 fathead minnow	527.0 mg/L	flow-through
96 Hr LC50 rainbow trout	90.0 mg/L	
96 Hr LC50 rainbow trout	44.0 mg/L	
96 Hr EC50 freshwater green algae (Chlorella vulgaris)	20 mg/L	
5 min EC50 Photobacterium phosphoreum	25 mg/L	
10 min EC50 Photobacterium phosphoreum	21.3 mg/L	
48 Hr EC50 water flea	820 mg/L	

*** 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

Cyclohexanone (108-94-1)

RCRA: waste number U057 (Ignitable waste)

Disposal Instructions

Do not allow this material to be discharged into storm drains, sewers or any public/private waterway.

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: Printing ink

UN/NA #: UN1210 **Hazard Class:** 3 **Packing Group:** III

Additional Info.: This product, as packaged by manufacturer, is not regulated as a DOT hazardous material as defined in 49CFR173.150 (b), (b)(3) - Exceptions for Limited Quantities.

Transportation classifications are subject to change with changes in package size. Consult shipper requirements under DOT (49 CFR) and I.A.T.A. regulations to assure regulatory compliance.

IATA Information

Shipping Name: Not regulated as dangerous goods.

*** Section 15 - Regulatory Information ***

US Federal Regulations

No information available for the product.



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Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Ethylene glycol, monobutyl ether acetate (112-07-2)

SARA 313: 1.0 % de minimis concentration (applies to R-(OCH₂CH₂)_n-OR', where n = 1,2, or 3, R=alkyl C7 or less, or R = phenyl or alkyl substituted phenyl, R' = H or alkyl C7 or less, or OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate, Chemical Category N230) (related to Glycol ethers)

Cyclohexanone (108-94-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

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

State Regulations

A: General Product Information

This product does not meet the definition of photochemically reactive as defined under Rule 102 of California SCQMD. Contact your state regulatory agency if more information is required.

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
Ethylene glycol, monobutyl ether acetate (*related to Glycol ethers)	112-07-2	No	No	No	No	Yes ₁	No
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	Yes	Yes
Ethyl lactate	97-64-3	No	Yes	No	Yes	Yes	No
Carbon black *	Trade Secret	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
Cyclohexanone	108-94-1	0.1 % (English Item 467, French Item 603)
Carbon black *	Trade Secret	1 % (English Item 309, French Item 1271)

Additional Regulatory Information



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Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Ethylene glycol, monobutyl ether acetate	112-07-2	Yes	DSL	EINECS
Cyclohexanone	108-94-1	Yes	DSL	EINECS
Ethyl lactate	97-64-3	Yes	DSL	EINECS
VYHH	9003-22-9	Yes	DSL	No
Magenta Pigment *	Trade Secret	Yes	DSL	EINECS
Carbon black *	Trade Secret	Yes	DSL	EINECS
Yellow Pigment *	Trade Secret	Yes	DSL	EINECS
Cyan Pigment *	Trade Secret	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.

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 14 - re-stated DOT Transportation for Limited Quantity exception

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-0005