MATERIAL SAFETY DATA SHEET

InkSource
Make-Up Fluid
16-2505

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name : 16-2505

Material uses : Industrial applications: Make-Up fluid for use in a continuous ink jet process. Replaces solvents lost through evaporation during normal ink drop recycling process.

Emergency phone : Medical: CALL RMPDC, USA (303) 623-5716
Transporters: CALL CHEMTREC, USA (800)-424-9300

Manufacturer : Videojet Technologies Inc., 1500 Mittel Boulevard, Wood Dale, IL, 60191-1073 U.S.A
Phone: 1-800-843-3610 Fax: 1-800-582-1343
Videojet Technologies Europe BV., Strijkviertel 39, 3454 PJ De Meern, The Netherlands.
Phone: 31-030-6693000 Fax: 31-030-6693060

2. COMPOSITION / INFORMATION ON INGREDIENTS

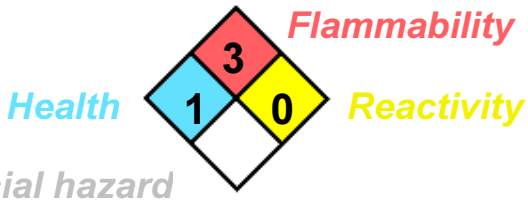
Information on hazardous ingredients

	CAS number	Percent (%)	Chemical name
1)	78-93-3	50 - 65	2-Butanone
2)	67-56-1	35 - 50	Methanol
3)	107-98-2	1 - 3	Propylene glycol monomethyl ether

* Occupational Exposure Limit(s), if available, are listed in section 8

3. HAZARDS IDENTIFICATION

National Fire Protection Association (U.S.A.) :



Emergency Overview : WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL. Keep away from flame, heat, and static discharge sources. Irritant and central nervous system depressant: Avoid inhalation of vapors and contact with eyes and skin. May be fatal or cause blindness if swallowed. If inhaled remove to fresh air. If splashed in eyes flush with water. If contacts skin flush with water and wash with mild soap. In medical emergency call Poison Control Center (USA 1-303-623-5716) and a physician. Read MSDS before using.

Effects and symptoms

	Chemical name	Effects and symptoms
1)	2-Butanone	Irritating to eyes and respiratory system. Defatting to the skin. Harmful by inhalation, in contact with skin and if swallowed. Can cause dizziness, lighheadedness, headache, nausea, and blurred vision. Can cause CNS depression.
2)	Methanol	May cause irritation of respiratory tract, coughing, shortness of breath. Irritating to eyes and skin. Absorbed through skin. May be fatal or cause blindness if swallowed. Can cause dizziness, lighheadedness, headache, nausea, and blurred vision. Can cause CNS depression. May cause damage to the following organs: Optic Nerve. Danger of cumulative effects.
3)	Propylene glycol monomethyl ether	May cause irritation of respiratory tract, coughing, shortness of breath. Irritating to skin. Absorbed through skin. Irritating to eyes. May cause

Continued on Next Page

Irritation, redness, lacrimation, pain. Ingestion : Exposure can cause stomach pains, vomiting and diarrhea. Inhalation and Ingestion : Can cause CNS depression. Can cause dizziness, lighheadedness, headache, nausea, and blurred vision. May cause loss of consciousness/coma .

4. FIRST AID MEASURES

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Extinguishing media : In case of fire, use water spray (fog), foam, dry chemicals, or CO_2.

Special fire-fighting procedures : Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : These products are carbon oxides (CO, CO_2).

Protection of fire-fighters : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

7. HANDLING AND STORAGE

Handling : Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The engineering controls also need to keep gas, vapor or dust concentrations below any explosive limits. Use suitable protective equipment (Section 8).

Storage : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Packaging materials : Use original container.

Continued on Next Page

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	Chemical name	Occupational exposure limits
1)	2-Butanone	1) United States ACGIH TLV STEL 15 minutes 300 ppm (2004) 2) United States ACGIH TLV TWA 8 hours 200 ppm (2004) 3) United States OSHA PEL TWA 8 hours 200 ppm
2)	Methanol	1) United States ACGIH TLV STEL 15 minutes 250 ppm (Skin) (2004) 2) United States ACGIH TLV TWA 8 hours 200 ppm (Skin) (2004) 3) United States OSHA PEL TWA 8 hours 200 ppm
3)	Propylene glycol monomethyl ether	1) United States ACGIH TWA 8 hours 100 ppm (1999) 2) United States ACGIH STEL 15 minutes 150 ppm (1999) 3) United States MSHA TWA 8 hours 100 ppm (1973)

Engineering controls : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protective Equipment

Respiratory system : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Skin and body : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Hands : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance : Liquid.

Color : Clear

Odor threshold : The highest known value is 100 ppm. Weighted average: 50 ppm.

Boiling point : The lowest known value is 63 °C. Weighted average: 73 °C.

Melting point : May start to solidify at -87 °C. Weighted average: -92 °C.

Specific gravity : 0.8 (Water = 1)

Vapor density : The highest known value is 3.1. The lowest known value is 1.1. (Air = 1)

Vapor pressure : The highest known value is 98 mm Hg at 20°C. Weighted average: 82 mm Hg at 20°C.

Evaporation rate (butyl acetate = 1) : The highest known value is 7.1. Weighted average: 4.7.

Solubility : Easily soluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Octanol/water partition coefficient : The product is equally soluble in octanol and water.

Flash point : -2 °C.

Autoignition temperature : The lowest known value is 286 °C. Weighted average: 452 °C.

Flammable limits : The lowest known value is 2.0%. The highest known value is 36.0%.

Volatility (w/w) : 99 %.

VOC Volatility (w/w) - less exempt volatile. : 99 %.

Continued on Next Page

10. STABILITY AND REACTIVITY

Stability : The product is stable.

Conditions and materials to avoid : Not available.

Hazardous reactions : Slightly reactive to reactive with oxidizing agents, reducing agents, acids, alkalis.

Hazardous decomposition products : These products are carbon oxides (CO, CO_2).

11. TOXICOLOGICAL INFORMATION

Chemical name	Toxicological information
1) 2-Butanone	1) LD50 Oral Rat: 2737 mg/kg 2) LD50 Oral Mouse: 2190 mg/kg 3) LD50 Oral Mouse: 4050 mg/kg 4) LD50 Dermal Rabbit: 6480 mg/kg 5) LC50 Inhalation vapor Rat: 23500 mg/m^3 8 hours 6) LCLo Inhalation vapor Female. Rat Fetotoxicity and developmental abnormalities (homeostasis) in rats.: 1000 ppm 1 hours
2) Methanol	1) LD50 Oral Rat: 5628 mg/kg 2) LD50 Oral Rabbit: 14200 mg/kg 3) LD50 Oral Mouse: 7300 mg/kg 4) LD50 Dermal Rabbit: 15800 mg/kg 5) LDLo Oral monkey: 393 mg/kg 6) LDLo Dermal monkey: 393 mg/kg
3) Propylene glycol monomethyl ether	1) LD50 Oral Rabbit: 5700 mg/kg 2) LD50 Oral Mouse: 11700 mg/kg 3) LD50 Oral Dog: 5000 mg/kg 4) LD50 Dermal Rabbit: 13000 mg/kg 5) LC50 Inhalation vapor Rat: 10000 ppm 10 hours 6) LCLo Inhalation vapor Guinea pig: 15000 ppm 7 hours

12. ECOLOGICAL INFORMATION

Persistence/degradability : Not available.

Ecotoxicity : Not available.

Heavy Metals : Total concentration: Pb, Hg, Cd, Cr(VI) < 100 ppm

California, VOC Content : 799 grams volatile organic / liter less water or exempt volatile.

13. DISPOSAL CONSIDERATIONS

Disposal methods : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

RCRA waste code : Not available.

14. TRANSPORT INFORMATION

UN number : UN1210

Proper shipping name : Printing Ink

TDG classification : 3

Packing group : II

15. REGULATORY INFORMATION

CERCLA : The following substances are listed by CERCLA: 2-Butanone (50 - 65%) ; Methanol (35 - 50%)

SARA 313 : The following substances are listed on SARA 313: 2-Butanone (50 - 65%) ; Methanol (35 - 50%)

California prop. 65 : This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: None.

Continued on Next Page

Tariff Code - harmonized system : 3814.00 Organic composite solvents and thinners, not elsewhere specified or included.
USA ...50.90
EU ...90.90

16.OTHER INFORMATION

Date of issue : May 18, 2005

Prepared by : Garth Studebaker, CSP

Version : 5

Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.