

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

Product name : 16-2562

Material uses : Industrial applications: Ink for use in a continuous ink jet 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

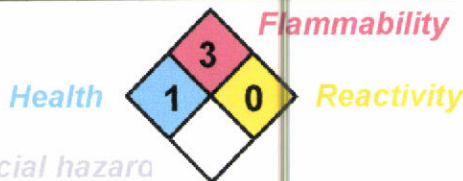
	CAS No.	Percent (%)	Chemical name
1)	78-93-3	50 - 65	2-Butanone
2)	64-17-5	7 - 13	Ethanol
3)	111-90-0	1 - 3	Ethanol, 2-(2-ethoxyethoxy)-
4)	13463-67-7	7 - 13	Titanium dioxide

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

Rec'd
6/14/03

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 harmful or fatal 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 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, lightheadedness, headache, nausea, and blurred vision. Can cause CNS depression.
2) Ethanol	May cause irritation of respiratory tract, coughing, shortness of breath. Slightly irritating to the skin. Absorbed through skin. Moderately irritating to the eyes. Inhalation and ingestion may cause drowsiness, dizziness, incoordination and other effects of intoxication. May cause loss of consciousness/coma and death. Medical conditions aggravated by overexposure: liver kidneys gastro-intestinal tract respiratory system cardiovascular system and central nervous system.
3) Ethanol, 2-(2-ethoxyethoxy)-	Inhalation not likely under normal use conditions. Absorbed through skin. Moderately irritating to the eyes. Harmful if swallowed. Can cause CNS depression. Can cause dizziness, lightheadedness, headache, nausea, and blurred vision. Large doses may cause systemic acidosis and methemoglobinemia with cyanosis. Repeated or prolonged exposure to the substance can produce kidney damage.
4) Titanium dioxide	Dust may cause mechanical irritation. Inhalation not likely under normal use conditions. Slightly irritating to the skin. Slightly irritating to the eyes.

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.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with soap and water. Get medical attention if irritation develops.
- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention.

5. FIRE-FIGHTING MEASURES

- Extinguishing media** : Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
- Special fire-fighting procedures** : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Hazardous thermal decomposition products** : These products are carbon oxides (CO, CO₂). Some metallic oxides.
- Protection of fire-fighters** : Be sure to use an approved/certified respirator or equivalent.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
- Environmental precautions and clean-up methods** : Toxic flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

7. HANDLING AND STORAGE

- Handling** : Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
- 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

Occupational Exposure Limits

Chemical name

- 1) 2-Butanone
- 2) Ethanol
- 3) Ethanol, 2-(2-ethoxyethoxy)-
- 4) Titanium dioxide

Exposure limits

- 1) United States ACGIH TWA 8 hours 200 ppm
- 2) United States ACGIH STEL 15 minutes 300 ppm
- 3) United States OSHA TWA 8 hours 200 ppm
- 1) United States ACGIH TWA 8 hours 1000 ppm
- 2) United States OSHA TWA 8 hours 1000 ppm
- 1) United States AIHA WEL 8 hours 25 ppm
- 1) United States ACGIH TWA 8 hours 10 mg/m³
- 2) United States OSHA TWA 8 hours 5 mg/m³
- 3) United States OSHA TWA 8 hours 15 mg/m³

Personal Protective Equipment

Respiratory system	: Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Skin and body	: Lab coat.
Hands	: Gloves.
Eyes	: Splash goggles.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance	: Liquid.
Color	: Blue. (Light.)
Odor threshold	: The highest known value is 100 ppm. Weighted average: 23 ppm.
Boiling point	: The lowest known value is 78 °C. Weighted average: 81 °C.
Melting point	: May start to solidify at -76 °C. Weighted average: -90 °C.
Specific gravity	: 0.96 (Water = 1)
Vapor density	: The highest known value is 4.6. The lowest known value is 1.0. (Air = 1)
Vapor pressure	: The highest known value is 71 mmHg at 20°C. Weighted average: 65 mmHg at 20°C.
Evaporation rate (butyl acetate = 1)	: The highest known value is 7.1. Weighted average: 6.2.
Solubility	: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Insoluble in cold water, hot water.
Octanol/water partition coefficient	: The product is much more soluble in oil.
pH	: Not applicable.
Flash point	: -9 °C.
Autoignition temperature	: The lowest known value is 204 °C. Weighted average: 492 °C.
Flammable limits	: The lowest known value is 1.0%. The highest known value is 19.0%.
Volatility (w/w)	: 65 %.
VOC Volatility (w/w) - less exempt volatile.	: 64 %.

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, metals, acids, alkalis.
Hazardous decomposition products	: These products are carbon oxides (CO, CO ₂). Some metallic oxides.

11. TOXICOLOGICAL INFORMATION

<u>Chemical name</u>	<u>Toxicological Information</u>
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) Ethanol	1) LD50 Oral Rat: 7060 mg/kg 2) LD50 Oral Mouse: 3450 mg/kg 3) LD50 Oral Rabbit: 6300 mg/kg 4) LC50 Inhalation vapor Rat: 20000 ppm 10 hours 5) LCLo Inhalation vapor Dog: 5500 ppm hours 6) LCLo Inhalation vapor Guinea pig: 21900 ppm hours
3) Ethanol, 2-(2-ethoxyethoxy)-	1) LD50 Oral Rat: 5445 mg/kg 2) LD50 Oral Rabbit: 3620 mg/kg 3) LD50 Oral Mouse: 6534 mg/kg 4) LD50 Dermal Rabbit: 4158 mg/kg 5) LC50 Inhalation vapor Rat: 5240 mg/m ³ 4 hours
4) Titanium dioxide	Not available.

12. ECOLOGICAL INFORMATION

Persistence/degradability : Not available.
Ecotoxicity : Not available.
California, VOC Content : 625 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 product(s) is (are) listed by CERCLA: 2-Butanone (50 - 65%) ; Ethanol, 2-(2-ethoxyethoxy)- (1 - 3%)
SARA 313 : The following product(s) is (are) listed on SARA 313: 2-Butanone (50 - 65%) ; Ethanol, 2-(2-ethoxyethoxy)- (1 - 3%)
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: Toluene ($\leq 0.001\%$) ; Benzene ($\leq 0.002\%$)

16. OTHER INFORMATION

Date of issue : May 28, 2002
Prepared by : Garth Studebaker, CSP
Version : 4

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