

5) Quaternary ammonium compound.

ingestion may cause drowsiness, dizziness, incoordination and other effects of intoxication. May cause abdominal cramps/pain, nausea/vomiting. Harmful by inhalation, in contact with skin and if swallowed. Causes severe eye and skin irritation.

4. FIRST AID MEASURES

- Inhalation** : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. 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. Get medical attention if symptoms appear.
- Skin contact** : In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms appear.
- 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** : Use dry chemical, CO₂, water spray (fog) or foam.
- Special fire-fighting procedures** : Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a 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, CO₂), nitrogen oxides (NO, NO₂ etc.), halogenated compounds, phosphates, hydrogen fluoride. Some metallic oxides.
- Protection of fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece 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. 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 sealable, 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 lower 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

<u>Chemical name</u>	<u>Occupational exposure limits</u>
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) Titanium dioxide	1) United States ACGIH TWA 8 hours 10 mg/m ³ (1996) 2) United States OSHA TWA 8 hours 5 mg/m ³ (1994) 3) United States OSHA TWA 8 hours 15 mg/m ³ (1994)
3) Acetic acid, 2-methoxy-1-methylethyl ester	No established limits.
4) silane ether	No established limits.
5) Quaternary ammonium compound.	No established limits.

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 close to the workstation 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 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, gases or dusts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance	: Liquid.
Color	: Blue.
Odor threshold	: The highest known value is 10 ppm. Weighted average: 10 ppm.
Boiling point	: The lowest known value is 80 °C. Weighted average: 89 °C.
Melting point	: May start to solidify at 0 °C. Weighted average: -83 °C.
Specific gravity	: 0.95 (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 mm Hg at 20°C. Weighted average: 65 mm Hg at 20°C.
Evaporation rate (butyl acetate = 1)	: The highest known value is 7.1. Weighted average: 6.8.
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 octanol.
pH	: Not applicable.
Flash point	: -3 °C.
Autoignition temperature	: The lowest known value is 515 °C. Weighted average: 515 °C.
Flammable limits	: The lowest known value is 2.0%. The highest known value is 10.0%.
Volatility (w/w)	: 64 %.

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VOC Volatility (w/w) - less : 64 %.
exempt volatile.

10. STABILITY AND REACTIVITY

Stability : The product is stable.

Conditions and materials to avoid : Not available.

Hazardous reactions : Reactive or incompatible with the following materials: oxidizing materials, reducing materials and metals.
 Slightly reactive or incompatible with the following materials: acids and alkalis.
 Non-reactive or compatible with the following materials: combustible materials, organic materials and moisture.

Hazardous decomposition products : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂ etc.), halogenated compounds, phosphates, hydrogen fluoride. Some metallic oxides.

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) Titanium dioxide	Not available.
3) Acetic acid, 2-methoxy-1-methylethyl ester	1) LD50 Oral Rat: 8532 mg/kg 2) LD50 Dermal Rabbit: 5000 mg/kg
4) silane ether	Not available.
5) Quaternary ammonium compound.	Not available.

12. ECOLOGICAL INFORMATION

Persistence/degradability : Not available.

Ecotoxicity : Not available.

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

California, VOC Content : 617 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 substance is listed by CERCLA: 2-Butanone (50 - 65%)

SARA 313 : The following substance is listed on SARA 313: None.

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 (< 0.1%)

Tariff Code - harmonized system : 3215.19 Printing ink: Other.
USA ...00.60
EU ...00.00

16. OTHER INFORMATION

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