

Material Safety Data Sheet

Revision date: 9.24.2008

Revision 6.01

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1. Product and company Identification

REA-JET TPKDS-WS 010 Ink

1.1 Commercial product name

1.2 Product number IJ050-9008-39

1.3 Chemical Characterization Preparation of polar organic solvents, water, binders and auxiliary materials

1.4 Emergency telephone:

**Chemtrec 24-hour telephone #-800-424-9300
International 24-hour telephone #-703-527-3667**

2. Hazards Identification

Signs and Symptoms of Exposure

Carcinogenicity (NTP):

Not Applicable

Carcinogenicity (IARC):

Isopropanol (CAS 67-63-0) is listed in group 3. Titanium dioxide (CAS 13463-67-7) is listed in group 3.

Carcinogenicity (OSHA):

None

2.2 Special hazards for human health and environment

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop. Water risk class: 1. Mild water pollutant. Low odor threshold. Irritating to respiratory system and skin. Symptoms: Nausea. Vomiting. Headache. Dizziness. Unconsciousness. Haemolysis liver function disorder kidney function disorder with aspiration, it can result in a pulmonary oedema and pneumonia.

3. Composition/Information on Ingredients

3.2 Hazardous components

Components

Butanone, ethyl methyl ketone

CAS No.

78-93-3

Quantity

60—65%

N.methyl-2-pyrrolidone

872-50-4

10-15%

Titanium dioxide

13463-67-7

10-15%

Cellulose nitrate concentration < 12.6% nitrogen

9004-70-0

5-10%

Isopropanol, isopropyl alcohol, propan-2-ol

67-63-0

1-5%

4. First Aid Measures

General Information: In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible). Take off immediately all contaminated clothing if victim is at risk of losing consciousness, position and transport on their side. The decision about the measures, which have to be initiated, has to be taken by the doctor.

4.1 After inhalation: In case of accident by inhalation: remove casualty to fresh air and keep at rest. Consult physician

4.2 After contact with skin: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.

4.3 After contact with eyes: Take off lenses. Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Consult physician.

4.4 After ingestion: Calm the victim. Rinse mouth thoroughly with water. Immediately get medical attention. Let water be swallowed in little sips (dilution effect). Do not induce vomiting. Milk or fat oils and are strongly contraindicated. Do not allow a neutralization agent to be drunk.

5. Fire Fighting Measures

5.1 Suitable extinguishing media: Alcohol resistant foam. Carbon dioxide (CO₂). Dry extinguishing powder. Water spray. Atomized water.

5.2 Unsuitable extinguishing media: High power water jet

5.3 Special hazards arising from the chemical: In case of fire may form: Carbon monoxide. Nitrogen oxides (NO_x). Vapors may form explosive mixtures with air.

5.4 Protective equipment and precautions for firefighters: Wear a self-contained breathing apparatus and chemical resistant suit.

5.5 Additional information: Temperature class T 1 (Ignition temperature: >450 °C)

6. Accidental Release Measures

6.1 Personal precautions: Provide fresh air. Avoid contact with skin and eyes. Wear suitable gloves. NR (Natural rubber (Caoutchouc), Natural latex). NBR (Nitrile rubber) limited resistance, Butyl rubber. In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer of the gloves. Wear eye/face protection. If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn. The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when

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handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. See protective measures under point 7 and 8.

6.2 Environmental precautions: Due to danger of explosion, prevent leakage of vapors into cellars, flues and ditches. Do not empty into drains or the aquatic environment.

6.3 Methods for cleaning up/taking up: Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated objects and areas thoroughly observing environmental regulations. Treat the assimilated material according to the section on waste disposal. (13)

6.4 Additional Information: Keep away from sources of ignition. No smoking. Do not breathe gas/fumes/vapor/spray. The product is partially water mixable.

7. Handling and Storage

7.1 Advice on safe handling: When handling with chemicals, please consider usual precautionary measures. Wear suitable protective clothing, gloves and eye/face protection. See protective measures. Do not leave the container open. Handle open container with care. Keep container tightly closed. If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn. When using do not eat, drink or smoke. Protect skin by using skin protective cream. "Wash hands when done working with material; at breaks, lunch, shift changes, etc." Keep away from food, drink and animal feeding stuffs. Never clean the skin or the clothes with the preparation!

7.2 Advice on protection against fire and explosion: The vapors are heavier than air and can accumulate in high concentrations on the ground, in cavities, channels and cellars. In use, may form flammable/explosive vapor-air mixture. Take precautionary measures against static discharges. Keep away from sources of ignition. No smoking.

7.3 Further information on handling: Vapors / aerosols should be extracted by suction directly at point of origin. See information supplied by the manufacturer. For limiting the emission through volatile organic compounds (VOC), the solvent vapors should be forwarded to an emission control facility. Please note the manufacturer indications for storage conditions and shelf life (see section 7.3) When storing outside the recommended storing temperatures, the shelf life can be shortened. Inappropriate storage may conduct to endangerment of persons and environment.

7.4 Requirements for storage rooms and vessels: Keep only in the original container in a cool, well ventilated place. Keep container tightly closed. Rooms, in which inks are stocked, have to be equipped with sufficient air ventilation. Remove all sources of ignition. Protect against high warming or solar radiation. Recommended storage temperature: +15 °C - 25 °C. Highly flammable. Maximum period of storage (time): 9 months

8. Exposure Controls/Personal Protection: None

8.1 Exposure limit values:

| Components | CAS no. | ml/m ³ | mg/m ³ | Category | Origin |
|-------------------|------------|-------------------|-------------------|---------------|--------|
| 2/Butanone | 78-93-3 | 200 | 590 | TWA (8hr) | Rel |
| | | 300 | 885 | STEL (15 min) | Rel |
| | | 200 | 590 | TWA (8 hr) | Pel |
| Isopropyl alcohol | 67-63-0 | 400 | 980 | TWA (8 hr) | Pel |
| | | 400 | 980 | TWA (8 hr) | Rel |
| | | 500 | 1225 | STEL (15 min) | Rel |
| | | 400 | 980 | TWA (8 hr) | Rel |
| Titanium dioxide | 13463-67-7 | n/a | n/a | TWA (8 hr) | Rel |
| Titanium dioxide | 13463-67-7 | n/a | 15 | TWA (8 hr) | Pel |
| Total dust | | | | | |

Exposure controls:

Occupational exposure controls Technical measures and the application of appropriate methods of operation, as indicated in section 7, have precedence over to the application of personal protection equipment.

8.2 Protective and hygiene measures: Protect skin by using skin protective cream. "Wash hands when done working with material; at breaks, lunch, shift changes, etc."

8.3 Respiratory protection: If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn.

Respiratory filter A1 (brown) up to 1000 mL/ m³ (ppm)

Respiratory filter A1 (brown) up to 5000 mL/ m³ (ppm)

Respiratory filter A1 (brown) up to 10000 mL/ m³ (ppm)

8.4 Hand protection: Type of chemical protective gloves to choose depends on the concentration and quantity of dangerous substances as well as on work place specifications. In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer of the gloves.

8.5 Eye protection: Tightly sealed safety glasses.

8.6 Skin protection: Carry long-sleeved, flame impeding and anti-static labor safety clothing

8.7 Environmental exposure controls: Please see chapter 6 and 7

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8.8 Additional advice on control parameters: Definition for section 8.1 H=absorbed by skin.

9. Physical and Chemical Properties

9.1 Appearance

Form: liquid
Color: white
Odor: like acetone

9.2 Important health, safety and environmental information

| | | |
|-------------------------------|--|-----------|
| pH-Value (at 20 °C): | not determined | DIN 19268 |
| Melting point: | not determined | DIN 53181 |
| Boiling point: | 79 – 110°C | DIN 51751 |
| Flash point: | -4°C | DIN51765 |
| Explosive properties | Vapors may form explosive mixtures with air. | |
| Lower explosion limits: | 1.8 vol % | DIN51649 |
| Upper explosion limits: | 11.5 vol % | DIN51649 |
| Oxidizing properties | Not determined | |
| Vapor pressure (at 20°C) | 105 hPqa | DIN51754 |
| Density (at 20°C) | .98 g/cm ³ | DIN53217 |
| Water solubility (at 20°C) | 250 g/L | |
| Partition coefficient | not determined | |
| Viscosity/Kinematic (at 20°C) | not determined | |
| Vapor density: (at 20°C) | >1 | |
| Evaporation rate (at 20°C) | not determined | |
| Solvent separation test | not determined | |

9.3 Other information

| | | |
|-----------------------------------|----------------------|----------|
| Ignition temperature: | 505°C | DIN51794 |
| VOC | 77.72% (683.936 g/l) | |
| Maximum period of storage (time): | 9 months | |

10 Stability and Reactivity

10.1 Stability: Stable

10.2 Conditions to avoid: High warming > 45°C and / or solar radiation. Heating up forwards the transit of liquid to the vapour phase and the accumulation of potentially explosive atmosphere.

10.3 Materials to avoid: Keep away from strong acids, leachates, heavy metal salts and reducing materials

10.4 Hazardous decomposition products: Keep away from strong acids, leachates, heavy metal salts and reducing materials.

10.5 Possibility of Hazardous Reactions: None

10.6 Additional information: This product is stable

11. Toxicological Information

Acute toxicity

Acute toxicity, oral rat. LD50: 2737-3300 mg/dg/butanone, ethyl methyl ketone
Acute toxicity, dermal rabbit. LD50: 3000-6480 mg/kg/ butanone, ethyl methyl ketone
Acute toxicity, inhalant rat. LC50: 10000 mg/l/4h/ butanone, ethyl methyl ketone

Specific effects in experiment on an animal: For this product there are currently no toxicological data available.

Corrosive and irritant effects For this product there are currently no toxicological data available.

Sensitising effects For this product there are currently no toxicological data available.

Severe effects after repeated or prolonged exposure For this product there are currently no toxicological data available.

Carcinogenic/mutagenic/toxic effects for reproduction For this product there are currently no toxicological data available.

Additional information on tests For this product there are currently no toxicological data available.

Empirical data on effects on humans For this product there are currently no toxicological data available

Further information Prolonged/repetitive skin contact may cause skin defatting or dermatitis. Highly fat solubilising effect. Danger of cutaneous absorption. Inhalation may cause headache, drowsiness, somnolence and perception disorder. Eye contact may cause heavy irritation and oedema formation of the conjunctiva. May cause damage on liver, kidneys and nervous system. Aspiration after swallowing and vomiting may conduct to heavy lung damages.

12 Ecological Information

12.1 Ecotoxicity

Acute fish toxicity Leuciscus idus: LC50: 4600 mg/l/butanone, ethyl methyl ketone
Bacterial toxicity: Pseudomonas putida: EC50: 1050 mg/l/ butanone, ethyl methyl ketone
Acute Daphnia toxicity Daphnia magna: LC50: >1000 mg/l/96 h/ butanone, ethyl methyl ketone

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- 12.2** **Mobility:** Liquids partly soluble with water. The hazardous ingredients evaporate rapidly, when you release them to the environment. In grounds, a moderate to high mobility of the solvents used in the preparation can be expected.
- 12.3** **Persistence and degradability:** Dangerous components: Solvents are biologically degradable. The used colorants are difficult to dissolve in water. Colorants are, according to regulations, very resistant and therefore, under the conditions of clarification plants or surface water poorly bio=degradable.
- 12.4** **Bioaccumulative potential:** No indication of bio-accumulation potential
- 12.5** **Other adverse effects:** Water risk class: 1 Mild water pollutant
- 12.6** **Further information:** Eco-toxicological data have not been identified especially for this preparation. The indicated information is based on the current state of knowledge of the used materials and of similar products. It should not reach the canalization, the ground or the waters. With an appropriate handling and application any ecological problems are not to be expected.
- 13** **Disposal Considerations:**
- 13.2** **Contaminated packaging:** Waste disposal according to official state regulations.

14 **Transport Information**

DOT Classification:

| | |
|-----------------------|------------|
| Proper shipping name: | Paint |
| Hazard class: | 3 |
| UN/NA | 1263 PG II |

Land transport (ADR/RID)

| | |
|---------------------------|---------------|
| UN number | 1263 |
| ADR/RID class: | 3 |
| Classification code | F1 |
| Hazard no.: | 33 |
| Hazard label: | 3 |
| ADR/RID packing group: | II |
| Limited quantity: | LQ6 |
| Description of the goods: | PAINT UN 1263 |

Remarks

Special regulations: 163 640D 650
 Transport category: 2
 Tunnel restriction code: D1E

Inland waterways transport

| | |
|---------------------------|---------------|
| UN number | 1263 |
| ADR/RID class: | 3 |
| Classification code | F1 |
| Hazard no.: | 33 |
| Hazard label: | 3 |
| ADR/RID packing group: | II |
| Limited quantity: | LQ6 |
| Description of the goods: | PAINT UN 1263 |

Remarks

Special regulations: 163 640D 650

Marine transport

| | |
|---------------------------|---------------|
| UN number | 1263 |
| IMDG code: | 3 |
| Marine pollutant: | No |
| Hazard label: | 3 |
| IMDG packing group: | II |
| EmS | F-E, S-E |
| Limited quantity: | 5 L |
| Description of the goods: | PAINT UN 1263 |

Remarks

Special regulations: 163, 944

Air transport

| | |
|-----------------|------|
| UN number | 1263 |
| ICAO/IATA- DGR: | 3 |

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| | | |
|----------------|---------------------------|---------------|
| Remarks | Hazard label: | 3 |
| | ICAO packing group: | II |
| | IATA max quantity – Cargo | 60L |
| | Description of the goods: | PAINT UN 1263 |
| | Passenger LQ Y305 | |
| | Special regulations: A72 | |

15 Regulatory Information

U.S. Regulations:

SARA Section 313

Isopropyl alcohol (mfg strong acid process) (CAS 67-63-0)

Methyl ethyl ketone (CAS 78-93-3)

N-methyl-2pyrrolidone (CAS 872-50-4)

Additional information DO NOT USE THIS PRODUCT FOR CLEANING SKIN AND CLOTHES!

16 Other Information

Hazardous Materials Information Label (HMIS)

Health: 1

Flammability: 3

Physical Hazard: 0

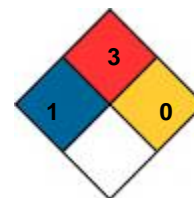
NFPA Hazard Ratings

Health: 1

Flammability: 3

Reactivity: 0

Unique Hazard: Not Applicable



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