



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

**Product name** : FD-Ink Black

**Synonyms** : Product Code : 20577, 20593, 20694, 20697

**Material uses** : Industrial applications: Ink for use on nonporous substrates in a drop-on-demand printing process.

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

**Supplier** : Martek Industries Ltd  
 Unit 12b, Ridings Park Ind. Estate  
 Eastern Way, Cannock, Staffs WS11 7FJ, UK  
 Tel:+44(0)1543 502202 Fax:+44(0)1543-467726

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/Preparation** : Preparation

### Information on Hazardous Ingredients

CAS No.	Percent (%)	Chemical name	R-Phrases
1) 78-93-3	65 - 80	2-Butanone	Xi R11, 36, 66, 67
2) 141-78-6	20 - 35	Ethyl acetate	Xi R11, 36, 66, 67
3) 64-17-5	3 - 7	Ethanol	R11

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

## 3. HAZARDS IDENTIFICATION

**Classification** : Highly flammable, Irritant

**Classification** : R11- Highly flammable.  
 R36- Irritating to eyes.  
 R66- Repeated exposure may cause skin dryness or cracking.  
 R67- Vapours may cause drowsiness and dizziness.

**Safety phrases** : None.

### 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) Ethyl acetate	May cause irritation of respiratory tract, coughing, shortness of breath. Slightly irritating to the skin. Absorbed through skin. Moderately irritating to eyes. Inhalation and Ingestion : Can cause CNS depression. Can cause dizziness, lightheadedness, headache, nausea and blurred vision. May cause loss of consciousness/coma . Repeated or prolonged contact with irritants may cause dermatitis. Defatting to the skin.
3) Ethanol	May cause irritation of respiratory tract, coughing, shortness of breath. Slightly irritating to the skin. Absorbed through skin. Moderately irritating to 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 gastrointestinal tract respiratory system cardiovascular system and central nervous system .

## 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 if symptoms appear.

**Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**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. Obtain medical attention.

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## 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 self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.
- Hazardous thermal decomposition products** : These products are carbon oxides (CO, CO<sub>2</sub>).
- Protection of fire-fighters** : Be sure to use an approved/certified respirator or equivalent.

## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Splash goggles. Full suit. Vapour 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 cleanup methods** : Flammable liquid, insoluble in water.  
 Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with dry earth, sand or other noncombustible 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 away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapour/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents.
- 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 vapours below their respective threshold limit value. Ensure that eyewash stations and safety showers are close to the workstation location.
- Hygiene measures** : Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

### Occupational Exposure Limits

<u>Chemical name</u>	<u>Exposure limits</u>
1) 2-Butanone	1) Austria AUVA MAK 8 hours 200 ppm 2) Belgium STEL 15 minutes 300 ppm 3) Belgium TWA 8 hours 200 ppm 4) Switzerland SUVA STEL 15 minutes 400 ppm 5) Switzerland SUVA TWA 8 hours 200 ppm 6) Germany BAUA TRGS TWA 8 hours 200 ppm (Skin) 7) Denmark DK-Arbejdstilsynet TWA 8 hours 50 ppm (Skin) 8) Spain STEL 15 minutes 300 ppm 9) Spain TWA 8 hours 200 ppm 10) European Union 2000/39/EC TWA 8 hours 200 ppm 11) European Union 2000/39/EC STEL 15 minutes 300 ppm 12) Finland Työterveyslaitos STEL 15 minutes 100 ppm 13) France INRS TWA (VME) 8 hours 200 ppm 14) Ireland STEL 15 minutes 300 ppm (Skin) 15) Ireland TWA 8 hours 200 ppm (Skin) 16) Italy STEL 15 minutes 300 ppm 17) Italy TWA 8 hours 200 ppm 18) Netherlands Arbeidsinspectie MAC TWA (TGG) 8 hours 200 ppm (Skin) 19) Norway N-Arbejdstilsynet TLV 8 hours 75 ppm 20) Sweden AFS KTV 15 minutes 100 ppm 21) Sweden AFS NGV 8 hours 50 ppm
2) Ethyl acetate	1) Austria AUVA MAK (TWA) 8 hours 400 ppm 2) Belgium TWA 8 hours 400 ppm 3) Switzerland SUVA KZG-W (STEL) 15 minutes 800 ppm 4) Switzerland SUVA MAK-W (TWA) 8 hours 400 ppm 5) Germany BAUA MAK (TWA) 8 hours 400 ppm 6) Denmark DK-Arbejdstilsynet TWA 8 hours 150 ppm 7) Finland Työterveyslaitos STEL 15 minutes 500 ppm 8) Finland Työterveyslaitos TWA 8 hours 300 ppm

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## 3) Ethanol

- 9) France INRS VME (TWA) 8 hours 400 ppm
- 10) Ireland TWA 8 hours 400 ppm
- 11) Italy TWA 8 hours 400 ppm
- 12) Netherlands Arbeidsinspectie MAC-STEL 15 minutes 300 ppm
- 13) Netherlands Arbeidsinspectie MAC-TWA 8 hours 150 ppm
- 14) Norway N-Arbeidstilsynet TWA 8 hours 150 ppm
- 15) Sweden AFS KTV(STEL) 15 minutes 300 ppm
- 16) Sweden AFS NGV (TWA) 8 hours 150 ppm
- 1) Austria AUVA MAK 8 hours 1000 ppm
- 2) Belgium TWA 8 hours 1000 ppm
- 3) Switzerland SUVA STEL 15 minutes 1000 ppm
- 4) Switzerland SUVA TWA 8 hours 500 ppm
- 5) Germany BAUA MAK 8 hours 1000 ppm
- 6) Germany BAUA TWA 8 hours 1000 ppm
- 7) Spain VLA-ED 8 hours 1000 ppm
- 8) Finland Työterveyslaitos STEL 15 minutes 1250 ppm
- 9) Finland Työterveyslaitos TWA 8 hours 1000 ppm
- 10) France INRS VLE (STEL) 15 minutes 5000 ppm
- 11) France INRS VME (TWA) 8 hours 1000 ppm
- 12) Ireland OEL (TWA) 8 hours 1000 ppm
- 13) Italy ACGIH TWA 8 hours 1000 ppm
- 14) Netherlands Arbeidsinspectie MAC TWA (TGG) 8 hours 500 ppm
- 15) Norway N-Arbeidstilsynet TLV 8 hours 500 ppm
- 16) Sweden AFS KTV 15 minutes 1000 ppm
- 17) Sweden AFS NGV 8 hours 500 ppm
- 18) European Union Recommended TWA 8 hours 1000 ppm

**Personal Protective Equipment**

<b>Respiratory system</b>	: Vapour respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
<b>Skin and body</b>	: Lab coat.
<b>Hands</b>	: Impervious gloves.
<b>Eyes</b>	: Splash goggles.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state and appearance</b>	: Liquid.
<b>Colour</b>	: Black.
<b>Odour threshold</b>	: The highest known value is 100 ppm. Weighted average: 15 ppm.
<b>Boiling point</b>	: The lowest known value is 77 °C. Weighted average: 79 °C.
<b>Melting point</b>	: May start to solidify at -83 °C. Weighted average: -87 °C.
<b>Specific gravity</b>	: 0.84 (Water = 1)
<b>Vapour density</b>	: The highest known value is 3.0. The lowest known value is 1.6. (Air = 1)
<b>Vapor pressure</b>	: The highest known value is 73 mmHg at 20°C. Weighted average: 70 mmHg at 20°C.
<b>Evaporation rate (butyl acetate = 1)</b>	: The highest known value is 7.1. Weighted average: 6.7.
<b>Solubility</b>	: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Insoluble in cold water, hot water.
<b>Octanol/water partition coefficient</b>	: The product is much more soluble in oil.
<b>pH</b>	: Not applicable.
<b>Flash point</b>	: -3 °C.
<b>Autoignition temperature</b>	: The lowest known value is 399 °C. Weighted average: 488 °C.
<b>Flammable limits</b>	: The lowest known value is 2.0%. The highest known value is 19.0%.
<b>Volatility (w/w)</b>	: 92 %.
<b>VOC Volatility (w/w)</b>	: 92 %.

**10. STABILITY AND REACTIVITY**

<b>Stability</b>	: The product is stable.
<b>Conditions and materials to avoid</b>	: Not available.
<b>Hazardous reactions</b>	: Reactive with oxidizing agents, reducing agents. Slightly reactive with acids, alkalis.
<b>Hazardous decomposition products</b>	: These products are carbon oxides (CO, CO <sub>2</sub> ).

## 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 vapour Rat: 23500 mg/m <sup>3</sup> 8 hours 6) LCLo Inhalation vapour Female Rat Foetotoxicity and developmental abnormalities (homeostasis) in rats.: 1000 ppm 1 hours
2) Ethyl acetate	1) LD50 Oral Rat: 5620 mg/kg 2) LD50 Oral Rabbit: 4935 mg/kg 3) LD50 Oral Mouse: 4100 mg/kg 4) LD50 Dermal Rabbit: 16000 mg/kg 5) LC50 Inhalation vapour Mouse: 45000 mg/m <sup>3</sup> 2 hours
3) 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 vapour Rat: 20000 ppm 10 hours 5) LCLo Inhalation vapour Dog: 5500 ppm hours 6) LCLo Inhalation vapour Guinea pig: 21900 ppm hours

## 12. ECOLOGICAL INFORMATION

<b>Persistence/degradability</b>	: Not available.
<b>Ecotoxicity</b>	: Not available.
<b>Germany water class (WGK)</b>	: Wassergefährdungsklasse = 1

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal methods</b>	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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## 14. TRANSPORT INFORMATION

<b>UN number</b>	: UN1210
<b>Proper shipping name</b>	: Printing Ink
<b>ADR/RID class</b>	: 3
<b>ADR/RID item number</b>	: Not available.
<b>Packing group</b>	: II

## 15. REGULATORY INFORMATION



<b>Risk phrases</b>	: R11- Highly flammable. R36- Irritating to eyes. R66- Repeated exposure may cause skin dryness or cracking. R67- Vapours may cause drowsiness and dizziness.
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**Safety phrases** : None.

### Other EU Regulations

<b>Child protection</b>	: Not applicable.
<b>Tactile warning of danger</b>	: Not applicable.

### National Regulations

Not available.

## 16. OTHER INFORMATION

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

### **Notice to Reader**

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