

Material Safety Data Sheet (MSDS)

SECTION 1 IDENTIFICATION

- 1) **Product name** : RB-DTFW
- 2) **Recommended use of the chemical and restrictions on use**
- Relevant identified uses : Water-based ink for inkjet printer.
 - Recommended use / Restrictions on use : For professional use only.
- 3) **Manufacture/Supplier information**
- Rubenstein RB Digital Inc.
381 Rue McCaffrey, H4T 1Z7 St-Laurent, Canada
 - EMERGENCY NUMBER
Tel) 1-800-361-0100
 - Website www.rbdigital.ca

SECTION 2 HAZARD(S) IDENTIFICATION

- 1) **Classification of the substance or mixture**
- Classification according to Directive 1999/45/EC (DPD) : Xn; R22
 - Classification according to Regulation (EC) No 1272/2008 (CLP) : Acute toxicity, oral - Hazard category 4

2) **GHS labels, including precautionary statements**

- Labeling according to Regulation (EC) No 1272/2008 (CLP)
- Symbol



: GHS07

- Signal word : Warning
- Hazard statement : H302 - Harmful if swallowed
- Precautionary statement
 - Prevention
 - P264 Wash hands thoroughly after handling
 - P270 Do not eat, drink or smoke when using this product
 - Countermeasure
 - P301+P312 If swallowed - Call a POISON CENTER or doctor/physician if you feel unwell.
 - P330 Rinse mouth.
 - Storage
 - P405 Store locked up.
 - Disposal
 - P501 Dispose of contents/ container in accordance with regulation.

3) **Other hazards which do not result in classification**

No information available

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

| Ingredients | % by weight | EC No. | CAS No. |
|-------------------------|-------------|-----------|------------|
| Water | 62 < C < 68 | 231-791-2 | 7732-18-5 |
| White Pigment | 7 < C < 9 | 236-675-5 | 13463-67-7 |
| Polyurethane dispersion | 7 < C < 9 | 210-898-8 | 9009-54-5 |
| 2,2'-oxydiethanol | 18 < C < 22 | 203-872-2 | 111-46-6 |

SECTION 4 FIRST AID MEASURES

1) Eye contact

While lifting upper eyelid, flush eyes with plenty of water for at least 15 minutes, and then get immediate medical attention

2) Skin contact

Wash skin with soap and plenty of water for least 15 minutes. Thoroughly clean and dry contaminated clothing and shoes before reuse. Remove contaminated clothing and shoes and wash skin with water and soap for at least 15 minutes. If skin is irritated or shows other symptoms, get medical attention.

3) Inhalation

Give artificial respiration if not breathing, and get immediate medical attention. If the person develops a side effect, move him to an area free of contamination. Get immediate medical attention. Avoid being exposed to it.

4) Ingestion

Get medical attention. If the person has swallowed a large quantity, let him get medical attention. If person is unconscious, turn head to side. If vomiting occurs, keep head lower than hips to help prevent aspiration

SECTION 5 FIRE FIGHTING MEASURES

1) Fire extinguishing agent

Appropriate fire extinguisher

Powder fire extinguishing agent. Spray stream. Carbon dioxide. Water spray. General foam extinguishing agent. Alcohol resistant foam extinguishing agent.

Improper fire extinguishing agent

No data available

For a large fire

Use alcohol resistant foam extinguishing agent, or flood with fine water spray.

Use general foam extinguishing agent, or flood with fine water spray.

Move containers from fire area if it can be done without risk.

Keep fire extinguishing water in a dike or ditch to handle later.

2) Certain toxic materials produced by chemical agents

Products from thermal cracking

Discharge of toxic smoke, like carbon oxide, sulfur compounds, acrolein and nitroxide

Fire and explosion hazards

There's a small change of fire. A mixture of vapor and air can be explosive at above a certain ignition point. Vapor or gas can spread instantly after being ignited from a distanced ignition point. Vapor is heavier than air. Halogen gas can be produced when it contacts metal.

May develop irritating, corrosive, or toxic gases by fire

3) Protect gears that should be worn while controlling fire and preventive measures

Move containers from fire area if it can be done without risk. Cool container with flooding quantities of water until well after fire is out. Do not approach both ends of the tank. When there's a fire in shipping and unloading or storage area : Cool container with flooding quantities of water until well after fire is out by using unmanned hose holders or monitor nozzles. Keep unnecessary people away, isolate hazard area and deny entry. And allow the fire to burn itself out. Withdraw immediately in case of rising sound from safety devices due to the fire or discoloration of tank. Fire involving tank, rail, car, or tank truck : Evacuation for 0.8Km (1/2 mile) in all directions. Shut off the source of the leakage before trying to extinguish fire. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Dike for later disposal. Use extinguishing agent appropriate for

surrounding fire. The most effect measures would be removing fuel source and suffocating by blocking air supply.

SECTION 6 ACCIDENTAL RELEASE MEASURES**1) Personal precautions, protective equipment and emergency procedures**

Absorb with paper. Ventilate to eliminate all vapors, and burn papers. Eliminate all ignition sources. Absorb with dry earth, sand or other non-combustible material, and place in a container. Ventilate a closed area before entering. Use water spray to reduce vapors. Store in an area separated from water supply and sewer. Check shipping information and included documents, and contact related agencies and companies to find detailed information on the material. Keep unnecessary people away, isolate hazard area and deny entry. Keep away from heat, fire, flame and other sources of ignition. Stop leak if without risk. Deny entry to an area within 25~50m radius from leak, and keep unnecessary people away. Stop leak, if it can be done without risk to worker. Stay upwind. Vaporize the surface leaked. Place leaked material in an appropriate container to dispose.

2) Precautions

Store in an area separated from water supply and sewer.

3) Methods and materials for containment and cleaning up

| | |
|------------|--|
| Small leak | Place leaked material in an appropriate container to dispose. Absorb with dry earth, sand or other non-combustible material. Prevent entry into waterways, sewers, basements or confined areas. Keep unnecessary people away, isolate hazard area and deny entry. Do not touch a damaged container or spilled material without wearing proper protective gears. Notify the central government and local independent commission for discharge of amounts greater than or equal to the standard. |
| Large leak | Stay upwind and keep out of low areas. Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. |

SECTION 7 HANDLING AND STORAGE**1) Precautions for safe handling**

Do not press, cut, weld, solder, join, perforate, grind, or heat. An empty container containing residues (liquid, steam) can be dangerous. Store by closing a container. Store in a closed container. Do not inhale dust, steam, mist or gas. Minimize development and accumulation of dust. Use spark-proof tools and explosion-proof equipment. Do not inhale or ingest. Wash hands before eating. Remove contaminated clothing and wash before reuse. Perform proper ventilation. Wash thoroughly after handling. Use only in a well ventilated area. Handle according to current laws and regulations. Do not get in eyes, on skin and clothing. Avoid flame, sparks, static electricity and other ignition sources

2) Conditions for safe storage, including any incompatibilities

US Warehouse Regulations: U.S. OSHA 29 CFR 1910.106
Grounding and equipotential bonding are required. Avoid contacting halogen or halogen compounds. Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances. Notify the central government or local independent commission for storage or use at amounts greater than or equal to the TPQ (U.S. SARA Section 302). SARA section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Avoid contacting strong oxidizer. Store in a cool, dry place. Store in a dark area. Keep away from sources of ignition.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION**1) Exposure limits and biological exposure limits of chemical**

None established

2) Appropriate engineering controls

According to studies so far, additional ventilation equipment is not required. If a material has a potential to explode, install explosion-proof equipment in the corresponding ventilation equipment. Check if the corresponding exposure level is appropriate. Install a local exhaust ventilation, and make sure it maintains a proper capture velocity.

3) Individual protection measures, such as personal protective equipment

| | |
|------------------------|--|
| Respiratory protection | Consider warning properties before use. None required under normal operating conditions. Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Wear respiratory protection that has received the Korea Occupational Safety and Health. Agency's black "Safety" mark |
| Eye protection | Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Wear splash-proof eye goggles. Wear splash resistant safety goggles with a face shield. |

Hand protection Protective gloves are not required. Wear appropriate chemical resistant gloves.
 Body protection Body protection clothing is not required. Wear appropriate chemical resistant clothing.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------------------------|---------------------------|
| 1) APPEARANCE | White Liquid |
| 2) ODOR | Odorless or mild odor |
| 3) ODOR THRESHOLD | No data available |
| 4) pH | 8.0 ~ 9.5 |
| 5) MELTING POINT/FREEZING POINT | Less than 32°F / 0°C |
| 6) BOILING POINT | Greater than 212°F / 80°C |
| 7) FLASH POINT | Greater than 230°F / 95°C |
| 8) EVAPORATION RATE | No data available |
| 9) FLAMMABILITY(SOLID/GAS) | No data available |
| 10) Relative density | 1.05 at 68°F / 20°C |
| 11) Vapor density | Greater than 1 (air=1) |
| 12) Solubility in water | Miscible |
| 13) Viscosity | 5.0 ~ 6.0 cP |

SECTION 10 STABILITY AND REACTIVITY

1) Chemical stability

Do not store for an extended period, or store or use in an area in direct contact with air and sun and above room temperature. May form explosive peroxides. Stable at room temperature and atmospheric pressure.

2) Hazardous reactivity

Stable at room temperature and atmospheric pressure. Polymerization will not occur.

3) Conditions to avoid (electrostatic discharge, shock, vibration, etc)

Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances. If container is exposed to heat, it may rupture or explode.

4) Incompatibility with other materials

acid, base, oxidizing agents, metallic oxide, peroxides, reducing agents, halogen, inflammables, mineral salt

5) Hazardous decomposition products

Produce carbon oxide and sulfur compounds during thermal decomposition
 Variety of organic matters, cyanide compounds, ammonia, nitrogen oxide

SECTION 11 TOXICOLOGICAL INFORMATION

1) Primary route of entry

| | |
|---------------------|--|
| Inhalation toxicity | May cause irritation, nausea, headache, drowsiness, dizziness, dyspnea, pulmonary congestion, internal bleeding, blood disorders, kidney failure, unconsciousness, loss of coordination(function) |
| Oral toxicity | May cause hypothermia or fever, change in blood pressure, nausea, vomiting, diarrhea, dizziness, stomach pain, chest pain, dyspnea, irregular heart beat, drowsiness, blood disorders, kidney failure, paralysis, convulsions, loss of coordination, sleep disorders, (function), pulmonary congestion, convulsions, unconsciousness, lethargy |
| Eye, skin toxicity | Long term exposure can create irritation. It can be absorbed through skin, making it red and developing irritation |

2) Delayed, immediate and chronic effects following short-term and long-term exposures

| | | |
|----------------|-------------------|----------------------|
| Acute toxicity | Not classified | |
| | Ingredients | CAS No. |
| | 2,2'-oxydiethanol | 111-46-6 |
| | | Oral |
| | | LD50 12565 mg/kg Rat |

Skin corrosion or irritation Skin rabbit, according to skin Irritation test
 Severe eye damage and irritation According to rabbit tests, it can develop corneal opacity with pain to human, but it was recovered in a few days

| | |
|---|--|
| Respiratory sensitization | No data available |
| Skin sensitization | No data available |
| Germ cell mutagenicity | No data available |
| Carcinogenicity | No data available |
| Reproductive toxicity | No data available |
| STOT-single exposure | It develops lethargy, dizziness, dyspnea, metabolic acidosis, hematuria, or liver disease. When it is inhaled, it irritates nose and neck. It develops repetitive respiratory irritation |
| STOT-repeated exposure | According to animal tests, inhalation can cause toxic effects on blood |
| Aspiration hazard | No data available |
| 3) Numerical measures of toxicity (such as acute toxicity estimates) | |
| No data available | |

SECTION 12 ECOLOGICAL INFORMATION

| | |
|--|-------------------|
| 1) Aquatic and/or terrestrial organisms toxicity | No data available |
| 2) Persistence and degradability | No data available |
| 3) Bio accumulative potential | No data available |
| 4) Mobility in soil | No data available |
| 5) Other adverse effects | No data available |

SECTION 13 DISPOSAL CONSIDERATIONS

1) Method of disposal

Dispose the content and container in accordance with all applicable regulations of Waste Management Law
Please dispose by using one of the following methods

1. Neutralize, hydrolyze, oxidize, or restore it
2. Incinerate or melt it in high temperature
3. Solidify it

2) Discourage sewage disposal

Consider all cautions specified in all applicable regulations of Waste Management Law

SECTION 14 TRANSPORT INFORMATION

| | |
|---|-------------------|
| 1) UN number | No data available |
| 2) UN proper shipping number | No data available |
| 3) Transport hazard class | No data available |
| 4) Packing group, if applicable | No data available |
| 5) Environmental hazards | No data available |
| 6) Special precautions for user | No data available |
| 7) Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | No data available |

SECTION 15 REGULATORY INFORMATION

1) Regulation by the Korea Industrial Safety and Health Act

Work environment measuring material, special health diagnosis material (Inspection cycle : 12 months)

| | |
|--|-------------------|
| 2) Regulation by the Enforcement Decree of the Toxic Chemicals Control Act | No data available |
| 3) Regulation by the Safety Control of Dangerous Substances Act | No data available |
| 4) Regulation by the Waste Management Law | Authorized waste |
| 5) Regulation by other national and international regulations | Not applicable |

SECTION 16 OTHER INFORMATION

| | |
|---|---|
| 1) Literature references and sources for data | Korea Occupational Safety and Health Agency |
| 2) Date of preparation | 15. Mar. 2022 |
| 3) Latest revision and changes Date | [Revision] 1.0 [Date] 15. Mar. 2022 |
| 4) Explanation | |

This MSDS (Material Safety Data Sheets) contains health, safety and environment information, and was written by reflecting our company's current technology

This data is not a guarantee for the product's character or quality, and should be used only as a reference in relation to safe use of the product.

This product is highly recommended to be use for the application described in 1-b and do not use for the other application