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

Product identifier

Product code **1590**
Product name **Halftone Extender Base**
Product category **1500 Series UV Flexiform Screen Ink**

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Printing operations

Details of the supplier of the safety data sheet

| | |
|--|----------------------------|
| UNITED STATES | UNITED KINGDOM |
| Nazdar Company | Nazdar Limited |
| 8501 Hedge Lane Terrace | Barton Road |
| Shawnee, KS 66227 | Heaton Mersey |
| Tel: 1-913-422-1888 | Stockport, England SK4 3EG |
| Tel: 1-800-677-4657 | Tel: +44 161 442 2111 |
| Fax: 1-913-422-2294 | |
| www.nazdar.com | |

Emergency telephone number

USA: Chemtrec: 1-800-424-9300
Outside USA: Chemtrec: 1-703-527-3887
24 Hour Emergency Phone Number

2. HAZARDS IDENTIFICATION

Classification

| | |
|--|----------------------|
| Acute toxicity - Oral | Category 4 - (H302) |
| Serious eye damage/eye irritation | Category 2 - (H319) |
| Skin sensitization | Category 1B - (H317) |
| Specific target organ toxicity (repeated exposure) | Category 1 - (H372) |
| Chronic aquatic toxicity | Category 3 - (H412) |

Label elements



Signal Word
Danger

Hazard Statements

H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation

H372 - Causes damage to organs through prolonged or repeated exposure
 H412 - Harmful to aquatic life with long lasting effects

P280 - Wear eye protection/ face protection
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P273 - Avoid release to the environment

Hazards not otherwise classified (HNOC)

May be harmful in contact with skin. Harmful to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

| Component | CAS-No | Weight % | Trade Secret | Note |
|--------------------------|--------------|----------|--------------|------|
| Glycol Ether Acrylate | Trade Secret | 10 - 30 | * | |
| Vinyl Functional Monomer | Trade Secret | 10 - 30 | * | |
| Acrylated Monomer | Trade Secret | 10 - 30 | * | |
| Photoinitiator | Trade Secret | 1 - 5 | * | |

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

| | |
|-----------------------|---|
| General Advice | Show this safety data sheet to the doctor in attendance. |
| Eye Contact | Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation develops and persists. |
| Skin Contact | Wash off immediately with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation (redness, rash, blistering) develops, get medical attention. |
| Inhalation | Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately. |
| Ingestion | DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. |

Most important symptoms and effects, both acute and delayed

None under normal use conditions.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Foam. Carbon dioxide (CO2). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

No information available.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. May emit toxic fumes under fire conditions. Hazardous polymerization may take place during a fire due to heat. Closed containers could violently rupture.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers / tanks with water spray. Sealed containers may rupture when heated.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Remove all sources of ignition. Ventilate the area. Avoid contact with eyes, skin and clothing. Avoid breathing dust or vapor. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Keep out of drains, sewers, ditches and waterways. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Use personal protective equipment as required. Do not eat, drink or smoke when using this product. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage Keep at temperatures between 18°-32°C (65°-90°F). Keep containers tightly closed in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep out of the reach of children. Protect from direct sunlight. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Products Strong acids. Strong bases. Strong oxidizing agents. Reducing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Measures Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Users are advised to consider national Occupational Exposure Limits or other equivalent values. In case of insufficient ventilation, wear suitable respiratory equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection Wear safety glasses with side shields (or goggles). If splashes are likely to occur. Wear suitable face shield. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Wash hands before eating, drinking or smoking. Wash contaminated clothing before reuse. Avoid contact with eyes, skin and clothing. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|---|--------------------|----------------------------------|--------------------------|
| Physical State | Liquid | Appearance | Colored Liquid |
| Odor | Mild Sweet Acrylic | Odor Threshold | No information available |
| Property | Values | Remarks • Method | |
| pH | | No data available | |
| Melting point/freezing point | | No data available | |
| Boiling point/Boiling Range | > 149 °C / 300 °F | | |
| Flash Point | > 94 °C / > 201 °F | | |
| Evaporation rate | | Pensky Martens Closed Cup (PMCC) | |
| Flammability Limit in Air | | No data available | |
| Upper flammability limit | | No data available | |
| Lower flammability limit | | No data available | |
| Vapor Pressure | | No data available | |
| Vapor Density | | No data available | |
| Specific Gravity | 1.08 | | |
| Water Solubility | | No data available | |
| Solubility in other solvents | | No data available | |
| Partition coefficient: n-octanol/water | | No data available | |
| Autoignition Temperature | | No data available | |
| Decomposition temperature | | No data available | |
| Kinematic viscosity | | No data available | |
| Dynamic viscosity | | No data available | |
| Explosive Properties | No data available | | |
| Oxidizing Properties | No data available | | |

Other Information

| | |
|------------------------------------|------|
| Photochemically Reactive | No |
| Weight Per Gallon (lbs/gal) | 9.01 |

| VOC by weight % (less water) | VOC by volume % (less water) | VOC lbs/gal (less water) | VOC grams/liter (less water) |
|---------------------------------|---------------------------------|-----------------------------|---------------------------------|
| 0-1 | No information available | 0-1 | 1.91 |

10. STABILITY AND REACTIVITY

Reactivity

No information available.

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None under normal processing. Do not store for longer periods at temperatures above 93°C (200°F).

Conditions to avoid

Temperatures above 93 °C / 200 °F. Protect from direct sunlight. Keep away from open flames, hot surfaces and sources of ignition.

0% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods**Waste Disposal Methods**

Contain and dispose of waste according to local regulations.

Contaminated Packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name

Not regulated

Printing Ink

ICAO / IATA / IMDG / IMO

Proper Shipping Name

Not Regulated

Printing Ink

15. REGULATORY INFORMATION

International Inventories

All components are listed on the TSCA Inventory. For further information, please contact: Supplier (manufacturer/importer/downstream user/distributor).

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Component | CAS-No | Weight % | SARA 313 - Threshold Values |
|-----------------------|--------------|----------|-----------------------------|
| Glycol Ether Acrylate | Trade Secret | 10 - 30 | 1.0 |

The above glycol ether acrylate is considered a reactive chemical in ultraviolet curable inks. Once initiated by a high dose of ultraviolet light, this glycol ether acrylate rapidly polymerizes (i.e. hardens) and becomes part of the ink film. The polymerization process of UV curable inks is measured in milliseconds.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

| Component | CAS-No | Weight % |
|-----------------------|--------------|----------|
| Glycol Ether Acrylate | Trade Secret | 10 - 30 |

U.S. State Regulations

| Component | New Jersey Right To Know |
|-----------------------|-----------------------------|
| Glycol Ether Acrylate | X |

| Component | Pennsylvania Right To Know |
|-----------------------|-------------------------------|
| Glycol Ether Acrylate | X |

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects

Canada

No information available

16. OTHER INFORMATION

| <u>HMIS:</u> | Health | Flammability | Reactivity | Personal Protection |
|--------------|--------|--------------|------------|---------------------|
| | 2 | 1 | 1 | X |

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

| | |
|---------|----------------------------------|
| TWA | TWA (time-weighted average) |
| STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value |

ACGIH: (American Conference of Governmental Industrial Hygienists)

- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

- Known - Known Carcinogen
- Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

- X - Present

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of MSDS