



Material Safety Data Sheet

Prepared in accordance with ISO 11014-1/ANSI standard Z400.1-2004

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1. PRODUCT AND COMPANY IDENTIFICATION

Product code 3294
Product name Halftone Black
Product description 3200 Series UV Point-of-Sale (POS) Screen Ink

Manufacturer or supplier's details

UNITED STATES
Nazdar Company
8501 Hedge Lane Terrace
Shawnee, KS 66227
Tel: 1-913-422-1888
Tel: 1-800-677-4657
Fax: 1-913-422-2294

UNITED KINGDOM
Nazdar Limited
7 Barton Road
Heaton Mersey Industrial Estate
Stockport, Chesire SK4 3EG
Tel: +44 161 442 2111

Emergency Telephone Number

USA: Chemtrec: 1-800-424-9300
Outside USA: Chemtrec: 1-703-527-3887

Website: www.nazdar.com
MSDS Information: 1-913-422-1888 ext 2305
MSDS Contact: Regulatory Compliance
email: regcomp@nazdar.com

2. HAZARDS IDENTIFICATION

This product is a preparation. Health hazard information is based on its components.

Appearance Viscous liquid.
Emergency Overview Irritant. Sensitizer.

Eyes Moderately irritating to the eyes. The liquid splashed in the eyes may cause irritation and reversible damage.

Skin May cause skin irritation and/or dermatitis. Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Moderate skin irritation.

Inhalation Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.
Ingestion Ingestion may cause irritation to mucous membranes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No | Weight % |
|--|--------------|----------|
| Glycol ether acrylate | Trade Secret | 10 - 30 |
| Acrylated Monomer | Trade Secret | 10 - 30 |
| Acrylated Monomer | Trade Secret | 5 - 10 |
| N-vinylcaprolactam | 2235-00-9 | 5 - 10 |
| Acrylated Monomer | Trade Secret | 1 - 5 |
| Silica, amorphous fumed (crystalline free) | 112945-52-5 | 1 - 5 |
| Carbon black | 1333-86-4 | 1 - 5 |
| Photoinitiator | Trade Secret | 1 - 5 |
| Photoinitiator | Trade Secret | 1 - 5 |

- When referencing TSCA, use Silica CAS# 7631-86-9. CAS# 112945-52-5 was created to help further categorize the family of Silica. It has not yet been listed on TSCA.

4. FIRST AID MEASURES

Skin Contact May cause allergic skin reaction. In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water. Use a mild soap if available. Rinse immediately with plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation develops, get medical attention.

| | |
|--------------------|---|
| Eye Contact | May produce an allergic reaction. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately if irritation develops and persists. |
| Inhalation | Move to fresh air. If breathed in, move person into fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately. |
| Ingestion | May produce an allergic reaction. If swallowed, DO NOT induce vomiting. Call a physician or Poison Control Centre immediately. Never give anything by mouth to an unconscious person. |

5. FIRE-FIGHTING MEASURES

| | |
|--|---|
| Flammable Properties | No information available |
| Suitable Extinguishing Media | Foam. Carbon dioxide (CO ₂). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| 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. Keep away from fire, sparks and heated surfaces. Keep container tightly closed. Cool containers / tanks with water spray. Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers. To avoid thermal decomposition, do not overheat. Fire or intense heat may cause violent rupture of packages. |
| Specific Hazards Arising from the Chemical | May cause sensitization by skin contact. Thermal decomposition can lead to release of irritating gases and vapours. Burning produces obnoxious and toxic fumes. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|----------------------------------|--|
| Personal Precautions | Remove all sources of ignition. Heat, flames and sparks. Ventilate the area. Avoid breathing dust or vapor. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| Methods for Cleaning Up | Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not use sparking tools. |
| Environmental Precautions | Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities. |

7. HANDLING AND STORAGE

| | |
|-----------------|--|
| Handling | Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Remove and wash contaminated clothing before re-use. Discard contaminated shoes. When using do not smoke. Take notice of labels and material safety data sheets for the working chemicals. Do not take internally. Harmful or fatal if swallowed. |
| Storage | Keep at temperatures between 9.9°C and 31.9°C. Keep container closed when not in use. Keep out of the reach of children. Keep away from direct sunlight. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| Component | Weight % | ACGIH TLV | OSHA PEL | Ontario TWAEV |
|--------------|----------|----------------------------|----------------------------|----------------------------|
| Carbon black | 1 - 5 | TWA: 3.5 mg/m ³ | TWA: 3.5 mg/m ³ | TWA: 3.5 mg/m ³ |

| Component | Weight % | NIOSH IDLH | Mexico OEL (TWA) |
|--------------|----------|------------------------|--|
| Carbon black | 1 - 5 | 1750 mg/m ³ | TWA: 3.5 mg/m ³ STEL: 7 mg/m ³ |

NIOSH IDLH: Immediately Dangerous to Life or Health

Engineering Measures Use only with adequate ventilation. Use ventilation adequate to keep exposures below recommended exposure limits. See MSDS. In case of insufficient ventilation, wear suitable respiratory equipment.

Personal Protective Equipment

Respiratory Protection

Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Respirator with a vapour filter.

Eye Protection

Ensure that eyewash stations and safety showers are close to the workstation location. Avoid contact with eyes. Safety glasses with side-shields. Goggles. Face-shield.

Skin Protection

Wear protective gloves/clothing. Solvent-resistant apron and boots.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands before eating, drinking, or smoking. Remove and wash contaminated clothing before re-use. Regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|------------------------------------|-----------------------------------|--|----------------------------------|
| Appearance | Viscous liquid | Physical State | Liquid |
| Odor | Mild Sweet Acrylic Characteristic | Odor Threshold | No information available |
| pH | No information available | Autoignition Temperature | No information available |
| Boiling point/Boiling Range | >149°C / >300°F | Melting Point/Range | No information available |
| Freezing Point/Range | No information available | Solubility | No information available |
| Evaporation Rate | No information available | Partition Coefficient (n-octanol/water) | No information available |
| Vapour Pressure | No information available | Vapour Density | Heavier than air |
| Flammability (solid, gas) | No information available | Flash Point | > 93°C / > 200°F |
| Flammability Limits in Air | | Method | Pensky Martens Closed Cup (PMCC) |
| Upper | No information available | Photochemically Reactive | No |
| Lower | No information available | | |
| Weight Per Gallon (lbs/gal) | 9.013 | Specific Gravity | 1.08 |
| VOC by weight | 0.646 | VOC by volume | 0.751 |
| VOC lbs/gal | 0.058 | VOC grams/liter | 6.984 |

10. STABILITY AND REACTIVITY

| | |
|---|--|
| Chemical Stability | Stable under normal conditions. |
| Conditions to Avoid | Temperatures above 93°C. Keep away from direct sunlight. |
| Incompatible Products | Strong acids. Strong bases. Strong oxidizing agents. Reducing agents. |
| Hazardous Decomposition Products | Thermal decomposition can lead to release of irritating gases and vapours. Carbon dioxide (CO ₂). Carbon monoxide. |
| Possibility of Hazardous Reactions | None under normal processing. Do not store for longer periods at temperatures above 93°C. |

11. TOXICOLOGICAL INFORMATION

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Acute Toxicity

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--|---------------------|-----------------------|-----------------|
| Glycol ether acrylate | 4660 µL/kg (Rat) | 2540 µL/kg (Rabbit) | |
| Acrylated Monomer | 5 g/kg (Rat) | 3600 µL/kg (Rabbit) | |
| Acrylated Monomer | | 13 g/kg (Rabbit) | |
| Silica, amorphous fumed (crystalline free) | 3160 mg/kg (Rat) | | |
| Carbon black | 15400 mg/kg (Rat) | 3 g/kg (Rabbit) | |

Chronic Toxicity

| Component | ACGIH | IARC | NTP | OSHA |
|--------------|-------|----------|-----|------|
| Carbon black | | Group 2B | | X |

Carbon black is classified as a carcinogen by the IARC (possibly carcinogenic to humans, Group 2B). In their evaluation of carbon black, IARC indicates exposure to carbon black, per se, does not occur when it remains bound within a product matrix, specifically, rubber, ink, or paint. Carbon black is present only in a bound form in this preparation.

Legend:

IARC: (International Agency for Research on Cancer)
OSHA: (Occupational Safety & Health Administration)

Group 2B - Possibly Carcinogenic to Humans
X - Present

| | |
|------------------------------|---|
| Sensitisation | May cause sensitization of susceptible persons. |
| Mutagenic Effects | No information available |
| Reproductive Effects | No information available |
| Developmental Effects | No information available |
| Teratogenicity | No information available |
| Chronic Effects | Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. |
| Target Organ Effects | Eyes, Lymphatic System, Respiratory system. |

12. ECOLOGICAL INFORMATION

Ecotoxicity

We have no quantitative data concerning the ecological effects of this product. Environmental fate information is derived from consideration of the properties of the ingredients. Should not be released into the environment.

| Component | Freshwater Algae | Freshwater Fish | Water Flea |
|--------------|------------------|-----------------|--------------------------------------|
| Carbon black | | | 24 Hr EC50 Daphnia magna: >5600 mg/L |

| | |
|--|--------------------------|
| Persistence and Degradability | No information available |
| Bioaccumulation | No information available |
| Mobility in Environmental Media | No information available |

13. DISPOSAL CONSIDERATIONS

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|-------------------------------|--|
| Waste Disposal Methods | Dispose of contents/container in accordance with local regulation. |
| Contaminated Packaging | Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. TRANSPORT INFORMATION

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DOT

Printing Ink, Not Regulated

ICAO/IATA

Not classified as dangerous in the meaning of transport regulations

IMDG/IMO

Not classified as dangerous in the meaning of transport regulations

15. REGULATORY INFORMATION

International Inventories

Listed on TSCA. For further information, please contact: Manufacturer, importer, supplier

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 | Mixture | 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 HAPs:

| Component | CAS-No | Weight % |
|-----------------------|---------|----------|
| Glycol ether acrylate | Mixture | 10 - 30 |

U.S. State Regulations**California Prop. 65**

WARNING! This product contains a chemical known in the State of California to cause cancer. WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

| Component | CAS-No | Weight % |
|-----------------------------|-----------|----------|
| Ethyl benzene (contaminant) | 100-41-4 | < 0.1 |
| Toluene | 108-88-3 | < 0.001 |
| Benzene | 71-43-2 | < 0.0001 |
| Carbon black | 1333-86-4 | 1 - 5 |

State Right-to-Know

| Component | Minnesota | Florida | New Jersey | Pennsylvania | Massachusetts | Rhode Island |
|--|------------|------------|------------|--------------|---------------|--------------|
| Glycol ether acrylate | Not Listed | Not Listed | X | X | Not Listed | Not Listed |
| Acrylated Monomer | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Acrylated Monomer | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| N-vinylcaprolactam | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Acrylated Monomer | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Silica, amorphous fumed (crystalline free) | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Carbon black | Not Listed | Not Listed | X | X | X | X |
| Photoinitiator | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Photoinitiator | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |

Canada

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

| Component | WHMIS Classifications of Components |
|-------------------|-------------------------------------|
| Acrylated Monomer | D2B |
| Carbon black | D2A |

REACH: Substances of Very High Concern (SVHC): Article 57 of Regulation (EC) No 1907/2006

Does NOT contain a listed substance

HMIS:

| Health | Flammability | Instability | PPE |
|--------|--------------|-------------|-----|
| 2 | 1 | 1 | X |

16. OTHER INFORMATION

Revision Date Dec-05-2008

Revision Summary New MSDS format

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