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

Product identifier

Product code **3681**
Product name **Permanent Orange**
Product category **3600 Series UV Decal 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

| | |
|--|----------------------|
| Skin Corrosion/irritation | Category 2 - (H315) |
| Serious eye damage/eye irritation | Category 2 - (H319) |
| Skin sensitization | Category 1B - (H317) |
| Specific target organ toxicity (repeated exposure) | Category 2 - (H373) |

Label elements



Signal Word
Warning

Hazard Statements

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H373 - May cause damage to organs through prolonged or repeated exposure

P280 - Wear eye protection/ face protection
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray

Hazards not otherwise classified (HNOC)

May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

| Component | CAS-No | Weight % | Trade Secret | Note |
|--------------------------|--------------|----------|--------------|------|
| Acrylated Monomer | Trade Secret | 10 - 30 | * | |
| Glycol Ether Acrylate | Trade Secret | 10 - 30 | * | |
| Vinyl Functional Monomer | Trade Secret | 5 - 10 | * | |
| Acrylated Monomer | Trade Secret | 1 - 5 | * | |
| Acrylated Oligomer | Trade Secret | 1 - 5 | * | |
| Triethanolamine | 102-71-6 | 1 - 5 | * | |
| Photoinitiator | Trade Secret | 1 - 5 | * | |
| Glycol Ether Acrylate | 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

| Component | ACGIH TLV |
|-----------------------------|--------------------------|
| Triethanolamine 102-71-6 | TWA: 5 mg/m ³ |

| Component | Ontario TWAEV |
|-----------------------------|--|
| Triethanolamine 102-71-6 | TWA: 0.5 ppm TWA: 3.1 mg/m ³ |

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 | Pensky Martens Closed Cup (PMCC) | |
| Evaporation rate | | No data available | |
| Flammability Limit in Air | | | |
| Upper flammability limit | | No data available | |
| Lower flammability limit | | No data available | |
| Vapor Pressure | | No data available | |
| Vapor Density | | No data available | |
| Specific Gravity | 1.1 | | |
| 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) 9.2

| VOC by weight % (less water) | VOC by volume % (less water) | VOC lbs/gal (less water) | VOC grams/liter (less water) |
|---------------------------------|---------------------------------|-----------------------------|---------------------------------|
| 0-1 | 0-1 | 0-1 | 4.86 |

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.

Incompatible materials

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

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors. Carbon dioxide (CO₂). Carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

| | |
|---------------------|------------------------------------|
| Inhalation | There is no data for this product. |
| Eye Contact | There is no data for this product. |
| Skin Contact | There is no data for this product. |
| Ingestion | There is no data for this product. |

| Component | Oral LD50 |
|-----------------------------|--------------------|
| Glycol Ether Acrylate | 4660 µL/kg (Rat) |
| Acrylated Monomer | 5 g/kg (Rat) |
| Triethanolamine 102-71-6 | 4190 mg/kg (Rat) |

| Component | LD50 Dermal |
|-----------------------------|---|
| Acrylated Monomer | 13 g/kg (Rabbit) |
| Glycol Ether Acrylate | 2540 µL/kg (Rabbit) |
| Acrylated Monomer | 3600 µL/kg (Rabbit) |
| Triethanolamine 102-71-6 | >16 mL/kg (Rat) >2000 mg/kg (Rabbit) |

Information on toxicological effects

Symptoms There is no data for this product.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|----------------------------------|--|
| Skin corrosion/irritation | There is no data for this product. |
| Eye damage/irritation | There is no data for this product. |
| Irritation | There is no data for this product. |
| Corrosivity | There is no data for this product. |
| Sensitisation | There is no data for this product. |
| Mutagenic Effects | There is no data for this product. |
| Reproductive Effects | There is no data for this product. |
| STOT - single exposure | There is no data for this product. |
| STOT - repeated exposure | There is no data for this product. |
| Chronic Toxicity | There is no data for this product. |
| Aspiration hazard | There is no data for this product. |
| Carcinogenicity | This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP. |

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

| | |
|-----------------|---------------------|
| ATEmix (oral) | 4,676.00 mg/kg |
| ATEmix (dermal) | 8,129.00 mg/kg mg/l |

12. ECOLOGICAL INFORMATION**Ecotoxicity**

None known

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

| Component | Algae/aquatic plants |
|-----------------------------|--|
| Triethanolamine 102-71-6 | 96h EC50 Desmodesmus subspicatus: 169 mg/L 72h EC50 Desmodesmus subspicatus: 216 mg/L |

| Component | Fish |
|-----------------------------|---|
| Triethanolamine 102-71-6 | 96h LC50 Pimephales promelas: 10600 - 13000 mg/L [flow-through] 96h LC50 Lepomis macrochirus: 450 - 1000 mg/L [static] 96h LC50 Pimephales promelas: >1000 mg/L [static] |

| Component | Crustacea |
|-----------------------------|-----------------------------------|
| Triethanolamine 102-71-6 | 24h EC50 Daphnia magna: 1386 mg/L |

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

| Component | Partition coefficient |
|-----------------------------|-----------------------|
| Triethanolamine 102-71-6 | -2.53 |

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 |
| Glycol Ether Acrylate | Trade Secret | 1 - 5 | 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 |
| Glycol Ether Acrylate | Trade Secret | 1 - 5 |

U.S. State Regulations

| Component | Massachusetts Right To Know |
|-----------------------------|-----------------------------|
| Triethanolamine 102-71-6 | X |

| Component | Minnesota Right To Know |
|-----------------------------|-------------------------|
| Acrylated Monomer | X |
| Triethanolamine 102-71-6 | X |

| Component | New Jersey Right To Know |
|-----------------------------|--------------------------|
| Glycol Ether Acrylate | X |
| Triethanolamine 102-71-6 | X |
| Glycol Ether Acrylate | X |

| Component | Pennsylvania Right To Know |
|-----------------------------|----------------------------|
| Glycol Ether Acrylate | X |
| Triethanolamine 102-71-6 | X |
| 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

| Component | NPRI - National Pollutant Release Inventory |
|-----------------------------|--|
| Triethanolamine 102-71-6 | Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999 |

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