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2.7

## 1. IDENTIFICATION

**Product identifier**

**Product code** 2678  
**Product name** LED GR High Intensity White  
**Product category** 2600 Series UV-LED Screen Ink

**Other means of identification**

**Synonyms** None

**Recommended use of the chemical and restrictions on use**

**Recommended use** Industrial 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: +001-913-422-1888	Stockport, England SK4 3EG
Tel: +001-800-677-4657	Tel: +44 161 442 2111
Fax: +001-913-422-2294	
www.nazdar.com	

**Emergency telephone number**

USA: Chemtrec: +001-800-424-9300  
 Outside USA: Chemtrec: +001-703-527-3887  
 24 Hour Emergency Phone Number

## 2. HAZARDS IDENTIFICATION

**Classification**

Serious eye damage/eye irritation	Category 2 - (H319)
Skin sensitization	Category 1A - (H317)
Reproductive toxicity	Category 1B - (H360FD)
Specific target organ toxicity (repeated exposure)	Category 1 - (H372)
Chronic aquatic toxicity	Category 2 - (H411)

**Label elements**



**Signal word**  
Danger

**Hazard statements**

H317 - May cause an allergic skin reaction  
 H319 - Causes serious eye irritation  
 H360FD - May damage fertility. May damage the unborn child  
 H372 - Causes damage to organs through prolonged or repeated exposure

H411 - Toxic to aquatic life with long lasting effects

### Precautionary Statements

P201 - Obtain special instructions before use

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P273 - Avoid release to the environment

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P308 + P313 - IF exposed or concerned: Get medical advice/attention

### Hazards not otherwise classified (HNOC)

Causes mild skin irritation. Toxic to aquatic life.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Mixture

Chemical name	CAS No	Weight-%	Trade secret	Note
Titanium Dioxide	13463-67-7	30 - 60	*	
Glycol Ether Acrylate	Not Available	10 - 30	*	
Vinyl Functional Monomer	Not Available	10 - 30	*	
Photoinitiator	Not Available	1 - 5	*	
Acrylated Monomer	Not Available	1 - 5	*	
Silicon dioxide, amorphous	7631-86-9	1 - 5	*	
Photoinitiator	Not Available	0.1 - < 1	*	
Photoinitiator	Not Available	0.1 - < 1	*	
Photoinitiator	Not Available	0.1 - < 1	*	
Glycol Ether Acrylate	Not Available	0.1 - < 1	*	

\*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

If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately. Remove person to fresh air and keep comfortable for breathing.

#### 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

Water spray. Carbon dioxide (CO<sub>2</sub>). Foam. Dry chemical. 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. Sealed containers may rupture when heated. Cool containers / tanks with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures****Personal Precautions**

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

**Environmental precautions**

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

**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**

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

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters****Exposure limits**

Chemical name	ACGIH TLV
Titanium Dioxide 13463-67-7	TWA: 0.2 mg/m <sup>3</sup> nanoscale respirable particulate matter TWA: 2.5 mg/m <sup>3</sup> finescale respirable particulate matter
Chemical name	OSHA PEL
Titanium Dioxide 13463-67-7	TWA: 15 mg/m <sup>3</sup> total dust
Chemical name	OSHA PEL (vacated)
Titanium Dioxide 13463-67-7	TWA: 10 mg/m <sup>3</sup> total dust
Silicon dioxide, amorphous 7631-86-9	TWA: 6 mg/m <sup>3</sup>

<b>Chemical name</b>	<b>Ontario TWAEV</b>
Titanium Dioxide 13463-67-7	TWA: 10 mg/m <sup>3</sup>
Glycol Ether Acrylate	TWA: 25 ppm TWA: 141 mg/m <sup>3</sup> Skin
<b>Chemical name</b>	<b>Mexico OEL (TWA)</b>
Titanium Dioxide 13463-67-7	TWA/VLE-PPT: 10 mg/m <sup>3</sup>

**Appropriate engineering controls**

**Engineering Measures**

In case of insufficient ventilation, wear suitable respiratory equipment. 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.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection**

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

**Skin Protection**

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

**Hand Protection**

Chemical resistant protective gloves.  
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding >480 minutes of permeation time): eg. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other  
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers. Taking into account the varying conditions, the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.  
Due to different glove types, the manufacturer's directions for use should be observed. Replace gloves immediately when torn or any change in appearance is noticed such as dimension, color, flexibility.

**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. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.

**General Hygiene Considerations**

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

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid	<b>Appearance</b>	Colored
<b>Odor</b>	Mild Sweet Acrylic	<b>Odor Threshold</b>	No information available
<b>Property</b>	<b>Values</b>	<b>Remarks • Method</b>	
<b>pH</b>		No data available	
<b>Melting Point / Freezing Point</b>	No information available	No data available	
<b>Boiling Point / Boiling Range</b>	> 149 °C / 300 °F		
<b>Flash Point</b>	> 94 °C / > 201 °F		
<b>Evaporation rate</b>		Pensky Martens Closed Cup (PMCC)	
<b>Flammability Limit in Air</b>		No data available	

<b>Upper flammability limit</b>		No data available
<b>Lower flammability limit</b>		No data available
<b>Vapor Pressure</b>		No data available
<b>Vapor Density</b>		No data available
<b>Specific Gravity</b>	1.43	
<b>Water Solubility</b>		No data available
<b>Solubility in other solvents</b>		No data available
<b>Partition coefficient: n-octanol/water</b>		No data available
<b>Autoignition Temperature</b>	No information available	No data available
<b>Hyphen</b>		No data available
<b>Kinematic viscosity</b>		No data available
<b>Dynamic viscosity</b>		No data available
<b>Explosive Properties</b>	No data available	
<b>Oxidizing Properties</b>	No data available	

**Other information**

<b>Photochemically Reactive</b>	No
<b>Weight Per Gallon (lbs/gal)</b>	11.91

VOC by weight % (less water) 0-1	VOC by volume % (less water) 0-1	VOC lbs/gal (less water) 0-1	VOC grams/liter (less water) 7.03
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**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 oxidizing agents. Strong acids. Strong bases. Reducing agent.

**Hazardous decomposition products**

Thermal decomposition can lead to release of irritating gases and vapors. Carbon monoxide. Carbon dioxide (CO<sub>2</sub>).

**11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

<b>Inhalation</b>	Specific test data for the substance or mixture is not available.
<b>Eye Contact</b>	Specific test data for the substance or mixture is not available.
<b>Skin Contact</b>	Specific test data for the substance or mixture is not available.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available.

Chemical name	Oral LD50
Titanium Dioxide 13463-67-7	> 10000 mg/kg ( Rat )
Glycol Ether Acrylate	= 4660 µL/kg ( Rat )
Acrylated Monomer	= 4890 mg/kg ( Rat )

Silicon dioxide, amorphous 7631-86-9	= 7900 mg/kg ( Rat )
Photoinitiator	> 2000 mg/kg ( Rat )
Glycol Ether Acrylate	= 1850 mg/kg ( Rat )

Chemical name	Dermal LD50
Vinyl Functional Monomer	= 1700 mg/kg ( Rabbit )
Photoinitiator	> 2000 mg/kg ( Rat )
Acrylated Monomer	> 3000 mg/kg ( Rabbit )
Silicon dioxide, amorphous 7631-86-9	> 5000 mg/kg ( Rabbit )
Photoinitiator	> 2000 mg/kg ( Rat )
Photoinitiator	> 2000 mg/kg ( Rat )
Photoinitiator	> 2000 mg/kg ( Rat )
Glycol Ether Acrylate	= 5 mL/kg ( Rabbit )

Chemical name	Inhalation LC50
Titanium Dioxide 13463-67-7	= 5.09 mg/L ( Rat ) 4 h
Vinyl Functional Monomer	> 1.6 mg/L ( Rat ) 8 h
Silicon dioxide, amorphous 7631-86-9	> 58.8 mg/L ( Rat ) 4 h
Glycol Ether Acrylate	> 0.057 mg/L ( Rat ) 8 h

### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Specific test data for the substance or mixture is not available.

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

**Skin corrosion/irritation** Specific test data for the substance or mixture is not available.  
**Eye damage/irritation** Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components).  
**Irritation** Specific test data for the substance or mixture is not available.  
**Corrosivity** Specific test data for the substance or mixture is not available.  
**Sensitization** Specific test data for the substance or mixture is not available. May cause an allergic skin reaction. (based on components).  
**Mutagenic Effects** Specific test data for the substance or mixture is not available.  
**Carcinogenic effects** Specific test data for the substance or mixture is not available.  
**Reproductive Effects** Specific test data for the substance or mixture is not available. May damage fertility. May damage the unborn child. (based on components).  
**STOT - single exposure** Specific test data for the substance or mixture is not available.  
**STOT - repeated exposure** Specific test data for the substance or mixture is not available. Causes damage to organs through prolonged or repeated exposure. (based on components).  
**Chronic Toxicity** Specific test data for the substance or mixture is not available  
**Target organ effects** Liver, Respiratory system.  
**Aspiration hazard** Specific test data for the substance or mixture is not available.  
**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH
Titanium Dioxide 13463-67-7	A3

Chemical name	IARC
Titanium Dioxide	Group 2B

13463-67-7	
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Chemical name	OSHA
Titanium Dioxide 13463-67-7	X

### Numerical measures of toxicity - Product Information

**Unknown acute toxicity** 0 % of the mixture consists of ingredient(s) of unknown toxicity

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

**ATEmix (oral)** 3,164.20 mg/kg  
**ATEmix (dermal)** 10,758.20 mg/kg mg/l

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Specific test data for the substance or mixture is not available. Toxic to aquatic life with long lasting effects. (based on components).

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

Chemical name	Algae/aquatic plants
Silicon dioxide, amorphous 7631-86-9	72h EC50 Pseudokirchneriella subcapitata: = 440 mg/L
2-Phenoxyethanol 122-99-6	72h EC50 Desmodesmus subspicatus: > 500 mg/L

Chemical name	Fish
N-vinylcaprolactam 2235-00-9	96h LC50 Danio rerio: = 307 mg/L (static)
Isobornyl acrylate 5888-33-5	96h LC50 Danio rerio: = 0.704 mg/L (semi-static)
Silicon dioxide, amorphous 7631-86-9	96h LC50 Brachydanio rerio: = 5000 mg/L (static)
Phosphine oxide, phenylbis(2,4,6-trimethyl benzoyl)- 162881-26-7	96h LC50 Danio rerio: > 90 µg/L (semi-static)
1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)- 71868-10-5	96h LC50 Danio rerio: = 9 mg/L (static)
2-Phenoxyethanol 122-99-6	96h LC50 Pimephales promelas: 337 - 352 mg/L (flow-through) 96h LC50 Pimephales promelas: = 366 mg/L (static)

Chemical name	Crustacea
Silicon dioxide, amorphous 7631-86-9	48h EC50 Ceriodaphnia dubia: = 7600 mg/L
2-Phenoxyethanol 122-99-6	48h EC50 Daphnia magna: > 500 mg/L

### Persistence and Degradability

No information available.

### Bioaccumulation

No information available

Chemical name	Partition coefficient
Glycol Ether Acrylate	1.13

## 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****Note:**

This information is not intended to convey all specific transportation requirements relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation information can be found in the specific regulations for your mode of transportation. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

**DOT**

Not regulated

Exception: In the US and Canada except when all or part of the transportation is by vessel, containers 119 gallons/ 450 Liters and less are not regulated [see 49CFR 171.4 (c)(1)]

49CFR 171.4 (c)(2) applies only to marine pollutants. These items may be shipped as "not regulated" and no marine pollutant mark is required if in quantities of 5L or less (per inner packaging) for liquids or 5KG or less (per inner packaging) for solids and the packaging used meets the defined standards [see 49CFR 173.24 for general packaging requirements].

**ICAO / IATA / IMDG / IMO**

Not Regulated

ICAO/IATA Special Provision A197 applies only to environmentally hazardous substances, UN3077 and UN3082. These items may be shipped as "not regulated" if in quantities of 5L or less (per inner packaging) for liquids or 5KG or less (per inner packaging) for solids and the packaging used meets the defined standards.

IMDG code 2.10.2.7 applies only to marine pollutants. These items may be shipped as "not regulated" and no marine pollutant mark is required if in quantities of 5L or less (per inner packaging) for liquids or 5KG or less (per inner packaging) for solids and the packaging used meets the defined standards.

**15. REGULATORY INFORMATION****International Inventories**

For further information, please contact.. All components are listed on the TSCA Inventory. 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.

Chemical name	CAS No	Weight-%	SARA 313 - Threshold Values %
Glycol Ether Acrylate	Not Available	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:.



Chemical name	CAS No	Weight-%
Glycol Ether Acrylate	Not Available	10 - 30
Xylenes (o-, m-, p- isomers)	1330-20-7	0.1 - < 1
Glycol Ether Acrylate	Not Available	0.1 - < 1

**US State Regulations**

Chemical name	Massachusetts
Titanium Dioxide 13463-67-7	X
Silicon dioxide, amorphous 7631-86-9	X

Chemical name	Minnesota Right To Know
Titanium Dioxide 13463-67-7	X
Silicon dioxide, amorphous 7631-86-9	X

Chemical name	New Jersey
Titanium Dioxide 13463-67-7	X
Glycol Ether Acrylate	X
Glycol Ether Acrylate	X

Chemical name	Pennsylvania
Titanium Dioxide 13463-67-7	X
Glycol Ether Acrylate	X
Silicon dioxide, amorphous 7631-86-9	X
Glycol Ether Acrylate	X

**California Proposition 65**

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm

Chemical name	California Proposition 65
Titanium Dioxide	Carcinogen

*This product contains titanium dioxide in a non-respirable form. Inhalation of titanium dioxide is unlikely to occur from exposure to this product*

**Canada**

No information available

Chemical name	NPRI - National Pollutant Release Inventory
Glycol Ether Acrylate	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**

HMIS	Health hazards	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

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**NTP: (National Toxicity Program)**

Known - Known Carcinogen

Reasonably Anticipated to be a Human Carcinogen

**OSHA: (Occupational Safety & Health Administration)**

X - Present

**Revision Date** Jan-16-2023

**Pursuant to NOM-018-STPS-2015**

This information within is considered correct but is not exhaustive and will be used for guidance only, which is based on the current knowledge of the substance or mixture and is applicable to the appropriate safety precautions for the product.

**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 Safety Data Sheet**