SAFETY DATA SHEET

Published Date	Revision Date	Revision Number
May-31-2019	May-29-2019	2.5

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product code **60052880U8**

Product name **White**

Product category **LVR-E UVLED**

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended use Printing operations

1.3 Details of the supplier of the safety data sheet

UNITED STATES
Nazdar Company
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For further information, please contact

Contact person Regulatory Compliance: Tel: +001-913-422-1888 (ext 2305)

E-mail address regcomp@nazdar.com

1.4 Emergency telephone number

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

Section 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

According to Regulation (EC) No 1272/2008

Acute toxicity - Oral	Category 4 - (H302)
Skin Corrosion/irritation	Category 1 Sub-category C - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
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)

2.2 Label elements

Signal Word
Danger

Hazard Statements
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H360Df - May damage the unborn child. Suspected of damaging fertility
H372 - Causes damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P363 - Wash contaminated clothing before reuse
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P202 - Do not handle until all safety precautions have been read and understood
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P314 - Get medical advice/attention if you feel unwell
P273 - Avoid release to the environment

2.3 Other Hazards

Other Hazards Harmful to aquatic life.
General Hazards No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Component	EC No.	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH No.	Note
Tetrahydrofurfuryl acrylate esters	219-268-7	2399-48-6	30 - 60	Acute Tox. 4 (H302) Skin Corr. 1C (H314) Eye Dam. 1 (H318) Skin Sens. 1B (H317) Repr. 1B (H360Df) Aquatic Chronic 2 (H411)	01-2120738396-46-xxxx	
N-vinylcaprolactam	218-787-6	2235-00-9	30 - 60	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Eye Irrit. 2A (H319) Skin Sens. 1B (H317) STOT RE 1 (H372) [liver, respiratory system]	01-2119977109-27-xxxx	
Titanium dioxide	236-675-5	13463-67-7	10 - 30	Not Classified	01-2119489379-17-xxxx	1
Hexamethylene diacrylate (HDODA)	235-921-9	13048-33-4	5 - 10	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317)	01-2119484737-22-xxxx	
4-(1,1-dimethylethyl)cyclohexyl acrylate	282-104-8	84100-23-2	1 - 5	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) Aquatic Chronic 2 (H411)	01-2120735441-62-xxxx	
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	278-355-8	75980-60-8	1 - 5	Skin Sens. 1B (H317) Repr. 2 (H361f) Aquatic Acute 2 (H401) Aquatic Chronic 2 (H411)	01-2119972295-29-xxxx	
Phosphine oxide, phenylbis(2,4,6-trimethyl benzoyl)-	423-340-5	162881-26-7	1 - 5	Skin Sens. 1 (H317) Aquatic Chronic 4 (H413)	01-2119489401-38-xxxx	
2-Phenoxyethyl acrylate	256-360-6	48145-04-6	1 - 5	Skin Sens. 1A (H317)	01-2119980532-35-	

				Repr. 2 (H361fd) Aquatic Chronic 2 (H411)	xxxx	
Tetrahydrofurfuryl alcohol	202-625-6	97-99-4	< 0.5	Eye Irrit. 2 (H319) Repr. 1B (H360Df)	01-2119968921-26-xxxx	

Note
REACH No: Registration number(s) may not be provided because substance(s) are exempted or not yet required to be registered under REACH
1. Substance with a Community workplace exposure limit

Full text of H- and EUH-phrases: see section 16

Section 4: FIRST AID MEASURES

4.1 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. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

None under normal use conditions.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

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.

5.2 Special hazards arising from the substance or mixture

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.

5.3 Advice 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.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

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.

6.2 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.

6.3 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.

6.4 Reference to other sections

See Section 12 for more information.

Section 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

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

7.2 Conditions for safe storage, including any incompatibilities

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.

7.3 Specific end use(s)

Exposure scenario No information available.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits

Component	**The United Kingdom**
Titanium dioxide 13463-67-7	STEL: 30 mg/m³ total inhalable STEL: 12 mg/m³ respirable TWA: 10 mg/m³ total inhalable TWA: 4 mg/m³ respirable
Component	**France**
Titanium dioxide 13463-67-7	TWA/VME: 10 mg/m³
Component	**Germany**
Titanium dioxide 13463-67-7	TWA/MAK: 0.3 mg/m³ respirable fraction Peak: 2.4 mg/m³ respirable fraction
Component	**Spain**
Titanium dioxide 13463-67-7	TWA/VLA-ED: 10 mg/m³
Component	**Portugal**
Titanium dioxide 13463-67-7	TWA/VLE-MP: 10 mg/m³
Component	**Denmark**
Titanium dioxide 13463-67-7	TWA: 6 mg/m³
Component	**Austria**
Titanium dioxide 13463-67-7	STEL/KZW: 10 mg/m³ alveolar dust, respirable fraction TWA/TMW: 5 mg/m³ alveolar dust, respirable fraction
Component	**Switzerland**
Titanium dioxide 13463-67-7	TWA/MAK: 3 mg/m³ respirable dust
Component	**Poland**
Titanium dioxide 13463-67-7	TWA/NDS: 10 mg/m³ inhalable fraction
Component	**Norway**
Titanium dioxide 13463-67-7	TWA: 5 mg/m³
Component	**Ireland**
Titanium dioxide 13463-67-7	TWA: 10 mg/m³ total inhalable dust TWA: 4 mg/m³ respirable dust STEL: 30 mg/m³ respirable dust STEL: 12 mg/m³

Component	Australia TWA
Titanium dioxide 13463-67-7	TWA: 10 mg/m³ inhalable dust

Derived No Effect Level (DNEL) .

Component	DNEL - Dermal (Workers)	DNEL - Inhalation (Workers)
Tetrahydrofurfuryl acrylate esters 2399-48-6	4.9 mg/kg (Systemic long term)	1.73 mg/m³ (Systemic long term)
N-vinylcaprolactam 2235-00-9	0.7 mg/kg (Systemic long term)	4.9 mg/m³ (Systemic long term) 0.17 mg/m³ (Local long term)
Titanium dioxide 13463-67-7	No data found	10 mg/m³ (Local long term)
Hexamethylene diacrylate (HDODA) 13048-33-4	2.77 mg/kg (Systemic long term)	24.5 mg/m³ (Systemic long term)
4-(1,1-dimethylethyl)cyclohexyl acrylate 84100-23-2	0.5 mg/kg (Systemic long term)	1.8 mg/m³ (Systemic long term)
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide 75980-60-8	1.1 mg/kg (Systemic long term)	3.5 mg/m³ (Systemic long term)
Phosphine oxide, phenylbis(2,4,6-trimethyl benzoyl)- 162881-26-7	3 mg/kg (Systemic long term)	21 mg/m³ (Systemic long term)
2-Phenoxyethyl acrylate 48145-04-6	1.5 mg/kg (Systemic long term)	10 mg/m³ (Systemic long term) 77 mg/m³ (Local long term)
Tetrahydrofurfuryl alcohol 97-99-4	0.35 mg/kg (Systemic long term) 0.35 mg/kg (Systemic acute/short term)	1.4 mg/m³ (Systemic long term) 1.4 mg/m³ (Systemic acute/short term)

Predicted No Effect Concentration (PNEC) No information available.

8.2 Exposure 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.

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.

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. 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.

Environmental exposure controls No information available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State	Liquid	**Appearance**	Colored
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	1.14	
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	

9.2 Other information

Softening Point No data available

Section 10: STABILITY AND REACTIVITY

10.1 Reactivity

No information available.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

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

10.4 Conditions to avoid

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

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

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

Section 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity

Inhalation Specific test data for the substance or mixture is not available.
Eye Contact Specific test data for the substance or mixture is not available.
Skin Contact Specific test data for the substance or mixture is not available.
Ingestion Specific test data for the substance or mixture is not available. Harmful if swallowed. (based on components).

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) 726.00
ATEmix (dermal) 3,212.00

Unknown Acute Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity.
0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Component	Oral LD50
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)
Hexamethylene diacrylate (HDODA) 13048-33-4	= 5 g/kg (Rat)
Phosphine oxide, phenylbis(2,4,6-trimethyl benzoyl)- 162881-26-7	> 2000 mg/kg (Rat)
2-Phenoxyethyl acrylate 48145-04-6	= 4660 µL/kg (Rat)
Tetrahydrofurfuryl alcohol 97-99-4	= 1600 mg/kg (Rat)

Component	Dermal LD50
Hexamethylene diacrylate (HDODA) 13048-33-4	= 3600 mg/kg (Rabbit)
Phosphine oxide, phenylbis(2,4,6-trimethyl benzoyl)- 162881-26-7	> 2000 mg/kg (Rat)

Skin corrosion/irritation Specific test data for the substance or mixture is not available. Causes severe burns. (based on components).
Eye damage/irritation Specific test data for the substance or mixture is not available. Causes severe eye damage. (based on components).
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 the unborn child. Suspected of damaging fertility. (based on components).
CMR, categories 1 and 2 This product contains one or more substances which are classified in the EU as carcinogenic, mutagenic and/or reprotoxic

Component	CMR, categories 1 and 2
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide 75980-60-8	Repr. 2
Tetrahydrofurfuryl alcohol 97-99-4	Repr. 1B

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).
Target Organ Effects	Liver, Respiratory system.
Aspiration hazard	Specific test data for the substance or mixture is not available.

Section 12: ECOLOGICAL INFORMATION

12.1 Toxicity

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

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

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects.

No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste from residues/unused products	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.

Section 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.
ADR	Not Regulated Exception: If in quantities of 5L or less (per inner packaging) for liquids or 5KG or less (per inner packaging) for solids these items may be shipped as not regulated [additional general packaging requirements must be met see ADR special provision 375]
ICAO / IATA / IMDG / IMO	Not Regulated

Exception: If in quantities of 5L or less (per inner packaging) for liquids or 5KG or less (per inner packaging) for solids these items may be shipped as not regulated [additional general packaging requirements must be met see ICAO/IATA special provision A197]
Exception: If in quantities of 5L or less (per inner packaging) for liquids or 5KG or less (per inner packaging) for solids these items may be shipped as not regulated [additional general packaging requirements must be met see IMDG code 2.10.2.7]

Section 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

European Union

International Inventories
For further information, please contact: Supplier (manufacturer/importer/downstream user/distributor)

15.2 Chemical Safety Assessment
No information available.

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H360Df - May damage the unborn child. Suspected of damaging fertility
H361f - Suspected of damaging fertility
H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects
H413 - May cause long lasting harmful effects to aquatic life

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Revision Date May-29-2019

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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