

TESLA NANOCOATINGS, INC.  
SAFETY DATA SHEET

This Safety Data Sheet has been prepared to comply with the EU Regulation and the OSHA Hazard Communication Standard.

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION  
AND THE COMPANY/UNDERTAKING**

**1.1 Product Identifier:**

**Trade Name:** TESLAN® 1101 ZN-CNT Low VOC Epoxy Primer – Part B

**1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:**

**Product Use:** Primer Coating

**Uses Advised Against:** None

**1.3 Details of the Supplier of the Safety Data Sheet:**

**Manufacturer:** Tesla NanoCoatings, Inc.  
Advanced Technology Center T101  
6200 Frank Ave. NW  
N. Canton, OH 44720 USA

**Information Phone Number:** +1-330-685-0599

**Contact:** Charles Simpson

**Email:** chsimpson@teslanano.com

**Only Representative (REACH)/Nominated EU Importer:**

nEMCEL LTD.  
Myllarintie 1  
40640 JYVASKYLA, Finland  
Tel: +040-171-3894

**1.4 Emergency Telephone Number:** +1-330-685-0599 or +1-330-417-3550

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1 Classification of the Substance or Mixture:**

**GHS Classification:**

Flammable Liquid Category 3 (H226)

Eye Damage Category 1 (H318)

Skin Corrosion Category 1 (H314)

Skin Sensitization Category 1 (H317)

Specific Target Organ Toxicity Single Exposure Category 3 (H335, H336)

**EU Classification:**

Flammable, Irritant (Xi), R10, R22, R37/38, R41, R43, R67

**2.2 Label Elements:**

Danger!



Contains: 1-Butanol, Triethylenetetramine

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**Hazard Phrases**

H226	Flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

**Precautionary Phrases**

P210	Keep away from heat, sparks, open flames, and hot surfaces. –No smoking.
P233	Keep container tightly closed.
P240	Ground or bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating, or lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe mist, vapours, or spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P363	Wash contaminated clothing before reuse.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310	Immediately call a POISON CENTER or doctor or physician.
P370 + P378	In case of fire: Use water spray, alcohol-resistant foam, carbon dioxide, dry chemical or limestone powder for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents and container in accordance with local and national regulations.

**2.3 Other Hazards:** None known.

<b>SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS</b>
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**3.2 Mixture:**

Chemical Name	CAS#	EINECS#	EU Classification (67/548/EEC)	CLP Annex VI Classification	%
1-Butanol	71-36-3	200-751-6	Xi, Xn R10, R22, R37/38, R41, R67	Flam. Liq. Cat 3 (H226), Acute Tox. Cat 4 (H302), Skin Irrit. Cat 2 (H315), Eye Dam. Cat 1 (H318), STOT SE Cat 3 (H335, H336)	20-30
Fatty acids, tall-oil, reaction products with	68953-36-6	273-201-6	Xi, R36/37/38, R43	Skin Irrit. Cat 2 (H315), Skin Sens. Cat 1 (H317),	<10
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tetraethylenepentamine				Eye Irrit. Cat 2 (H319), STOT SE Cat 3 (H335)	
Triethylenetetramine	112-24-3	203-950-6	C, Xi, Xn R21, R34, R43, R52/53	Acute Tox. Cat 4 (H312), Skin Corr. Cat 1B (H314), Skin Sens. Cat 1 (H317), Aq. Chronic Cat 3 (H412)	1-5
Tetraethylenepentamine	112-57-2		C, Xn, N R21/22, R34, R43, R51/53	Acute Tox. Cat 4 (H302, H312), Skin Corr. Cat 1B (H314), Skin Sens. Cat 1 (H317), Aq. Chronic Cat 2 (H411)	<0.5

See Section 16 for further information on EU and GHS Classification.

#### SECTION 4: FIRST AID MEASURES

##### 4.1 Description of First Aid Measures:

**Eye:** Immediately rinse thoroughly with water for at least 30 minutes, while holding the eye lids open to be sure the material is washed out. Get immediate medical attention.

**Skin:** Immediately flush skin with plenty of water for 30 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Launder clothing before re-use. (Discard contaminated shoes).

**Inhalation:** Immediately remove victim to fresh air. If breathing is difficult, oxygen should be administered by qualified personnel. If breathing has stopped, administer artificial respiration. Get immediate medical attention.

**Ingestion:** Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Keep the victim calm and warm. Get immediate medical attention.

**4.2 Most Important symptoms and effects, both acute and delayed:** May cause severe eye and skin irritation and burns. May cause severe respiratory irritation with headache, dizziness, nausea and other symptoms of central nervous system depression. May cause skin sensitization.

**4.3 Indication of any immediate medical attention and special treatment needed:** Immediate medical attention is required for all routes.

#### SECTION 5: FIRE-FIGHTING MEASURES

**5.1 Extinguishing Media:** Use water spray, alcohol-resistant foam, carbon dioxide, dry chemical or limestone powder.

##### 5.2 Special Hazards Arising from the Substance or Mixture:

**Unusual Fire and Explosion Hazards:** Flammable liquid and vapor. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Vapors may form explosive mixtures with air in confined areas.

**Combustion Products:** Oxides of carbon and nitrogen, ammonia, nitric acid, nitrosamine, smoke and hydrocarbons.

##### 5.3 Advice for Fire-Fighters:

Wear an approved, positive pressure, self-contained breathing apparatus and full protective clothing. Cool fire exposed containers with water.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

##### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures:

Remove all ignition sources such as open flames, spark producing equipment, pilot lights, etc. Wear appropriate protective clothing to prevent eye and skin contact including impervious gloves, safety goggles and respirator if needed. Ventilate area.

##### 6.2 Environmental Precautions:

Report spills and releases as required to appropriate authorities.

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### 6.3 Methods and Material for Containment and Cleaning Up:

Cover with an inert absorbent material and collect into an appropriate container for disposal. Use only non-sparking tools. Dispose of any contaminated cleaning materials in a sealed container.

### 6.4 Reference to Other Sections:

Refer to Section 8 for Personal Protective Equipment and Section 13 for Disposal information.

## SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for Safe Handling:** Do not breathe vapors, aerosols and mists. Use with adequate ventilation. Prevent contact with the eyes, skin and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use. Do not use sodium nitrite or other nitrosating agents in formulations containing this product.

**7.2 Conditions for Safe Storage, Including any Incompatibilities:** Store in a cool, dry, well-ventilated location away from acids and other incompatible materials. Keep containers closed when not in use. This product has components that have a tendency to crystallize or become hazy during storage. If this occurs, product should be warmed to 100-140°F (38-36°C) for one hour and stirred until clear.

**7.3 Specific end use(s):** Industrial use only

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control Parameters:

Chemical Name	Exposure Limits
1-Butanol	20 ppm TWA ACGIH TLV 100 ppm TWA OSHA PEL 100 ppm TWA , 100 ppm STEL, DFG MAK 50 ppm STEL UK WEL
Fatty acids, tall-oil, reaction products with tetraethylenepentamine	None Established
Triethylenetetramine	1 ppm TWA AIHA WEEL (Skin)
Tetraethylenepentamine	5 mg/m <sup>3</sup> TWA AIHA WEEL (Skin; DSEN)

### 8.2 Exposure Controls:

**Ventilation:** Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits. Use explosion proof electrical equipment and wiring where required.

#### Personal Protective Equipment:

**Respiratory Protection:** In operations where the occupational exposure limits are exceeded, an approved respirator with applicable cartridges or supplied air respirator should be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

**Skin Protection:** Impervious gloves are required. Contact your glove supplier for selection assistance.

**Eye Protection:** Chemical safety goggles and a face shield are recommended.

**Other Protective Equipment:** Impervious clothing as needed to avoid skin contact and contamination of personal clothing. An eye wash facility and safety shower should be available in the work area.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic Physical and Chemical Properties:

<b>Appearance:</b> Amber liquid	<b>Vapor Density:</b> No data available
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<b>Odor:</b> Ammonia like odor	<b>Specific Gravity:</b> 0.963
<b>Odor Threshold:</b> No data available	<b>Solubility:</b> Slightly soluble in water
<b>pH:</b> Not available	<b>Octanol/Water Partition Coefficient:</b> No data available
<b>Melting Point/Freezing Point:</b> No data available	<b>Autoignition Temperature:</b> No data available
<b>Boiling Point:</b> >95°F (>35°C)	<b>Decomposition Temperature:</b> No data available
<b>Flash Point:</b> 102.2°F (39°C)	<b>Viscosity:</b> No data available
<b>Evaporation Rate:</b> No data available	<b>Explosive Properties:</b> Not explosive
<b>Flammable Limits:</b> LEL: 1.4% (1-Butanol) UEL: 11.2% (1-Butanol)	<b>Oxidizing Properties:</b> Not an oxidizer
<b>Vapor Pressure:</b> No data available	<b>Relative Density:</b> No data available
<b>Molecular Formula:</b> Mixture	<b>Flammability (solid, gas):</b> Not applicable
<b>Molecular Weight:</b> Mixture	

**9.2 Other Information:** VOC: 1.87 lbs/gal / 224.4 g/L (calculated on non-exempt (US EPA) solvent basis, % Volatile weight: 23.3%, % Volatile volume: 26.1%

#### SECTION 10: STABILITY AND REACTIVITY

**10.1 Reactivity:** Product may react when in contact with nitrous acid, nitrites or other incompatible materials.

**10.2 Chemical Stability:** Stable under normal storage and handling conditions.

**10.3 Possibility of Hazardous Reactions:** Hazardous polymerization will not occur. N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites, or atmospheres with high nitrous oxide concentrations. Product may slowly corrode copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.

**10.4 Conditions to Avoid:** Keep away from heat, sparks, flames and other sources of ignition.

**10.5 Incompatible Materials:** Nitrous acid and other nitrosating agents, organic acids, mineral acids, sodium hypochlorite, common metals and oxidizing agents.

**10.6 Hazardous Decomposition Products:** Combustion will produce oxides of carbon and nitrogen, ammonia, nitric acid, nitrosamine, smoke and hydrocarbons.

#### SECTION 11: TOXICOLOGICAL INFORMATION

##### 11.1 Information on Toxicological Effects:

###### Potential Health Effects:

**Eye:** May cause severe irritation and burns. Permanent eye injury is likely.

**Skin:** May cause severe skin irritation and burns. May cause allergic skin reaction (sensitization).

**Inhalation:** Inhalation of vapors, mists or aerosols may cause severe mucous membrane and respiratory irritation and burns with the possibility of central nervous system depression. Symptoms of central nervous system depression include headache, dizziness, drowsiness, nausea and unconsciousness.

**Ingestion:** Swallowing may cause severe gastrointestinal irritation and central nervous system depression with symptoms similar to those described under inhalation.

**Chronic Hazards:** None known.

###### Acute Toxicity Values:

1-Butanol: Oral rat LD50-790 mg/kg; Inhalation rat LC50-24 mg/L/4hr; Skin rabbit LD50-3400 mg/kg

Fatty acids, tall-oil, reaction products with tetraethylenepentamine: No toxicity data available

Triethylenetetramine: Oral rat LD50-2780 mg/kg; Skin rabbit LD50-550 mg/kg

Tetraethylenepentamine: Oral rat LD50 – 2100-3990 mg/kg; Skin rabbit LD50-660 mg/kg

**Skin corrosion/irritation:** No data available for the mixture. This product is classified as corrosive to skin.

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**Eye damage/irritation:** No data available for the mixture. This product is classified as corrosive to eyes.

**Respiratory Irritation:** No data available for the mixture. This product is classified as a respiratory irritant.

**Respiratory Sensitization:** No data available.

**Skin Sensitization:** No data available for the mixture. This product is classified as a skin sensitizer.

**Germ Cell Mutagenicity:** No data available.

**Carcinogenicity:** None of the components of this product are listed as carcinogens by OSHA, IARC, NTP, ACGIH and the EU CLP.

**Reproductive Toxicity:** No data available.

**Specific Target Organ Toxicity:**

Single Exposure: No data available

Repeat Exposure: No data available.

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

No data available for the mixture. The following information are for the components:

Triethylenetetramine: 48 hr EC50 Daphnia magna- 31.1 mg/L; 72 hr EC50 Scenedesmus subspicatus (algae)- 2.5 mg/L  
Tetraethylenepentamine: 96 hr LC50 Poecilia reticulata-420 mg/L; 48 hr EC50 Daphnia magna- 24.1 mg/L; 72 hr EC50  
Selenastrum capricornutum (Algae)- 2.1 mg/L (NOEC – 0.5 mg/L)

**12.2 Persistence and Degradability:** No data available

**12.3 Bioaccumulative Potential:** No data available

**12.4 Mobility in Soil:** No data available

**12.5 Results of PBT and vPvB Assessment:** No data available

**12.6 Other Adverse Effects:** Not applicable

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste Treatment Methods:**

Dispose in accordance with all local, state and federal regulations.

**SECTION 14: TRANSPORTATION INFORMATION**

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Hazard Class(s)	14.4 Packing Group	14.5 Environmental Hazards
<b>US DOT</b>	UN1263	Paint*	3	PG III	No
<b>Canadian TDG</b>	UN1263	Paint	3	PG III	No
<b>EU ADR/RID</b>	UN1263	Paint	3	PG III	No
<b>IMDG</b>	UN1263	Paint	3	PG III	No
<b>IATA/ICAO</b>	UN1263	Paint	3	PG III	No

\* **Hazardous Substance (49CFR172.101):** 1-Butanol (RQ 5,000 lbs) (16,666 lbs. product)

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14.6 Special Precautions for User: Not applicable

14.7 Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

**SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, Health and Environment Regulations/Legislation Specific for the Substance or Mixture:**

**U.S. FEDERAL REGULATIONS:**

**CERCLA 103 Reportable Quantity:** This product has an RQ of 16,666 lbs (based on the RQ of 1-Butanol of 5,000 lbs present at 20-30%). Some states have more stringent reporting requirements. Report all spills in accordance with local, state, and federal regulations.

**SARA TITLE III:**

**Hazard Category for Section 311/312:** Acute Health, Fire Hazard

**Section 313 Toxic Chemicals:** This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements:

1-Butanol	71-36-3	20-30%
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**Section 302 Extremely Hazardous Substances (TPQ):** None

**EPA Toxic Substances Control Act (TSCA) Status:** All of the components of this mixture are listed on the TSCA inventory.

**STATE REGULATIONS:**

**California Proposition 65:** This product does not contain substances known in the State of California to cause cancer and/or reproductive harm.

**INTERNATIONAL REGULATIONS:**

**EUROPEAN REGULATIONS**

**REACH:** Tesla NanoCoatings, Inc. products comply with REACH regulation as applicable. For more information, contact Tesla NanoCoatings, Inc.

**SVHC:** This product contains the following Substances of Very High Concern (SVHCs): None.

**15.2 Chemical Safety Assessment:** None Required

**SECTION 16: OTHER INFORMATION**

<b>HMIS Ratings:</b> Health – 3	Flammability - 2	Physical Hazard - 0
<b>NFPA Ratings:</b> Health - 3	Flammability - 2	Instability - 0

**SDS Revision History:**  
6/13/14: New SDS

**GHS Classification for Reference (See Sections 2 and 3):**  
Acute Tox. Cat 4 Acute Toxicity Category 4  
Aq. Chronic Cat 2 Aquatic Chronic Toxicity Category 2  
Aq. Chronic Cat 3 Aquatic Chronic Toxicity Category 3

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Eye Dam. Cat 1 Eye Damage Category 1  
 Eye Irrit. Cat 2A Eye Irritant Category 2A  
 Skin Corr. Cat 1B Skin Corrosion Category 1B  
 Skin Irrit. Cat 2 Skin Irritant Category 2  
 Skin Sens. Cat 1 Skin Sensitization Category 1  
 Flam. Liq. Cat 3 Flammable Liquid Category 3  
 STOT SE Cat 3 Specific Target Organ Toxicity Single Exposure Category 3  
 H226 Flammable liquid and vapor.  
 H302 Harmful if swallowed.  
 H304 May be fatal if swallowed and enters airways.  
 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.  
 H336 May cause drowsiness or dizziness.  
 H411 Toxic to aquatic life with long lasting effects.  
 H412 Harmful to aquatic life with long lasting effects.

**EU Classes and Risk Phrases for Reference (See Sections 2 and 3):**

C Corrosive  
 N Dangerous for the Environment.  
 Xi Irritant  
 Xn Harmful  
 R10 Flammable  
 R21 Harmful in contact with skin.  
 R21/22 Harmful in contact with skin and if swallowed.  
 R22 Harmful if swallowed.  
 R34 Causes burns.  
 R36/37/38 Irritating to eyes, respiratory system and skin.  
 R37/38 Irritating to respiratory system and skin  
 R41 Risk of serious damage to eyes.  
 R43 May cause sensitization by skin contact.  
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
 R52 Harmful to aquatic organisms.  
 R67 Vapors may cause drowsiness and dizziness.

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 This above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. Tesla NanoCoatings, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.

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