

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® 4000 Low VOC Urethane Topcoat – Part B

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

**Product Use:** Topcoat

**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.  
Mylarintie 1  
40640 JYVASKYLA, Finland  
Tel: +040-171-3894

**1.4 Emergency Telephone Number:** +1-330-685-0599 or +1-330-417-3550 or +040-171-3894

**SECTION 2: HAZARDS IDENTIFICATION**

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

**GHS Classification:**

Skin Sensitization Category 1 (H317)  
Acute Toxicity Inhalation Category 4 (H332)  
Respiratory Sensitization Category 1 (H334)  
Specific Target Organ Toxicity Single Exposure Category 3 (H335)

**EU Classification:**

Xn R20, R37, R43

**2.2 Label Elements:**

Danger!



Contains: Homopolymer of Hexamethylene Diisocyanate, Hexamethylene-1,6-diisocyanate

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#### Hazard Phrases

H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.

#### Precautionary Phrases

P261	Avoid breathing mist, vapours, or spray.
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.
P284	Wear respiratory protection.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor or physician.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents and container in accordance with local and national regulations.

**2.3 Other Hazards:** None known.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2 Mixture:

Chemical Name	CAS#	EINECS#	EU Classification (67/548/EEC)	CLP Annex VI Classification	%
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	931-274-8	Xn R20, R37, R43	Acute Tox. Cat 4 (H332), Skin Sens. Cat 1 (H317), STOT SE Cat 3 (H335)	95-100
Hexamethylene-1,6-Diisocyanate	822-06-0	273-201-6	T, Xi R23, R36/37/38, R42/43	Acute Tox. Cat 4 (H302), Acute Tox. Cat 1 (H330), Skin Irrit. Cat 2 (H315), Skin Sens. Cat 1 (H317), Eye Irrit. Cat 2 (H319), Resp. Sens. Cat 1 (H334), STOT SE Cat 3 (H335)	<1

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

### SECTION 4: FIRST AID MEASURES

#### 4.1 Description of First Aid Measures:

**Eye:** Rinse thoroughly with water for several minutes, while holding the eye lids open to be sure the material is washed out. Get medical attention if irritation occurs and persists.

**Skin:** Flush skin with plenty of water while removing contaminated clothing and shoes. Get medical attention if irritation

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or rash occurs. Launder clothing before re-use.

**Inhalation:** 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 if asthmatic response or difficulty breathing occurs.

**Ingestion:** Do not induce vomiting unless directed to do so by a medical professional. Rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Get medical attention if symptom develop.

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

**4.3 Indication of any immediate medical attention and special treatment needed:** Immediate medical attention may be required for asthmatic reactions.

## SECTION 5: FIRE-FIGHTING MEASURES

**5.1 Extinguishing Media:** Use water spray, carbon dioxide, or dry chemical.

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

**Unusual Fire and Explosion Hazards:** Product is not flammable but will burn under fire conditions. Closed containers may forcibly rupture under the heat of fire conditions. Cool fire-exposed containers with water.

**Combustion Products:** Oxides of carbon and nitrogen, hydrogen cyanide, isocyanate, isocyanic acid, and smoke.

**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:**

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.

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

Cover with an inert absorbent material and collect into an appropriate container for disposal.

**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. Avoid contact with the eyes, skin and clothing. Wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly after handling.

**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.

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

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1 Control Parameters:

Chemical Name	Exposure Limits
Homopolymer of Hexamethylene Diisocyanate	None Established
Hexamethylene-1,6-Diisocyanate	0.005 ppm TWA ACGIH TLV 0.005 ppm TWA, 0.005 ppm STEL DFG MAK (inhalable, sensitization to airways and skin)

### 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, designed for particulates, e.g., 3M Type P, 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 nitrile 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> Clear, pale yellow liquid	<b>Vapor Density:</b> No data available
<b>Odor:</b> Almost odorless	<b>Specific Gravity:</b> 1.11-1.13
<b>Odor Threshold:</b> No data available	<b>Solubility:</b> Insoluble
<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> Not applicable	<b>Decomposition Temperature:</b> No data available
<b>Flash Point:</b> 338°F (170°C)	<b>Viscosity:</b> ca 2500 mPa.s @ 23°C
<b>Evaporation Rate:</b> No data available	<b>Explosive Properties:</b> Not explosive
<b>Flammable Limits:</b> LEL: Not available UEL: Not available	<b>Oxidizing Properties:</b> Not an oxidizer
<b>Vapor Pressure:</b> 4.7 x 10 <sup>-7</sup> mmHg @ 20°C	<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: 0.0 lbs/gal / 0.0 g/L (calculated on non-exempt (US EPA) solvent basis), % Volatile weight: 0.0%, Volatile volume: 0.0%

## SECTION 10: STABILITY AND REACTIVITY

**10.1 Reactivity:** Contact with moisture or temperatures above 350°F (177°C) may cause polymerization.

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

**10.3 Possibility of Hazardous Reactions:** None known.

**10.4 Conditions to Avoid:** Keep away from heat, sparks, flames and freezing.

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**10.5 Incompatible Materials:** Water, amines, strong bases, alcohols, copper alloys.

**10.6 Hazardous Decomposition Products:** Combustion will produce carbon and nitrogen, hydrogen cyanide, isocyanate, isocyanic acid, and smoke.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on Toxicological Effects:

**Potential Health Effects:**

**Eye:** May cause mild to moderate irritation. Permanent eye injury is unlikely.

**Skin:** May cause mild to moderate skin irritation. May cause allergic skin reaction (sensitization).

**Inhalation:** Inhalation of vapors, mists or aerosols may cause respiratory irritation. Symptoms of central nervous system depression include headache, dizziness, and drowsiness. May cause allergic respiratory reaction (asthma).

**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:**

Homopolymer of Hexamethylene Diisocyanate: Oral rat LD50->2500 mg/kg; Inhalation rat LC50-543 mg/m<sup>3</sup>/4 hr; Dermal rat LD50->2000 mg/kg

Hexamethylene-1,6-Diisocyanate: Oral rat LD50-959 mg/kg; Inhalation rat LC50-0.124 mg/L/4 hr; Dermal rat LD50->7000 mg/kg  
Calculated ATE: Inhalation vapor LC50-12.4 mg/L/4hr

**Skin corrosion/irritation:** No data available for the mixture. This product is not classified as a skin irritant.

**Eye damage/irritation:** No data available for the mixture. This product is not classified as an eye irritant.

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

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

**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.

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

**12.3 Bioaccumulative Potential:** No data available

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

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**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**

	<b>14.1 UN Number</b>	<b>14.2 UN Proper Shipping Name</b>	<b>14.3 Hazard Class(s)</b>	<b>14.4 Packing Group</b>	<b>14.5 Environmental Hazards</b>
<b>US DOT</b>	None	Not Regulated	None	None	No
<b>Canadian TDG</b>	None	Not Regulated	None	None	No
<b>EU ADR/RID</b>	None	Not Regulated	None	None	No
<b>IMDG</b>	None	Not Regulated	None	None	No
<b>IATA/ICAO</b>	None	Not Regulated	None	None	No

\* **Hazardous Substance (49CFR172.101):**

**14.6 Special Precautions for User:** Hexamethylene-1,6-Diisocyanate (RQ 100 lbs)

**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 10,000 lbs (based on the RQ of Hexamethylene-1,6-Diisocyanate of 100 lbs present at <1%). 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

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

Hexamethylene-1,6-Diisocyanate	822-06-0	<1%
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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.

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**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 – 2	Flammability - 1	Physical Hazard - 0
<b>NFPA Ratings:</b> Health - 2	Flammability - 1	Instability - 0

**SDS Revision History:**  
1/29/15: New SDS

**GHS Classification for Reference (See Sections 2 and 3):**

- Acute Tox. Cat 4 Acute Toxicity Category 4
- Acute Tox. Cat 1 Acute Toxicity Category 1
- Eye Irrit. Cat 2A Eye Irritant Category 2A
- Resp. Sens. Cat 1 Respiratory Sensitization Category 1
- Skin Irrit. Cat 2 Skin Irritant Category 2
- Skin Sens. Cat 1 Skin Sensitization Category 1
- STOT SE Cat 3 Specific Target Organ Toxicity Single Exposure Category 3
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H330 Fatal if inhaled.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.

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

- Xi Irritant
- Xn Harmful
- R20 Harmful by inhalation.
- R23 Toxic by inhalation.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R37 Irritating to respiratory system.
- R42/43 May cause sensitization by inhalation and skin contact.
- R43 May cause sensitization by skin contact.

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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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