

**TESLA NANO COATINGS, 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 A

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.
Myllarintie 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:

Flammable Liquid Category 3 (H226)

EU Classification:

Flammable (F) R10

2.2 Label Elements:

Warning!



Contains: Tert-Butyl Acetate, Methyl Amy Ketone, N-Butyl Acetate, and 2,4-Pentanedione

Hazard Phrases

| | |
|------|------------------------------|
| H226 | Flammable liquid and vapour. |
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Precautionary Phrases

| | |
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| 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. |
| P280 | Wear protective gloves, eye protection and face protection. |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. |
| P370 + P378 | In case of fire: Use water fog or spray, universal foam, carbon dioxide or dry chemical to extinguish. |
| P403 + P235 | Store in a well-ventilated place. Keep cool. |
| P501 | Dispose of contents and container in accordance with local and national regulations. |

2.3 Other Hazards: EUH066 Repeated exposure may cause skin dryness or cracking.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture:

| Chemical Name | CAS# | EINECS# | EU Classification (67/548/EEC) | CLP Annex VI Classification | % |
|---|------------|-----------|--------------------------------|--|-------|
| Tert-Butyl Acetate | 540-88-5 | 208-760-7 | F R11, R66 | Flam. Liq. Cat 2 (H225) EUH066 | 10-20 |
| Titanium Dioxide* | 13463-67-7 | 236-675-5 | Not Classified | Carc. Cat 2 (H351) | 10-20 |
| Crystalline Silica* | 14808-60-7 | 238-878-4 | Not Classified | Carc. Cat 1 (H350) STOT RE 1 (H372) | 10-20 |
| Propylene Glycol Monomethyl Ether Acetate | 108-65-6 | 203-603-9 | R10 | Flam. Liq. Cat 3 (H226) | 1-10 |
| Methyl Amyl Ketone | 110-43-0 | 203-767-1 | Xn R10, R20/22 | Flam. Liq. Cat 3 (H226), Acute Tox. Cat 4 (H302, H332), STOT SE Cat 3 (H336) | 1-10 |
| N-Butyl Acetate | 123-86-4 | 204-658-1 | R10, R66, R67 | Flam. Liq. Cat 3 (H226), STOT SE Cat 3 (H336), EUH066 | 1-5 |
| 2,4-Pentanedione | 123-54-6 | 265-191-7 | Xn R10, R22 | Flam. Liq. Cat 3 (H226), Acute Tox. Cat 3 (H311, H331) Acute Tox. Cat 4 (H302) | 1-5 |

* The Titanium Dioxide and Crystalline Silica in this product are inextricably bound. No exposure is expected in normal use of this product.

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

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out. Get medical attention if irritation occurs and persists.

Skin: Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation occurs. Launder clothing before re-use.

Inhalation: Remove victim to fresh air. Give artificial respiration if needed. Get medical attention if you feel unwell.

Ingestion: If conscious, rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Get medical attention if symptoms 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 and drowsiness or dizziness. Refer to Section 11 for detailed information.

4.3 Indication of any immediate medical attention and special treatment needed: Immediate medical should not be required.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media: Use water fog or spray, universal foam, carbon dioxide or dry chemical.

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, 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. Contain water used in firefighting from entering sewers or natural waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures:

Evacuate spill area and keep unprotected personnel away. Remove all ignition sources such as open flames, spark producing equipment, pilot lights, etc. Use non-sparking tools and equipment. Wear appropriate protective clothing to prevent eye and skin contact including impervious gloves, safety goggles and respirator if needed. Ventilate area with explosion proof equipment.

6.2 Environmental Precautions:

Avoid releases to the environment. 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. 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: Avoid breathing 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. 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.

7.2 Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, dry, well-ventilated location away from oxidizing agents and other incompatible materials. Keep containers closed when not in use.

7.3 Specific end use(s): Industrial use only

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters:

| Chemical Name | Exposure Limits |
|---|---|
| Tert-Butyl Acetate | 200 ppm TWA ACGIH TLV 200 ppm TWA OSHA PEL 50 ppm TWA, 200 ppm STEL DFG MAK 200 ppm, 966 mg/m ³ TWA, 250 ppm, 1210 mg/m ³ STEL UK WEL |
| Titanium Dioxide* | 10 mg/m ³ TWA ACGIH TLV 15 mg/m ³ TWA OSHA PEL (Total dust) 10 mg/m ³ TWA UK WEL (Inhalable Aerosol), 4 mg/m ³ TWA UK WEL (Respirable Aerosol) |
| Crystalline Silica* | 0.025 mg/m ³ TWA ACGIH TLV (Respirable) <u>30 mg/m³</u> TWA, <u>10 mg/m³</u> STEL OSHA PEL % SiO ₂ + 2 %SiO ₂ + 2 |
| Propylene Glycol Monomethyl Ether Acetate | 50 ppm, 270 mg/m ³ TWA, 50 ppm, 270 mg/m ³ STEL DFG MAK 50 ppm TWA, 100 ppm STEL EU OEL 50 ppm, 274 mg/m ³ TWA, 100 ppm, 548 mg/m ³ STEL UK WEL |
| Methyl Amyl Ketone | 50 ppm TWA ACGIH TLV 100 ppm TWA OSHA PEL 50 ppm TWA, 100 ppm STEL EU OEL 50 ppm, 237 mg/m ³ TWA, 100 ppm, 475 mg/m ³ STEL UK WEL |
| N-Butyl Acetate | 150 ppm TWA, 200 ppm STEL ACGIH TLV 150 ppm TWA OSHA PEL 100 ppm TWA, 200 ppm STEL DFG MAK 150 ppm, 724 mg/m ³ TWA, 200 ppm, 966 mg/m ³ STEL UK WEL |
| 2,4-Pentanedione | 25 ppm TWA ACGIH TLV (Skin) 20 ppm TWA, 40 ppm STEL DFG MAK |

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 such as nitrile rubber are recommended to prevent skin contact. Contact your glove supplier for selection assistance.

Eye Protection: Chemical safety goggles 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:

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| Appearance: Gray liquid | Vapor Density: No data available |
| Odor: Mild odor | Specific Gravity: 1.268 |
| Odor Threshold: No data available | Solubility: No data available |
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|---|---|
| pH: Not available | Octanol/Water Partition Coefficient: No data available |
| Melting Point/Freezing Point: No data available | Autoignition Temperature: No data available |
| Boiling Point: Not available | Decomposition Temperature: No data available |
| Flash Point: 99°F (37.2°C) | Viscosity: No data available |
| Evaporation Rate: Not available | Explosive Properties: Not explosive |
| Flammable Limits: LEL: Not available UEL: Not available | Oxidizing Properties: Not an oxidizer |
| Vapor Pressure: No data available | Relative Density: No data available |
| Molecular Formula: Mixture | Flammability (solid, gas): Not applicable |
| Molecular Weight: Mixture | |

9.2 Other Information: VOC: 2.4 lbs/gal / 288 g/L (calculated on non-exempt (US EPA) solvent basis), % Volatile weight: 37.5%, %Volatile volume: 53.3%.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not reactive.

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

10.3 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

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

10.5 Incompatible Materials: Strong oxidizing and acids.

10.6 Hazardous Decomposition Products: Combustion will produce oxides of carbon and nitrogen, smoke and hydrocarbons.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects:

Potential Health Effects:

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

Skin: Product may cause mild to moderate irritation, defatting and dermatitis.

Inhalation: Inhalation of vapors or mists may cause mucous membrane and respiratory tract irritation, dizziness, weakness, fatigue nausea and headache.

Ingestion: May cause nausea and vomiting.

Chronic Hazards: None known.

Acute Toxicity Values:

Tert-Butyl Acetate: Oral rat LD50-4500 mg/kg; Inhalation rat LC50-12.52 mg/L/4hr; Skin rabbit LD50->2000 mg/kg

Propylene Glycol Monomethyl Ether Acetate: Oral rat LD50- 8532 mg/kg; Skin rabbit LD50- >5000 mg/kg

Methyl Amyl Ketone: Oral rat LD50-1600 mg/kg; Inhalation rat LC50->16.7 mg/L/4h4; Skin rabbit LD50-2000 mg/kg

N-Butyl Acetate: Oral rat LD50-12789 mg/kg; Inhalation rat LC50->21 mg/L/4hr; Skin rabbit LD50->16 mL/kg

2,4-Pentanedione: Oral rat LC50-760 mg/kg; Inhalation rat LC50-1224 ppm/4hr; Skin rabbit LD50-790 mg/kg

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.

Respiratory Sensitization: No data available.

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Skin Sensitization: No data available for the mixture. This product is not expected to cause skin sensitization.

Germ Cell Mutagenicity: No data available.

Carcinogenicity: Crystalline silica is classified as a Category 1 carcinogen (Carcinogenic to Humans) by IARC, as Known to be a Human Carcinogen by NTP, and as an A2 carcinogen (Suspected Human Carcinogen) by ACGIH. Titanium dioxide is classified as a Category 2B (Possibly Carcinogenic to Humans) by IARC. The crystalline silica and titanium dioxide are inextricably bound in the product and no exposure is anticipated in normal use or foreseeable emergencies. None of the other 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:

Product is classified as harmful to the environment with long lasting effects. Prevent releases to the environment. The following information is for the components:

Tert-Butyl Acetate: 96 hr LC50 Rainbow trout- 240 mg/L; 48 hr EC50 Daphnia magna- 350 mg/L; 72 hr EC50 Green algae – 16 mg/L, 96 hr EC50 Green algae – 64 mg/L (NOEC- 2.3 mg/L)

Propylene glycol monomethyl ether acetate: 96 hr LC50 Fathead minnow- 161 mg/L (Static); 48 hr LC50 Daphnia magna- >500 mg/L

Methyl Amyl Ketone: 96 hr LC50 Fathead minnow- 131 mg/L; 48 hr EC50 Daphnia magna- >90.1 mg/L

N-Butyl Acetate: 96 hr LC50 Fathead minnow- 18 mg/L; 48 hr EC50 Daphnia magna- 44 mg/L

2,4-Pentanedione: 96 hr LC50 Fathead minnow- 104 mg/L; 48 hr EC50 Daphnia magna-25.9 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 |
|---------------------|----------------|------------------------------|----------------------|--------------------|----------------------------|
| US DOT | UN1263 | Paint* | 3 | PG III | No |
| Canadian TDG | UN1263 | Paint | 3 | PG III | No |
| EU ADR/RID | UN1263 | Paint | 3 | PG III | No |
| IMDG | UN1263 | Paint | 3 | PG III | No |

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|-----------|--------|-------|---|--------|----|
| IATA/ICAO | UN1263 | Paint | 3 | PG III | No |
|-----------|--------|-------|---|--------|----|

* **Hazardous Substance (49CFR172.101):** Tert-Butyl Acetate (RQ 5,000 lbs) (25,000 lbs. product)

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

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| 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 25,000 lbs (based on the RQ of Tert-Butyl Acetate of 5,000 lbs present at 10-20%). 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: Fire Hazard

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements:
None

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.

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

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| SECTION 16: OTHER INFORMATION |
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HMIS Ratings: Health - 1 Flammability - 2 Physical Hazard - 0
NFPA Ratings: Health - 1 Flammability - 3 Instability - 0

SDS Revision History:
1/30/15: New SDS

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

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Carc. Cat 1 Carcinogen Category 1
 Carc. Cat 2 Carcinogen Category 2
 Flam. Liq. Cat 2 Flammable Liquid Category 2
 Flam. Liq. Cat 3 Flammable Liquid Category 3
 STOT RE Cat 1 Specific Target Organ Toxicity Repeat Exposure Category 1
 STOT SE Cat 3 Specific Target Organ Toxicity Single Exposure Category 3
 H225 Highly flammable liquid and vapor.
 H226 Flammable liquid and vapor.
 H302 Harmful if swallowed.
 H311 Toxic in contact with skin.
 H312 Harmful in contact with skin.
 H331 Toxic if inhaled.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H350 May cause cancer.
 H351 Suspected of causing cancer.
 H372 Causes damage to organs through prolonged or repeated exposure.
 EUH066 Repeated exposure may cause skin dryness or cracking.

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

F Highly flammable
 Xn Harmful
 R10 Flammable
 R11 Highly flammable
 R20 Harmful by inhalation.
 R20/22 Harmful by inhalation and if swallowed.
 R66 Repeated exposure may cause skin dryness or cracking.
 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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