

Trade name: PA 2200

Product no.: 9012-0014 / 200000061 / 9012-0015

Current version: 2.0.1, issued: 09.04.2026

Replaced version: 2.0.0, issued: 28.02.2025

Region: USA

SECTION 1: Identification

1.1 Product identifier

Trade name

PA 2200

1.2 Recommended use of the chemical and restrictions on use

Recommended use of the chemical and restrictions on use

Laser sintering

Restrictions on use

No data available.

1.3 Details of the supplier of the safety data sheet

Address

EOS of North America Inc.
28970 Cabot Drive, Ste. 700
Novi, MI 48377

Telephone no. +1 (248) 3060143

Fax no. +1 (248) 3060298

Identification of the manufacturer

Address

EOS GmbH Electro Optical Systems
Robert-Stirling-Ring 1
82152 Krailling / München
Advice on Safety Data Sheet

Telephone no. +49 (0) 89 / 8 93 36 - 0

Fax no. +49 (0) 89 / 8 93 36 - 2 85

e-mail MSDSInfo@eos.info

1.4 Emergency phone number

CHEMTREC US: (800) 424-9300

CHEMTREC: +1 703 527-3887 (24h) Transport

SECTION 2: Hazard(s) identification

2.1 Classification of the chemical

Classification of the chemical in accordance with paragraph (d) of 29 CFR § 1910.1200 "Hazard Communication"

Combustible Dust

Classification information

Classification and labelling with respect to carcinogenicity are based on toxicological studies performed on the product (mixture).

2.2 Label elements

Signal word

Warning

Hazard Statement(s)

May form combustible dust concentrations in air.

2.3 Labelling information

No data available

2.4 Hazards not otherwise classified (HNOC)

No data available

SECTION 3: Composition / information on ingredients

3.1 Substances

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Not applicable. The product is not a substance.

3.2 Mixtures

Hazardous ingredients

| No | Substance name | Concentration | % |
|----|------------------|---------------|--------|
| | CAS no. | | |
| 1 | titanium dioxide | | |
| | 13463-67-7 | < 0.50 | %-b.w. |

3.3 Other information

The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of 29 CFR 1910.1200

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General information

Remove contaminated clothing and shoes and launder thoroughly before reusing. In case of persisting adverse effects, consult a physician.

After inhalation

Remove affected person from the immediate area. Ensure supply of fresh air.

After skin contact

When in contact with the skin, clean with soap and water. After contact with molten product cool quickly with cold water. Do not pull solidified product from skin. Take for medical treatment.

After eye contact

Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes).

After ingestion

Rinse mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Foam; Carbon dioxide; Extinguishing powder; Water spray jet

Unsuitable extinguishing media

Full water jet

5.2 Specific hazards arising from the chemical

In the event of fire, the following can be released: Carbon oxides (COx); Nitrogen oxides (NOx); Combustion products of this material have to be classed invariably as respiratory poison.

5.3 Special protective equipment and precautions for fire-fighters

Use self-contained breathing apparatus. Wear protective clothing. As in any fire, wear self-contained breathing apparatus (MSHA/ NIOSH approved or equivalent) and full protective gear.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Refer to protective measures listed in sections 7 and 8. Ensure adequate ventilation. Avoid dust formation. Keep away from ignition sources.

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For emergency responders

Personal protective equipment (PPE) - see Section 8.

6.2 Methods and materials for containment and cleaning up

Take up mechanically. When collected, handle material as described under the section heading "Disposal considerations".

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling

No special measures necessary if stored and handled as prescribed. Avoid the formation and deposition of dust. Provide good ventilation of working area (local exhaust ventilation if necessary).

General protective and hygiene measures

Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Wash hands before breaks and after work. Do not inhale dust. Use barrier skin cream. Areas of the skin soiled with dust are to be cleaned with soap and water without delay, as the powder draws the natural moisture from the skin.

Advice on protection against fire and explosion

Dust can form an explosive mixture with air. Take precautionary measures against static charges. Keep away from sources of heat and ignition.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep container tightly closed and dry in a cool, well-ventilated place.

Requirements for storage rooms and vessels

Containers which are opened must be carefully resealed and kept upright to prevent leakage. Always keep in containers of same material as the original.

Incompatible products

Substances to be avoided: see chapter 10.

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Occupational exposure limit(s)

| No | Substance name | CAS no. | |
|--------------------------------------|--|-------------------|-------------------|
| 1 | Dust | | |
| | OSHA Permissible Exposure Limits (PELS) | | |
| | Particulates not otherwise regulated (PNOR) Total dust | | |
| | TWA | 15 | mg/m ³ |
| | OSHA Permissible Exposure Limits (PELS) | | |
| 2 | titanium dioxide | | |
| | OSHA Permissible Exposure Limits (PELS) | | |
| | Titanium dioxide Total dust | | |
| | TWA | 15 | mg/m ³ |
| | ACGIH Threshold Limit Values | | |
| Titanium dioxide Nanoscale particles | | | |
| TWA | 0,2 (R) | mg/m ³ | |
| Remarks | A3 | | |
| ACGIH Threshold Limit Values | | | |
| Titanium dioxide Finescale particles | | | |
| TWA | 2,5 (R) | mg/m ³ | |
| Remarks | A3 | | |

8.2 Exposure controls

Appropriate engineering controls

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Provide good ventilation of working area (local exhaust ventilation if necessary).

Individual protection measures, such as personal protective equipment

Respiratory protection

If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of dust formation, take appropriate measures for breathing protection in the event that workplace threshold values are not specified. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Eye / face protection

Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent).

Hand protection

Unless otherwise indicated in the chemical risk assessment, following recommendations are made: In case of intensive contact, wear protective gloves). Before use, the protective glove should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves. In case of thermal processing, thermally insulating protective gloves are to be used.

Other protection measures

Wear fully closed, flame retardant clothing. Chemical-resistant work clothes.

SECTION 9: Physical and chemical properties

| | |
|--|---|
| Form/Color | |
| Powder | |
| white | |
| Odor | |
| odorless | |
| Odor threshold | |
| No data available | |
| pH value | |
| Not applicable | |
| Boiling point / boiling range | |
| Not applicable | |
| Melting point / melting range | |
| Value | 185 °C |
| Method | EN ISO 11357-1 |
| Decomposition point / decomposition range | |
| Value | > 300 °C |
| Flash point | |
| Not applicable | |
| Ignition temperature | |
| Value | 450 °C |
| Method | DIN 51794 |
| Remarks | Minimum ignition energy with inductance: 100 - 300 mJ |
| Auto-ignition temperature | |
| No data available | |
| Oxidising properties | |
| No data available | |
| Explosive properties | |
| Product is explosive. | |
| Flammability | |
| No data available | |

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| | |
|---|-----------------------------|
| Lower flammability or explosive limits | |
| Value | 30 g/m ³ |
| Upper flammability or explosive limits | |
| No data available | |
| Vapor pressure | |
| Not applicable | |
| Vapor density | |
| No data available | |
| Evaporation rate | |
| No data available | |
| Relative density | |
| No data available | |
| Density | |
| Value | 1.0 - 1.1 g/cm ³ |
| Reference temperature | 20 °C |
| Solubility in water | |
| Remarks | insoluble |
| Solubility(ies) | |
| No data available | |
| Partition coefficient: n-octanol/water | |
| No data available | |
| Viscosity | |
| No data available | |
| Other information | |
| Other information | |
| No data available. | |

SECTION 10: Stability and reactivity

10.1 Reactivity

Dangerous reactions are not expected if the product is handled according to its intended use.

10.2 Chemical stability

Stable under recommended storage and handling conditions(See section 7).

10.3 Possibility of hazardous reactions

Dangerous reactions are not to be expected when handling product according to its intended use.

10.4 Conditions to avoid

None, if handled according to intended use.

10.5 Incompatible materials

None, if handled according to order.

10.6 Hazardous decomposition products

None if stored, handled and transported properly. In case of fire: see section 5 .

SECTION 11: Toxicological information

Information on toxicological effects

| |
|------------------------------|
| Acute oral toxicity |
| No data available |
| Acute dermal toxicity |
| No data available |

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Acute inhalational toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Reproduction toxicity
No data available

Carcinogenicity
No data available

NTP Report on Carcinogens (RoC)
According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) listed "known" (to be a human carcinogen) or "RAHC" (reasonably anticipated to be a human carcinogen).

OSHA Standards listing cancer as a health effect (Table VII.6.2)
According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) listed as carcinogenic.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
The product contains following substance(s) classified by the IARC Monographs

| No | Substance name | CAS no. | Group |
|----|------------------|------------|-------|
| 1 | titanium dioxide | 13463-67-7 | 2B |

STOT - single exposure
No data available

STOT - repeated exposure
No data available

Aspiration hazard
No data available

Symptoms related to the physical, chemical and toxicological characteristics
Eye contact may cause mechanical irritation through dust particles.

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Inhalation of dusts may irritate the respiratory tract.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)
No data available

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)
No data available

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)

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No data available

Toxicity to algae (chronic)

No data available

Bacteria toxicity

No data available

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 Other adverse effects

No data available.

12.6 Other information

Other information

Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations

13.1 Disposal considerations

Product

Dispose in accordance with federal, state and local regulations.

Packaging

Residuals must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in accordance with federal, state and local regulations.

SECTION 14: Transport information

14.1 US DOT (Department of Transportation)

The product is not subject to DOT regulations.

14.2 Transport IMDG

The product is not subject to IMDG regulations.

14.3 Transport ICAO-TI / IATA

The product is not subject to ICAO-TI / IATA regulations.

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, pls. see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15: Regulatory information

15.1 US Federal Regulations

Toxic Substances Control Act (TSCA)

According to the data available and/or specifications supplied by upstream suppliers, all components of this product are on the TSCA Inventory listed as active or are exempted from notification requirements.

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CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) that are considered being subject to Table 302.4 "List of Hazardous Substances and Reportable Quantities".

Clean Air Act (CAA): Hazardous Air Pollutants (HAPS)

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) that are considered being "Hazardous Air Pollutants".

Clean Water Act (CWA) Section 307 (Toxic Pollutants) and Section 311 (Hazardous Substances)

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) that are considered to be "Hazardous Substances".

EPCRA SARA Section 313, Toxic Chemical Release Inventory

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) that are considered being subject to "SARA Reporting".

Emergency Planning & Community Right-to-Know Act (EPCRA) - Sections 302 and 304

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) that are considered being subject to reporting requirements.

Clean Air Act (CAA) - Section 602 Ozone depleting substances

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substance(s) listed as ozone depleting substance.

15.2 US State Regulations

Pennsylvania State Right to Know Hazardous Substance List

The product contains following substance(s) that are considered to be "Hazardous Substances".

| No | Substance name | CAS no. |
|----|------------------|------------|
| 1 | titanium dioxide | 13463-67-7 |

New Jersey State Right to Know Hazardous Substance List

The product contains following substance(s) that are considered to be "Hazardous Substances".

| No | Substance name | CAS no. |
|----|------------------|------------|
| 1 | titanium dioxide | 13463-67-7 |

Massachusetts State Right to Know Hazardous Substance List

The product contains following substance(s) that are considered to be "Hazardous Substances".

| No | Substance name | CAS no. |
|----|------------------|------------|
| 1 | titanium dioxide | 13463-67-7 |

California Code of Regulations Title 8 §339, Hazardous Substances List

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any relevant substance(s) in concentrations $\geq 0,01\%$.

Proposition 65 (Safe Drinking Water and Toxic Enforcement Act)

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any relevant substance(s) in concentrations $\geq 0,1\%$.

SECTION 16: Other information, including date of preparation or last revision

16.1 Other information

Abbreviations:

- ACGIH American Conference of Governmental Industrial Hygienists
- CAS Chemical Abstracts Service
- HAPS Hazardous Air Pollutants
- HMIS Hazardous Material Identification System
- IARC International Agency for Research on Cancer
- IDLH Immediate Dangerous to Life and Health
- LEL Lower Explosion Limit
- NTP National Toxicology Program
- OEL Occupational Exposure Limit
- OSHA Occupational Safety and Health Administration
- PEL Permissible Exposure Limit
- PPE Personal Protection Equipment

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SARA Superfund Amendments and Reauthorization Act
STEL Short-Term Exposure Level (15 minutes)
TWA Time-Weighted Average (8 hours)
UEL Upper Explosion Limit
WEEL Workplace Environmental Exposure Level

16.2 Date of preparation/revision of the SDS

| | | |
|------------------|-------|------------|
| Current version | 2.0.1 | 09.04.2026 |
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16.3 Department issuing safety data sheet

UMCO GmbH
Georg-Wilhelm-Str. 187, D-21107 Hamburg, Germany
Tel.: +49 40 / 555 546 300 Fax: +49 40 / 555 546 357 e-mail: umco@umco.de

16.4 Conclusions

This information is based on our present knowledge and experience.
The safety data sheet describes products with a view to safety requirements.
It does not, however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

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Prod-ID 773115

16.5 Key / Legend

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ACGIH - American Conference of Governmental Industrial Hygienists
ATE – Acute Toxicity Estimate
BOD - Biochemical Oxygen Demand
CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*;
CAS - Chemical Abstracts Service
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations (US)
CLP - Classification, Labelling, and Packaging
DOT - Department of Transportation Commission
ECHA – European Chemicals Agency
EC / EL – Effective Concentration / Effective Loading
EPA - Environmental Protection Agency
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IBC – Intermediate Bulk Container
ICAO - International Civil Aviation Organization
IDL - Ingredient Disclosure List
IDLH - Immediately Dangerous to Life and Health
IMDG - International Maritime Dangerous Goods
IUCLID - International Uniform Chemical Information Database
Kow - Octanol/water partition coefficient
LD/LC - Lethal Dose/ Lethal Concentration
MARPOL – Marine Pollution
MEL - Maximum Exposure Limits
NFPA - National Fire Protection Agency
NIOSH - National Institute for Occupational Safety and Health
NJTSR - New Jersey Trade Secret Registry
NOEL/NOEC – No Observed Effect Level / No Observed Effect Concentration
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reauthorization Act
STEL - Short-term Exposure Limit
STOT – Specific Target Organ Toxicity
TDG - Transportation of Dangerous Goods
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
UN/NA - United Nations /North American
US - United States
VLE - Exposure Limit Value (Mexico)
VOC – Volatile Organic Compounds