SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name
PA 2200

Substance name
Polyaurolactam (polyamide 12) (CAS-No. 25038-74-8), modified, polymer

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

Relevant identified uses of the substance or mixture
Laser sintering

Uses advised against
No data available.

1.3 Details of the supplier of the safety data sheet

Address
EOS GmbH - Electro Optical Systems
Robert-Stirling-Ring 1
82152 Krailling / München
GERMANY

Telephone no.
+49 (0) 89 / 8 93 36 - 0
Fax no.
+49 (0) 89 / 8 93 36 - 22 85

Information provided by / telephone
+49 (0) 89 / 893 36 - 0

Advice on Safety Data Sheet
MSDSInfo@eos.info

1.4 Emergency telephone number

+49 (0) 89 / 893 36 - 0 (8 am - 5 pm)
+49 (0) 89 / 893 36 - 151 (Mo - Thu: 9 am - 12 pm & 1 - 6 pm; Fr: 1 - 4 pm) (CET)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification information
This product does not meet the classification and labelling criteria given in the Regulation (EC) No 1272/2008 (CLP).

2.2 Label elements

Not relevant

Labelling information
The product does not require a hazard warning label in accordance with EC Directives.

2.3 Other hazards

No data available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical characterization
Substance name
Polyaurolactam (polyamide 12) (CAS-No. 25038-74-8), modified, polymer

3.2 Mixtures

Not applicable. The product is not a mixture.
SECTION 4: First aid measures

4.1 Description of first aid measures
   
   General information
   In case of persisting adverse effects, consult a physician. Change contaminated clothing.

   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. Seek medical attention.

   After eye contact
   Separate eyelids, wash the eyes thoroughly with water (15 min.).

   After ingestion
   Seek medical advice immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

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: Firefighting measures

5.1 Extinguishing media
   
   Suitable extinguishing media
   Foam; Carbon dioxide; Extinguishing powder; Water spray jet

   Unsuitable extinguishing media
   No data available.

5.2 Special hazards arising from the substance or mixture
   In the event of fire, the following can be released: Carbon dioxide (CO2); Carbon monoxide (CO); Nitrogen oxides (NOx); Combustion products of this material have to be classed invariably as respiratory poison.

5.3 Advice for firefighters
   Use self-contained breathing apparatus. Wear protective clothing.

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 sources of ignition.

   For emergency responders
   No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions
   Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up
   Take up mechanically. When picked up, treat material as prescribed under heading "Disposal considerations".

6.4 Reference to other sections
   No data available.
SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
No special measures necessary if stored and handled as prescribed. Avoid the formation and deposition of dust. Provide good ventilation at the work 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. Provide eye wash fountain in work area. 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 containers dry, tightly closed, at temperatures between 5 and 35°C and relative air moisture of 20 – 70%.

Requirements for storage rooms and vessels
Store product in closed containers.

Advice on storage assembly
None known

7.3 Specific end use(s)
No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

<table>
<thead>
<tr>
<th>No</th>
<th>Substance name</th>
<th>CAS no.</th>
<th>EC no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DUST</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>List of approved workplace exposure limits (WELs) / EH40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>total inhalable dust</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10</td>
<td>mg/m³</td>
</tr>
<tr>
<td></td>
<td>List of approved workplace exposure limits (WELs) / EH40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>respirable dust</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>4</td>
<td>mg/m³</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
No data available.

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 workplace threshold values are not specified. Respirator with particulate filter (filter cat. P 3)

Eye / face protection
Safety glasses (EN 166)
Hand protection
In case of intensive contact, wear protective gloves (EN 374). Before use, the protective gloves 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. If this powder is handled at room temperature, it is not necessary to wear protective gloves.
In case of thermal processing, thermally insulating protective gloves are to be used.

Other
Wear fully closed, flame retardant clothing. Closed ESD safety footwear (ESD according to EN 61340-4-3 or equivalent).

Environmental exposure controls
No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form/Colour</td>
<td>Powder</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH value</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point / melting range</td>
<td>Value: 185 °C Method: EN ISO 11357-1</td>
</tr>
<tr>
<td>Decomposition point / decomposition range</td>
<td>Value: &gt; 300 °C</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>Value: &gt; 450 °C Method: DIN 51794 Remarks: Minimum ignition energy with inductance: 100 - 300 mJ</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Product is explosive.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower flammability or explosive limits</td>
<td>Value: 30 g/m³</td>
</tr>
</tbody>
</table>
**Upper flammability or explosive limits**
No data available

**Vapour pressure**
Not applicable

**Vapour density**
No data available

**Evaporation rate**
No data available

**Relative density**
No data available

**Density**
<table>
<thead>
<tr>
<th>Value</th>
<th>Reference temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 - 1.1 g/cm³</td>
<td>20 °C</td>
</tr>
</tbody>
</table>

**Solubility in water**
Remarks insoluble

**Solubility(ies)**
No data available

**Partition coefficient: n-octanol/water**
No data available

**Viscosity**
No data available

### 9.2 Other information

**Other information**
No data available.

### SECTION 10: Stability and reactivity

**10.1 Reactivity**
No data available.

**10.2 Chemical stability**
No data available.

**10.3 Possibility of hazardous reactions**
No data available.

**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**
No hazardous decomposition products known.

### SECTION 11: Toxicological information

**11.1 Information on toxicological effects**

**Acute oral toxicity**
Remarks No data available.

**Acute dermal toxicity**
Remarks No data available.
Acute inhalational toxicity
Remarks No data available.

Skin corrosion/irritation
Remarks No data available.

Serious eye damage/irritation
Remarks 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

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)
Remarks No data available.

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)
Remarks No data available.

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)
Remarks No data available.

Toxicity to algae (chronic)
No data available

Bacteria toxicity
No data available

12.2 Persistence and degradability

Physico-chemical eliminability
Remarks If used properly, this product does not cause problems, on the strength of previous experience.
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
No data available.

12.7 Other information
Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement
with the regional waste disposal company.
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 the form of disposal specified
by the regional disposer.

SECTION 14: Transport information

14.1 Transport ADR/RID/ADN
The product is not subject to ADR/RID/ADN 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, please 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 and the IBC Code
Not relevant
SECTION 15: Regulatory information

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

EU regulations

  In accordance with the Reach regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

- **REACH candidate list of substances of very high concern (SVHC) for authorisation**
  In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

  The substance is not subject to the provisions of annex XVII (restriction entries) of the Reach regulation (EC) 1907/2006.

- **Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances**
  This substance is not subject to Part I or 2 of Annex I

15.2 Chemical safety assessment

No data available.

SECTION 16: Other information

*Sources of key data used to compile the data sheet:*
- National Threshold Limit Values of the corresponding countries as amended in each case.
- Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
- The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

*Department issuing safety data sheet*
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This information is based on our present knowledge and experience.
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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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