SAFETY DATA SHEET

STANDART PCS 600 Aluminium Powder

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : STANDART PCS 600 Aluminium Powder
Product code : 022553D60

Manufacturer or supplier's details
Company name of supplier : ECKART GmbH
Address : Guentersthal 4
           Hartenstein  91235
Telephone : +499152770
Telefax : +499152777008

Emergency telephone number : CHEMTREC: 800-424-9300
                             CHEMTREC: 1-703-527-3387 (International)

                         GBK Gefahrgut Buero GmbH, Ingelheim, Germany:
                         From outside US: (001) 352-323-3500
                         (First call in English, response in your language is possible)
                         US & Canada (toll free):1-800-5355-053

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Flammable solids : Category 1

GHS label elements
Hazard pictograms : ▲

Signal word : Danger
Hazard statements : H228 Flammable solid.
Precautionary statements : Prevention:
                           P210  Keep away from heat, hot surfaces, sparks,
SECTION 2. HAZARDS IDENTIFICATION

P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P370 + P378 In case of fire: Use for extinction: Special powder for metal fires.
P370 + P378 In case of fire: Use for extinction: Dry sand.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>&gt;= 90 - &lt;= 100</td>
</tr>
<tr>
<td>Silica</td>
<td>7631-86-9</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: Move the victim to fresh air. Move out of dangerous area.

If inhaled: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact: Wash off immediately with soap and plenty of water. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Flush eyes with water as a precaution. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed : Keep respiratory tract clear.
   Do not give milk or alcoholic beverages.
   Never give anything by mouth to an unconscious person.
   If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed : None known.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Dry sand
   Special powder against metal fire

Unsuitable extinguishing media : ABC powder
   Carbon dioxide (CO2)
   Water
   Foam

Specific hazards during firefighting : Contact with water liberates extremely flammable gas (hydrogen).

Specific extinguishing methods : Standard procedure for chemical fires.
   Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
   Evacuate personnel to safe areas.
   Avoid dust formation.
   Remove all sources of ignition.

Environmental precautions : Prevent product from entering drains.
   Prevent further leakage or spillage if safe to do so.
   If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Use mechanical handling equipment.
   Do not use a vacuum cleaner.
Do not flush with water. 
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion

Use explosion-proof equipment. 
During processing, dust may form explosive mixture in air. 
Take measures to prevent the build up of electrostatic charge. 
When transferring from one container to another apply earthing measures and use conductive hose material.

Keep away from open flames, hot surfaces and sources of ignition.

Advice on safe handling

Avoid creating dust. 
Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. 
Store away from heat.

For personal protection see section 8. 
Smoking, eating and drinking should be prohibited in the application area. 
Dispose of rinse water in accordance with local and national regulations.

Hygiene measures

Wash hands before breaks and at the end of workday.

Conditions for safe storage

Earthing of containers and apparatuses is essential. 
Reaction with water liberates extremely flammable gas (hydrogen) 
Use explosion-proof equipment. 
Store in original container. 
Keep containers tightly closed in a cool, well-ventilated place. 
Keep away from sources of ignition - No smoking. 
Keep container closed when not in use.

No smoking. 
Keep container tightly closed in a dry and well-ventilated place. 
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid

Do not store together with oxidizing and self-igniting products. 
Never allow product to get in contact with water during storage.
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Version 1.0
Revision Date: 03/21/2018
SDS Number: 102000000283
Date of last issue: -
Date of first issue: 03/21/2018

Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

Further information on storage stability:
Keep in a dry place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>LMPE-PPT</td>
<td>10 mg/m3</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LMPE-PPT (Dust)</td>
<td>10 mg/m3</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable fraction)</td>
<td>1 mg/m3</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable fraction)</td>
<td>1 mg/m3 (Aluminium)</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Silica</td>
<td>7631-86-9</td>
<td>LMPE-PPT (Respirable)</td>
<td>3 mg/m3</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LMPE-PPT (Inhalable)</td>
<td>10 mg/m3</td>
<td>MX OEL</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection:
Use suitable breathing protection if workplace concentration requires.
Breathing apparatus with filter.
P1 filter

Hand protection
Material: Leather
Glove length: Long sleeve gloves

Remarks:
Leather gloves The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.
The suitability for a specific workplace should be discussed
with the producers of the protective gloves.

Eye protection
- Face-shield
- Safety glasses

Skin and body protection
- Anti-static and fire resistant protective clothing. DIN EN 11612; EN 533; EN 1149-1. Anti-static safety shoes.
- Dust impervious protective suit
- Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Appearance</td>
<td>powder</td>
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<tr>
<td>Colour</td>
<td>silver</td>
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<tr>
<td>Odour</td>
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</tr>
<tr>
<td>Odour Threshold</td>
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<tr>
<td>pH</td>
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</tr>
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<td>Melting point/freezing point</td>
<td>660 °C</td>
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<tr>
<td>Boiling point/boiling range</td>
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<td>Flash point</td>
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</tr>
<tr>
<td>Evaporation rate</td>
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<tr>
<td>Flammability (solid, gas)</td>
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<tr>
<td>Upper explosion limit / Upper</td>
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<tr>
<td>flammability limit</td>
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<td>Vapour pressure</td>
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<td>Relative density</td>
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<tr>
<td>Density</td>
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<td>Solubility(ies)</td>
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<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Auto-ignition temperature</td>
<td>340 °C</td>
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<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

Reactivity                    : No decomposition if stored and applied as directed.
Chemical stability          : No decomposition if stored and applied as directed.
Possibility of hazardous reactions: Contact with acids and alkalis may release hydrogen. Stable under recommended storage conditions. Dust may form explosive mixture in air.

Conditions to avoid: Heat, flames and sparks.

Incompatible materials: Acids, Bases, Oxidizing agents, Water

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Not classified based on available information.

Components:
Silica:
Acute oral toxicity: LD50 (Rat): 5,000 mg/kg
                             (Mouse): 15,000 mg/kg
Acute inhalation toxicity: (Rat): 0.139 mg/l
                          Exposure time: 4 h
Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.

Serious eye damage/eye irritation
Not classified based on available information.

Respiratory or skin sensitisation
Skin sensitisation
Not classified based on available information.

Respiratory sensitisation
Not classified based on available information.

Germ cell mutagenicity
Not classified based on available information.
Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

STOT - single exposure
Not classified based on available information.

STOT - repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
Silica:
Toxicity to daphnia and other aquatic invertebrates: (Daphnia (water flea)): 7,600 mg/l
Toxicity to algae: (Chlorella pyrenoidosa (algae)): 440 mg/l

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
In accordance with local and national regulations.
Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum. In accordance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
UN/ID No.: UN 1309
Proper shipping name: Aluminium powder, coated
Class: 4.1
Packing group: II
Labels: Flammable Solid
Packing instruction (cargo aircraft): 448
Packing instruction (passenger aircraft): 445

IMDG-Code
UN number: UN 1309
Proper shipping name: ALUMINIUM POWDER, COATED
Class: 4.1
Packing group: II
Labels: 4.1
EmS Code: F-G, S-G
Marine pollutant: no
Remarks: IMDG Code segregation group 15 - Powdered metals

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

NOM-002-SCT
UN number: UN 1309
Proper shipping name: ALUMINIUM POWDER, COATED
Class: 4.1
Packing group: II
Labels: 4.1

Special precautions for user
Not applicable
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SECTION 15. REGULATORY INFORMATION

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

Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills.

The components of this product are reported in the following inventories:

- DSL: All components of this product are on the Canadian DSL
- TSCA: On TSCA Inventory

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

- ACGIH: USA. ACGIH Threshold Limit Values (TLV)
- MX OEL: Mexico. Occupational Exposure Limits
- ACGIH / TWA: 8-hour, time-weighted average
- MX OEL / LMPE-PPT: Time weighted average

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARCO - International Agency for Research on Cancer; IATA - International Air Transport Association; IC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data
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MX / EN