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

1.1 Product identifier
   Trade name : STAPA IL HYDROLAN 2192 55900/G Aluminium Paste
   Material number : 005326GD0

1.2 Relevant identified uses of the substance or mixture and uses advised against
   This information is not available.

1.3 Details of the supplier of the safety data sheet
   Company : ECKART GmbH
   Guentersthal 4
   91235 Hartenstein
   Telephone : +4991527770
   Telefax : +499152777008
   E-mail address of person responsible for the SDS
   : msds.eckart@altana.com

1.4 Emergency telephone number
   GBK Gefahrgut Büro 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

2.1 Classification of the substance or mixture
   Classification (REGULATION (EC) No 1272/2008)
   Flammable solids, Category 1 H228: Flammable solid.
   Eye irritation, Category 2 H319: Causes serious eye irritation.
   Specific target organ toxicity - single exposure, Category 3, Central nervous system H336: May cause drowsiness or dizziness.
   Classification (67/548/EEC, 1999/45/EC)
   Highly flammable R11: Highly flammable.
STAPA IL HYDROLAN 2192 55900/G
Aluminium Paste

Irritant
R36: Irritating to eyes.
R67: Vapours may cause drowsiness and dizziness.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms

Signal word: Danger
Hazard statements:
H228 Flammable solid.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements:
Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271 Use only outdoors or in a well-ventilated area.
Response:
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
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.

Hazardous components which must be listed on the label:
67-63-0 isopropanol

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
No information available.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

STAPA IL HYDROLAN 2192 55900/G
Aluminium Paste

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Registration number</th>
<th>Classification (67/548/EEC)</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>231-072-3</td>
<td>01-2119529243-45</td>
<td>F; R11</td>
<td>Flam. Sol. 1; H228</td>
<td>&gt;= 50 - &lt;= 100</td>
</tr>
<tr>
<td>isopropanol</td>
<td>67-63-0</td>
<td>200-661-7</td>
<td>01-2119457558-25</td>
<td>F; R11 Xi; R36 R67</td>
<td>Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 25 - &lt; 50</td>
</tr>
<tr>
<td>N-(3-(trimethoxysilyl)propyl)ethylendiamine</td>
<td>1760-24-3</td>
<td>217-164-6</td>
<td>01-2119970215-39</td>
<td>N; R51/53 Xn; R20 Xi; R41 Xi; R43</td>
<td>Acute Tox. 4; H332 Skin Sens. 1; H317 Eye Dam. 1; H318 Aquatic Chronic 2; H411</td>
<td>&gt;= 0,1 - &lt; 0,25</td>
</tr>
</tbody>
</table>

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.
For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move the victim to fresh air.
Do not leave the victim unattended.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : Consult a physician after significant exposure.
If unconscious place in recovery position and seek medical advice.

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 : Immediately flush eye(s) with plenty of water.
Immediately flush eye(s) with plenty of water.
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.

4.2 Most important symptoms and effects, both acute and delayed
Symptoms: No information available.
Risks: No information available.

4.3 Indication of any immediate medical attention and special treatment needed
Treatment: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media: Dry sand
Special powder against metal fire

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

5.2 Special hazards arising from the substance or mixture
This information is not available.

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

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

SECTION 6: Accidental release measures

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

6.2 Environmental precautions

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.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:
- Use mechanical handling equipment.
- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
- Do not flush with water.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling:
- Keep away from heat and sources of ignition.
- Avoid dust formation.
- Ensure adequate ventilation.
- Avoid formation of respirable particles.
- Do not breathe vapours/dust.
- Avoid exposure - obtain special instructions before use.
- Avoid contact with skin and eyes.
- For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the application area.
- Provide sufficient air exchange and/or exhaust in work rooms.
- Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion:
- Earthing of containers and apparatuses is essential. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment.
- Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures:
- When using do not eat or drink. When using do not smoke.
- Wash hands before breaks and at the end of workday.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

STAPA IL HYDROLAN 2192 55900/G
Aluminium Paste

Version 1.2
Revision Date: 13.04.2017
SDS Number: 102000000226
Print Date: 19.11.2018
Date of first issue: 23.01.2016

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Keep container closed when not in use. Keep away from sources of ignition - No smoking.

Further information on storage conditions:
Protect from humidity and water. Do not allow to dry.

Advice on common storage:
Do not store together with oxidizing and self-igniting products. Never allow product to get in contact with water during storage. Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

Storage class (TRGS 510):
4.1B, Flammable solid hazardous materials

Other data:
No decomposition if stored and applied as directed.

7.3 Specific end use(s)
This information is not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis (Version Date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>TWA (Dust)</td>
<td>3 mg/m³</td>
<td>RO OEL (2012-01-19)</td>
</tr>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>TWA (Fumes)</td>
<td>1 mg/m³</td>
<td>RO OEL (2012-01-19)</td>
</tr>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>STEL (Dust)</td>
<td>10 mg/m³</td>
<td>RO OEL (2012-01-19)</td>
</tr>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>STEL (Fumes)</td>
<td>3 mg/m³</td>
<td>RO OEL (2012-01-19)</td>
</tr>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>TWA (Dust, inhalable fraction)</td>
<td>10 mg/m³</td>
<td>RO OEL (2012-01-19)</td>
</tr>
<tr>
<td>isopropanol</td>
<td>67-63-0</td>
<td>TWA</td>
<td>81 ppm 200 mg/m³</td>
<td>RO OEL (2006-10-13)</td>
</tr>
<tr>
<td>isopropanol</td>
<td>67-63-0</td>
<td>STEL</td>
<td>203 ppm 500 mg/m³</td>
<td>RO OEL (2006-10-13)</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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Aluminium Paste

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Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Sampling time</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium powder (stabilised)</td>
<td>7429-90-5</td>
<td>Aluminium (Aluminium): 200 µg/l (Urine)</td>
<td>End of shift</td>
<td>RO BAT</td>
</tr>
<tr>
<td>isopropanol</td>
<td>67-63-0</td>
<td>Acetone: 50 mg/l (Urine)</td>
<td>End of shift</td>
<td>RO BAT</td>
</tr>
</tbody>
</table>

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium (7429-90-5)</td>
<td>Workers</td>
<td>Inhalation</td>
<td>long term – local effects</td>
<td>3,72 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Oral</td>
<td>long term – systemic effects</td>
<td>3,95 mg/kg</td>
</tr>
<tr>
<td>propan-2-ol (67-63-0)</td>
<td>Workers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>888 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>500 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>long term – systemic effects</td>
<td>26 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>319 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>89 mg/m3</td>
</tr>
<tr>
<td>N-(3-(trimethoxysilyl)propyl) ethylenediamine (1760-24-3)</td>
<td>Workers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>35,5 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>short term – systemic effects</td>
<td>5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Oral</td>
<td>long term – systemic effects</td>
<td>2,5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>8,7 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>2,5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>short term – systemic effects</td>
<td>17 mg/kg</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:
STAPA IL HYDROLAN 2192 55900/G
Aluminium Paste

8.2 Exposure controls

Personal protective equipment

Eye protection: Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Material: Solvent-resistant gloves (butyl-rubber)

Remarks: Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The exact break through time can be obtained from the protective glove producer and this has to be observed. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Recommended preventive skin protection Skin should be washed after contact. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection: Long sleeved clothing
Safety shoes
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection: Use suitable breathing protection if workplace concentration requires.

In the case of dust or aerosol formation use respirator with an approved filter.

Environmental exposure controls
Water: The product should not be allowed to enter drains, water courses or the soil.

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>Appearance</td>
<td>Pasty solid</td>
</tr>
<tr>
<td>Colour</td>
<td>silver</td>
</tr>
<tr>
<td>Odour</td>
<td>solvent-like</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>82 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>13 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-flammability</td>
<td>not auto-flammable</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1,3 - 2,0 g/cm³</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Flow time</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive Vapours may form explosive mixture with air.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>
### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

No decomposition if stored and applied as directed.

#### 10.2 Chemical stability

No decomposition if stored and applied as directed.

#### 10.3 Possibility of hazardous reactions

**Hazardous reactions:** Reacts with alkalis, acids, halogenes and oxidizing agents. Contact with acids and alkalis may release hydrogen. Mixture reacts slowly with water resulting in evolution of hydrogen. Vapours may form explosive mixture with air.

Stable under recommended storage conditions.

#### 10.4 Conditions to avoid

**Conditions to avoid:** Do not allow to dry. Heat, flames and sparks.

#### 10.5 Incompatible materials

**Materials to avoid:** Acids, Bases, Oxidizing agents, Highly halogenated compounds.

#### 10.6 Hazardous decomposition products

**Contact with water or humid air:** This information is not available.

**Thermal decomposition:** This information is not available.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

**Acute toxicity**

**Components:**

**7429-90-5:**

Acute inhalation toxicity: \( \text{LC50 (Rat)}: > 5 \text{ mg/l} \)
Exposure time: 4 h
Test atmosphere: dust/mist

67-63-0:
Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

1760-24-3:
Acute oral toxicity : LD50 (Rat): ca. 2.400 mg/kg
Acute inhalation toxicity : LC50: 1.49 - 2.44 mg/l
Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg

Skin corrosion/irritation

Product:
Remarks: May cause skin irritation in susceptible persons.

Serious eye damage/eye irritation

Product:
Remarks: Eye irritation

Respiratory or skin sensitisation

Product:
Result: Does not cause skin sensitisation.

Further information

Product:
Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 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 Results of PBT and vPvB assessment

Product:
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:
Additional ecological information : Remarks: No data available

SECTION 13: Disposal considerations

European Waste Catalogue : 12 01 04 - non-ferrous metal dust and particles

13.1 Waste treatment methods
Product : 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

14.1 UN number
ADR : UN 1325
IMDG : UN 1325
IATA : UN 1325

14.2 UN proper shipping name
ADR : FLAMMABLE SOLID, ORGANIC, N.O.S. (Aluminium pigment paste)
IMDG : FLAMMABLE SOLID, ORGANIC, N.O.S. (Aluminium pigment paste)
IATA : Flammable solid, organic, n.o.s.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

STAPA IL HYDROLAN 2192 55900/G
Aluminium Paste

Version 1.2 Revision Date: 13.04.2017 SDS Number: 102000000226 Print Date: 19.11.2018
Date of first issue: 23.01.2016

(Aluminium pigment paste)

14.3 Transport hazard class(es)

ADR : 4.1
IMDG : 4.1
IATA : 4.1

14.4 Packing group

ADR
Packing group : II
Classification Code : F1
Hazard Identification Number : 40
Labels : 4.1
Tunnel restriction code : (E)

IMDG
Packing group : II
Labels : 4.1
EmS Number : F-G,S-G

IATA
Packing instruction (cargo aircraft) : 448
Packing instruction (passenger aircraft) : 445
Packing instruction (LQ) : Y441
Packing group : II
Labels : Flammable Solid
Remarks : IMDG Code segregation group 15 - Powdered metals

14.5 Environmental hazards

ADR
Environmentally hazardous : no

IMDG
Marine pollutant : no

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 for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable
15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information

Full text of R-Phrases

R11: Highly flammable.
R20: Harmful by inhalation.
R36: Irritating to eyes.
R41: Risk of serious damage to eyes.
R43: May cause sensitisation by skin contact.
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67: Vapours may cause drowsiness and dizziness.

Full text of H-Statements

H225: Highly flammable liquid and vapour.
H228: Flammable solid.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H336: May cause drowsiness or dizziness.
H411: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.: Acute toxicity
Aquatic Chronic: Chronic aquatic toxicity
Eye Dam.: Serious eye damage
Eye Irrit.: Eye irritation
Flam. Liq.: Flammable liquids
Flam. Sol.: Flammable solids
Skin Sens.: Skin sensitisation
STOT SE: Specific target organ toxicity - single exposure
Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.