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

1.1 Product identifier
   Trade name: METALSTAR 07 0006 Silver
   Product code: 056274RC0

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: +499152770
   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)
   Not a dangerous substance according to GHS.

2.2 Label elements
   Labelling (REGULATION (EC) No 1272/2008)
   Not a dangerous substance or mixture according to the Globally Harmonised System (GHS).

   Additional Labelling
   EUH210 Safety data sheet available on request.
   EUH208 Contains Fatty acids, tall-oil, cobalt salts. May produce an allergic reaction.

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.
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>Index-No.</th>
<th>Registration number</th>
<th>Classification</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>013-002-00-1</td>
<td>01-2119529243-45</td>
<td>Flam. Sol. 1; H228</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Distillates (petroleum), solvent-refined middle; Gasoil - unspecified</td>
<td>64741-91-9</td>
<td>265-093-4</td>
<td>649-214-00-1</td>
<td>01-2119457735-29</td>
<td>Asp. Tox. 1; H304</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Fatty acids, tall-oil, cobalt salts</td>
<td>61789-52-4</td>
<td>263-065-6</td>
<td></td>
<td></td>
<td>Acute Tox. 4; H302</td>
<td>&gt;= 0,25 - &lt; 1</td>
</tr>
<tr>
<td>1-isopropyl-2,2-dimethyltrimethylene diisobutyrate</td>
<td>6846-50-0</td>
<td>229-934-9</td>
<td>01-2119451093-47</td>
<td></td>
<td>Repr. 2; H361d</td>
<td>&gt;= 0,25 - &lt; 1</td>
</tr>
</tbody>
</table>

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.

No hazards which require special first aid measures.

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.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
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
None known.

4.3 Indication of any immediate medical attention and special treatment needed
This information is not available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media:
- Dry sand
- ABC powder
- Foam

Unsuitable extinguishing media:
- High volume water jet

5.2 Special hazards arising from the substance or mixture

5.3 Advice for firefighters
Special protective equipment for firefighters:
- 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.

6.2 Environmental precautions

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).
- Wipe up with absorbent material (e.g. cloth, fleece).
- 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: For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion: Normal measures for preventive fire protection.

Hygiene measures: General industrial hygiene practice.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Earthing of containers and apparatuses is essential. Reaction with water liberates extremely flammable gas (hydrogen). Take measures to prevent the build up of electrostatic charge. 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.

Electrical installations / working materials must comply with the technological safety standards.

Further information on storage conditions: Protect from humidity and water.

Advice on common storage: Do not store near acids.

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.

Further information on storage stability: 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

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium powder</td>
<td>7429-90-5</td>
<td>TWA (alveolate dust)</td>
<td>3 mg/m³</td>
<td>CH SUVA</td>
</tr>
</tbody>
</table>
### TWA (inhalable dust)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Limit Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatty acids, tall-oil, cobalt salts</td>
<td>0.05 mg/m³ (Cobalt)</td>
<td>CH SUVA</td>
</tr>
</tbody>
</table>

### TWA (alveolate dust)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Limit Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metalstar 07 0006 Silver</td>
<td>3 mg/m³</td>
<td>CH SUVA</td>
</tr>
</tbody>
</table>

### Further information

National Institute for Occupational Safety and Health, See Annex 1.8.2: Inert dusts, general dust value. Inert dusts are dusts that, up to present knowledge, are not resorbed, nor lead to fibrogenic action in the lungs and that do not provoke disease symptoms. Because inert dusts can lead to mechanical irritation of the respiratory system, a limit value of 3 mg/m³ (alveolate dust), measured according to EN 481, and 10 mg/m³ for inhalable dust applies. The limit value for inert dust only applies if no addition occurs of harmful substances like asbest, quarsz etc. As inert dusts are known, e.g.: Aluminium oxide (Alundum and Corundum), Calcium carbonate (Chalk), Calcium sulphate (Gypsum), Magnesium carbonate (Magnesite), Silicium carbide (Carborundum), Starch, Titanium dioxide, Cellulose, Tin dioxide. The concentration of not inert dusts in the respiratory air, for which no limit value has been established yet, should never exceed the concentration of the inert dust.

### Fatty acids, tall-oil, cobalt salts

- Toxic by skin resorption possible; Substances, which are easily absorbed through the skin, can give by additional skin resorption a substantial higher risk compared to only inhalation by the airways.
- Sensitizers; Substances marked with an S can lead to very strong allergic reactions.
- Contains substances which are possibly mutagenic to humans.
- Carcinogenic Category 2, Substance which should be considered to be reprotoxic; the reprotoxicity affects the fertility and sexuality.

National Institute for Occupational Safety and Health, Health and Safety Executive (Occupational Medicine and Hygiene Laboratory), BG.
**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

**METALSTAR 07 0006 Silver**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Print Date</th>
<th>Date of first issue</th>
</tr>
</thead>
</table>

**Further information**

Toxic by skin resorption possible; Substances, which are easily absorbed through the skin, can give by additional skin resorption a substantial higher risk compared to only inhalation by the airways. Sensitizers; Substances marked with an S can lead to very strong allergic reactions. Contains substances which are possibly mutagenic to humans. Carcinogenic Category 2, Substance which should be considered to be reprotoxic; the reprotoxicity affects the fertility and sexuality. National Institute for Occupational Safety and Health, Health and Safety Executive (Occupational Medicine and Hygiene Laboratory), BG.

**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): 60 µg/g creatinine (Urine)</td>
<td>No time limit</td>
<td>CH BAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aluminium (Aluminium): 0.251 micromoles per millimole creatinine (Urine)</td>
<td>No time limit</td>
<td>CH 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 powder (stabilised)</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></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.72 mg/kg</td>
</tr>
<tr>
<td>1-isopropyl-2,2-dimethyltrimethylene diisobutyrat</td>
<td>Workers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>31.20 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>110 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>long term – systemic effects</td>
<td>18.8 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>18.8 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>32.60 mg/m³</td>
</tr>
</tbody>
</table>

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compart</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium powder (stabilised)</td>
<td>Fresh water</td>
<td>0.0749 mg/l</td>
</tr>
<tr>
<td></td>
<td>clarification plant</td>
<td>20 mg/l</td>
</tr>
<tr>
<td>1-isopropyl-2,2-dimethyltrimethylene diisobutyrat</td>
<td>Fresh water</td>
<td>0.014 mg/l</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

**Personal protective equipment**

**Eye protection**

<table>
<thead>
<tr>
<th>Material</th>
<th>Solvent-resistant gloves (butyl-rubber)</th>
</tr>
</thead>
</table>

**Hand protection**

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.

**Respiratory protection**

<table>
<thead>
<tr>
<th>Material</th>
<th>Use suitable breathing protection if workplace concentration requires.</th>
</tr>
</thead>
</table>

No personal respiratory protective equipment normally required.

**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

**Appearance**

- liquid

**Colour**

- silver

**Odour**

- characteristic

**Odour Threshold**

- No data available
### pH
- **Value:** No data available

### Freezing point
- **Value:** No data available

### Boiling point/boiling range
- **Value:** 240 °C

### Flash point
- **Value:** > 100 °C

### Evaporation rate
- **Value:** No data available

### Flammability (solid, gas)
- **Value:** No data available

### Self-ignition
- **Value:** No data available

### Auto-ignition temperature
- **Value:** No data available

### Smoldering temperature
- **Value:** No data available

### Decomposition temperature
- **Value:** No data available

### Explosive properties
- **Value:** No data available

### Oxidizing properties
- **Value:** No data available

### Upper explosion limit / Upper flammability limit
- **Value:** No data available

### Lower explosion limit / Lower flammability limit
- **Value:** No data available

### Vapour pressure
- **Value:** No data available

### Relative vapour density
- **Value:** No data available

### Relative density
- **Value:** No data available

### Density
- **Value:** No data available

### Bulk density
- **Value:** No data available

### Water solubility
- **Value:** No data available

### Solubility in other solvents
- **Value:** No data available

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

### Decomposition temperature
- **Value:** No data available

### Viscosity
- **Value:** No data available

### Viscosity, dynamic
- **Value:** No data available
Viscosity, kinematic: > 21 mm²/s (40 °C)
Flow time: No data available

9.2 Other information
No data available

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: Contact with acids and alkalis may release hydrogen.
Stable under recommended storage conditions.

10.4 Conditions to avoid
Conditions to avoid: Do not allow evaporation to dryness.
No data available

10.5 Incompatible materials
Materials to avoid: Acids
Bases
Oxidizing agents

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
Not classified based on available information.

Components:
aluminium powder (stabilised):
Acute inhalation toxicity: LC50 (Rat): > 5 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist

Distillates (petroleum), solvent-refined middle; Gasoil - unspecified:
Acute oral toxicity: LD50 (Rat): > 5.000 mg/kg
   Method: OECD Test Guideline 401

Acute dermal toxicity: LD50 (Rabbit): > 2.000 mg/kg
   Method: OECD Test Guideline 402

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Acute dermal toxicity: LD50 Dermal (Rabbit): > 2.000 mg/kg
   Method: OECD Test Guideline 402

Skin corrosion/irritation
Not classified based on available information.

Components:
1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Species: Rabbit
   Exposure time: 4 h
   Method: OECD Test Guideline 404
   Result: No skin irritation

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

Components:
1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Species: Rabbit
   Exposure time: 72 h
   Method: OECD Test Guideline 405
   Result: No eye irritation

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

Product:
Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Ecotoxicology Assessment
Short-term (acute) aquatic hazard : This product has no known ecotoxicological effects.

Long-term (chronic) aquatic hazard : This product has no known ecotoxicological effects.

Components:

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Toxicity to daphnia and other aquatic invertebrates : (Daphnia (water flea)): 2,46 mg/l

Ecotoxicology Assessment
Long-term (chronic) aquatic hazard : Harmful to aquatic life with long lasting effects.

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 : No data available

SECTION 13: Disposal considerations

European Waste Catalogue : 12 01 04 - non-ferrous metal dust and particles
European Waste Catalogue : 100321 - other particulates and dust (including ball-mill dust) containing dangerous substances

13.1 Waste treatment methods
Product : In accordance with local and national regulations.
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
In accordance with local and national regulations.

SECTION 14: Transport information

14.1 UN number
14.2 UN proper shipping name
14.3 Transport hazard class(es)
14.4 Packing group
14.5 Environmental hazards
14.6 Special precautions for user
Remarks : Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable for product as supplied.
SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

METALSTAR 07 0006 Silver

Version 2.1  Revision Date: 26.01.2019  SDS Number: 102000020104  Print Date: 04.02.2019

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).
Volatiles organic compounds: Law on the incentive tax for volatile organic compounds (VOCV)
Volatile organic compounds (VOC) content: 0.23 %
no VOC duties

15.2 Chemical safety assessment

SECTION 16: Other information

Full text of H-Statements
H228 : Flammable solid.
H302 : Harmful if swallowed.
H304 : May be fatal if swallowed and enters airways.
H317 : May cause an allergic skin reaction.
H361 : Suspected of damaging fertility or the unborn child.
H361d : Suspected of damaging the unborn child.
H411 : Toxic to aquatic life with long lasting effects.
H412 : Harmful to aquatic life with long lasting effects.

Full text of other abbreviations
Acute Tox. : Acute toxicity
Aquatic Chronic : Long-term (chronic) aquatic hazard
Asp. Tox. : Aspiration hazard
Flam. Sol. : Flammable solids
Repr. : Reproductive toxicity
Skin Sens. : Skin sensitisation
CH BAT : Switzerland. List of BAT-values
CH SUVA : Switzerland. Limit values at the work place
CH SUVA / TWA : Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal
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.

CH / EN