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
   Guenterssthal 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.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

METALSTAR 07 0006 Silver

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 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>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></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1; H317 Aquatic Chronic 2; H411</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Repr. 2; H361</td>
<td></td>
</tr>
<tr>
<td>1-isopropyl-2,2-dimethyltrimethylene diisobutylate</td>
<td>6846-50-0</td>
<td>229-934-9</td>
<td>01-2119451093-47</td>
<td></td>
<td>Repr. 2; H361d Aquatic Chronic 3; H412</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.
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>IPRD (Respirable)</td>
<td>10 mg/m3</td>
<td>LT OEL</td>
</tr>
<tr>
<td>(stabilised)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
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Further information

The organic part in the organic / inorganic dust mixture must be lower than 5 mg/m³. If a separate threshold limit value (TLV) is specified for the dust of certain substance, this value will apply.

<table>
<thead>
<tr>
<th>IPRD (Alveolar)</th>
<th>5 mg/m³</th>
<th>LT OEL</th>
</tr>
</thead>
</table>

Further information

Alveolar fraction is a part of dust which passes through the preseparator, the parameters of which correspond to the Johannesburg Convention parameters presented in the Table. Table. Johannesburg Convention parameters: Aerodynamic diameter of particles, μm: 1.6; Particles passing through the preseparator 95% Aerodynamic diameter of particles, μm: 3.5; Particles passing through the preseparator 75% Aerodynamic diameter of particles, μm: 5.0; Particles passing through the preseparator 50% Aerodynamic diameter of particles, μm: 7.1; Particles passing through the preseparator 0% Aerodynamic diameter is the diameter of a round particle, with a density of 1 g/cm³, and a falling speed that is the same as the analyzed particle independent of the real size, form, and density of the latter. Usually the diameter of a fume particle is smaller than 1 μm; this means that the greatest part of such particles, as can be seen from the Table, will pass through the mentioned preseparator. Thus, all fume particles are regarded as alveolar fraction, and it is not necessary to use the preseparator when working with the fume samples. Metal fumes are usually produced as a result of metal vapour condensation and perhaps oxidation. The organic part in the organic / inorganic dust mixture must be lower than 5 mg/m³. If a separate threshold limit value (TLV) is specified for the dust of certain substance, this value will apply.

Fatty acids, tall-oil, cobalt salts

| IPRD | 0.05 mg/m³ (Cobalt) | LT OEL |

Further information

sensitising effects, carcinogenic effects, mutagenic effects

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>Consumers</td>
<td>Oral</td>
<td>long term – systemic effects</td>
<td>3,95 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3,72 mg/m³</td>
<td></td>
</tr>
<tr>
<td>1-isopropyl-2,2-dimethyltrimethylene diisobutyrate</td>
<td>Workers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>31,20 mg/kg</td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>110 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>long term – systemic effects</td>
<td>18,8 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>18,8 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>32,60 mg/m³</td>
<td></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 Compartment</th>
<th>Value</th>
</tr>
</thead>
</table>
aluminium powder (stabilised) | Fresh water | 0.0749 mg/l |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>clarification plant</td>
<td>20 mg/l</td>
</tr>
<tr>
<td>1-isopropyl-2,2-</td>
<td>Fresh water</td>
<td>0.014 mg/l</td>
</tr>
<tr>
<td>dimethyltrimethylene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>diisobutyrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.0014 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>5.29 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>1.05 mg/kg</td>
</tr>
<tr>
<td></td>
<td>STP</td>
<td>3 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0.529 mg/kg</td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Personal protective equipment**

- **Eye protection**: Goggles
  - Safety glasses

- **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.

- **Respiratory protection**: Use suitable breathing protection if workplace concentration requires.
  - 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
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>silver</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</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>240 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 100 °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>Self-ignition</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Smoldering temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability 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>No data available</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>
</tbody>
</table>
Decomposition temperature : No data available
Viscosity
Viscosity, dynamic : 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

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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

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.

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).

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
LT OEL : Lithuania, Occupational Exposure Limits
LT OEL / IPRD : Long term exposure limit

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.

LT / EN