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>Concentration (%) w/w</th>
<th>Classification REGULATION (EC) No 1272/2008</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>&gt;= 10 - &lt; 20</td>
<td>Flam. Sol. 1; H228</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>&gt;= 10 - &lt; 20</td>
<td>Asp. Tox. 1; H304</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></td>
<td>Acute Tox. 4; H302 Skin Sens. 1; H317 Aquatic Chronic 2; H411 Repr. 2; H361</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>&gt;= 0.25 - &lt; 1</td>
<td>Repr. 2; H361d Aquatic Chronic 3; H412</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

<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 (stabilised)</td>
<td>7429-90-5</td>
<td>TWA (Inhalable)</td>
<td>10 mg/m³</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>
Further information

The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m\(^{-3}\) 8-hour TWA of inhalable dust or 4 mg.m\(^{-3}\) 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

<table>
<thead>
<tr>
<th></th>
<th>TWA (Respirable dust)</th>
<th></th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 mg/m3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Further information

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<tbody>
<tr>
<td></td>
<td>10 mg/m3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Further information

For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m\(^{-3}\) 8-hour TWA of inhalable dust or 4 mg.m\(^{-3}\) 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3. Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

<table>
<thead>
<tr>
<th></th>
<th>TWA (Respirable dust)</th>
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<table>
<thead>
<tr>
<th>Fatty acids, tall-oil, cobalt salts</th>
<th>TWA</th>
<th>0.1 mg/m³ (Cobalt)</th>
<th>GB EH40</th>
</tr>
</thead>
</table>

Further information

Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological, irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even to tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitisers will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-responsive. 54 Substances that can cause occupational asthma should be distinguished from substances which may trigger the symptoms of asthma in people with pre-existing airway hyper-responsiveness, but which do not include the disease themselves. The latter substances are not classified asthmagens or respiratory sensitisers.

Wherever it is reasonably practicable, exposure to substances that cause occupational asthma should be prevented. Where this is not possible, the primary aim is to apply adequate standards of control to prevent workers from becoming hyper-responsive. For substances that cause occupational asthma, COSHH requires that exposure be reduced as low as is reasonably practicable. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employees exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance. Capable of causing occupational asthma. Capable of causing cancer and/or heritable genetic damage. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used. Carcinogenic applies for cobalt dichloride and sulphate. The 'Sen' notation in the list of WELs has been assigned only to those substances which may cause occupational asthma.

### 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></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## aluminium powder (stabilised)

<table>
<thead>
<tr>
<th>Workers</th>
<th>Inhalation</th>
<th>long term – local effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers</td>
<td>Oral</td>
<td>long term – systemic effects</td>
<td>3.95 mg/kg</td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>long-term systemic effects</td>
<td>3.72 mg/m³</td>
</tr>
</tbody>
</table>

### 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate

<table>
<thead>
<tr>
<th>Workers</th>
<th>Skin contact</th>
<th>long term – systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>110 mg/m³</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>long term – systemic effects</td>
<td>18.8 mg/kg</td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>18.8 mg/kg</td>
</tr>
<tr>
<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 Compartment</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>clarification plant</td>
<td>20 mg/l</td>
<td></td>
</tr>
<tr>
<td>1-isopropyl-2,2-dimethyltrimethylene diisobutyrate</td>
<td>Fresh water</td>
<td>0.014 mg/l</td>
</tr>
<tr>
<td>Marine water</td>
<td>0.0014 mg/l</td>
<td></td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>5.29 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>1.05 mg/kg</td>
<td></td>
</tr>
<tr>
<td>STP</td>
<td>3 mg/l</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.529 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

## 8.2 Exposure controls

### Personal protective equipment

#### Eye protection

- Goggles

#### Hand protection

- Safety glasses

- 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
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
Colour: silver
Odour: characteristic
Odour Threshold: No data available
pH: No data available
Freezing point: No data available
Boiling point/boiling range: 240 °C
Flash point: > 100 °C
Evaporation rate: No data available
Flammability (solid, gas): No data available
Self-ignition: No data available
Auto-ignition temperature: No data available
Smoldering temperature: No data available
Decomposition temperature: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Upper explosion limit / Upper flammability limit: No data available
Lower explosion limit / Lower flammability limit: No data available

Vapour pressure: No data available

Relative vapour density: No data available

Relative density: No data available

Density: No data available

Bulk density: No data available

Water solubility: No data available

Solubility in other solvents: No data available

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

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

METALSTAR 07 0006 Silver

Version 4.1  Revision Date: 26.01.2019  SDS Number: 102000020104  Print Date: 04.02.2019  Date of first issue: 02.01.2014

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.

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

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
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)

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 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

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.

GB / EN