SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : METALURE A-41014 BG
Product code : 021745IA0

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

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

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

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Acute toxicity (Dermal) : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A

GHS label elements
Hazard pictograms:

Signal Word: Warning

Hazard Statements:
H226 Flammable liquid and vapor.
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary Statements:
Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water
SAFETY DATA SHEET

METALURE A-41014 BG

Version 1.0
Revision Date: 03/29/2018
SDS Number: 102000023174
Date of last issue: -
Date of first issue: 03/29/2018

for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313
If skin irritation occurs: Get medical advice/attention.
P362 + P364
Take off contaminated clothing and wash it before reuse.
P370 + P378
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 + P235
Store in a well-ventilated place. Keep cool.

Disposal:
P501
Dispose of contents/container to an approved waste disposal plant.

Hazardous ingredients which must be listed on the label:
Ethanol, 2-butoxy-
2-Propanone

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-butoxy-</td>
<td>111-76-2</td>
<td>&gt;= 70 -&lt; 90</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>&gt;= 10 -&lt; 20</td>
</tr>
<tr>
<td>2-Propanone</td>
<td>67-64-1</td>
<td>&gt;= 1 -&lt; 5</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

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

If inhaled:
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
In case of skin contact: Wash off immediately with soap and plenty of water.
If skin irritation persists, call a physician.
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.

Most important symptoms and effects, both acute and delayed: Harmful if swallowed, in contact with skin or if inhaled.
Causes skin irritation.
Causes serious eye irritation.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry sand
ABC powder
Foam

Unsuitable extinguishing media: High volume water jet

Specific hazards during fire fighting: Do not allow run-off from fire fighting to enter drains or water courses.

Specific extinguishing methods: Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES
Personal precautions, protective equipment and emergency procedures:
- Evacuate personnel to safe areas.
- Use personal protective equipment.
- Remove all sources of ignition.
- Evacuate personnel to safe areas.
- Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

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

Methods and materials for containment and cleaning up:
- Use mechanical handling equipment.
- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
- Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
- Do not flush with water.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion:
- Do not spray on a naked flame or any incandescent material.
- Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
- Keep away from open flames, hot surfaces and sources of ignition.

Advice on safe handling:
- Avoid formation of aerosol.
- Do not breathe vapors/dust.
- Avoid contact with skin and eyes.
- For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the application area.
- Take precautionary measures against static discharges.
- Provide sufficient air exchange and/or exhaust in work rooms.
- Open drum carefully as content may be under pressure.
- Dispose of rinse water in accordance with local and national regulations.

Hygiene measures:
- When using do not eat or drink.
- When using do not smoke.
Wash hands before breaks and at the end of workday.

**Conditions for safe storage**: Earthing of containers and apparatuses is essential. Reaction with water liberates extremely flammable gas (hydrogen)
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.

No smoking.
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Electrical installations / working materials must comply with the technological safety standards.

**Materials to avoid**: 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.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ingredients with workplace control parameters**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-butoxy-</td>
<td>111-76-2</td>
<td>VLE-PPT</td>
<td>20 ppm</td>
<td>NOM-010-STPS-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>20 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>LMPE-PPT</td>
<td>10 mg/m3</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LMPE-PPT (Dust)</td>
<td>10 mg/m3</td>
<td>MX OEL</td>
</tr>
</tbody>
</table>
**SAFETY DATA SHEET**

**METALURE A-41014 BG**

| Version | Revision Date: 03/29/2018 | SDS Number: 10200023174 | Date of last issue: - | Date of first issue: 03/29/2018 |

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-butoxy-</td>
<td>111-76-2</td>
<td>Butoxyacetic acid (BAA)</td>
<td>Urine</td>
<td>end of shift</td>
<td>200 mg/g Creatinine MX BEI</td>
</tr>
<tr>
<td>2-Propanone</td>
<td>67-64-1</td>
<td>Butoxyacetic acid (BAA)</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>200 mg/g Creatinine ACGIH BEI</td>
</tr>
<tr>
<td>2-Propanone</td>
<td>67-64-1</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift</td>
<td>50 mg/l MX BEI</td>
</tr>
<tr>
<td>2-Propanone</td>
<td>67-64-1</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>25 mg/l ACGIH BEI</td>
</tr>
</tbody>
</table>

### Personal protective equipment

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

**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.

Eye protection: Goggles
Eye wash bottle with pure water
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: silver
Odor: characteristic
Odor Threshold: No data available
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: 28 °C
Evaporation rate: No data available
Flammability (solid, gas): No data available
Upper explosion limit / Upper flammability limit: No data available
Lower explosion limit / Lower flammability limit: No data available
Vapor pressure: No data available
Relative density: No data available
Solubility(ies): No data available
SAFETY DATA SHEET
METALURE A-41014 BG

Version 1.0
Revision Date: 03/29/2018
SDS Number: 102000023174
Date of last issue: -
Date of first issue: 03/29/2018

Partition coefficient: n-octanol/water: No data available
Autoignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available

SECTION 10. STABILITY AND REACTIVITY

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

Conditions to avoid: Do not allow evaporation to dryness.
Heat, flames and sparks.

Incompatible materials: Acids
Bases
Oxidizing agents

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed, in contact with skin or if inhaled.

Ingredients:
Ethanol, 2-butoxy-:
Acute oral toxicity: Acute toxicity estimate: 500 mg/kg
Method: Converted acute toxicity point estimate

Acute inhalation toxicity: > 3.1 mg/l
Exposure time: 1 h
Test atmosphere: vapor

Acute dermal toxicity: Acute toxicity estimate: 1,100 mg/kg
Method: Converted acute toxicity point estimate

2-Propanone:
Acute oral toxicity: LD50 (Rabbit): 4,700 - 5,800 mg/kg
(Mouse): 3,000 mg/kg
Acute inhalation toxicity: LC50 (Rat): 76 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

**Skin corrosion/irritation**
Causes skin irritation.

**Ingredients:**
2-Propanone:
Remarks: Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin resulting in desiccation of the skin.

**Serious eye damage/eye irritation**
Causes serious eye irritation.

**Ingredients:**
2-Propanone:
Remarks: Severe eye irritation

**Respiratory or skin sensitization**

**Skin sensitization**
Not classified based on available information.

**Respiratory sensitization**
Not classified based on available information.

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

**Carcinogenicity**
Not classified based on available information.

**Reproductive toxicity**
Not classified based on available information.

**STOT - single exposure**
Not classified based on available information.
STOT-repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

2-Propanone:
Toxicity to daphnia and other aquatic invertebrates: (Daphnia magna (Water flea)): 21,600 mg/l

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues: Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
UN/ID No.: UN 1263
Proper shipping name: Paint
CLASS: 3
Packing group: III
Labels: Flammable Liquids
Packing instruction (cargo aircraft): 366
Packing instruction (passenger aircraft): 355

IMDG-Code
UN number: UN 1263
Proper shipping name: PAINT

Class: 3
Packing group: III
Labels: 3
EmS Code: F-E, S-E
Marine pollutant: no

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

Domestic regulation

NOM-002-SCT
UN number: UN 1263
Proper shipping name: PAINT
Class: 3
Packing group: III
Labels: 3

Special precautions for user
Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills: 2-Propanone

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
ACGIH: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
MX BEI: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for workers
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX OEL</td>
<td>Mexico. Occupational Exposure Limits</td>
</tr>
<tr>
<td>ACGIH / TWA</td>
<td>8-hour, time-weighted average</td>
</tr>
<tr>
<td>ACGIH / STEL</td>
<td>Short-term exposure limit</td>
</tr>
<tr>
<td>MX OEL / LMPE-PPT</td>
<td>Time weighted average</td>
</tr>
<tr>
<td>NOM-010-STPS-2014 / VLE-PPT</td>
<td>Time weighted average limit value</td>
</tr>
<tr>
<td>NOM-010-STPS-2014 / VLE-CT</td>
<td>Short term exposure limit value</td>
</tr>
</tbody>
</table>

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; KECl - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date : 03/29/2018
The information provided in this Material 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.

MX / Z8