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

- 1.1 Product identifier
  - Trade name: LUBA-print® 351/G
  - UFI: AEE0-40F0-Y004-13R7

- 1.2 Relevant identified uses of the substance or mixture and uses advised against
  - Application of the substance / the mixture: Wax additive for paints and printing inks
  - No further relevant information available.

- 1.3 Details of the supplier of the safety data sheet
  - Manufacturer/Supplier:
    MÜNZING CHEMIE GmbH
    Münzingerstrasse 2
    74232 Abstatt, Germany
    E-Mail: info@munzing.com
    Tel.: +49 7131 987-100

- Further information obtainable from:
  - Product Safety Department
  - E-mail (MSDS): msds@munzing.com

- 1.4 Emergency telephone number: For Chemical Emergencies: CHEMTREC: +1 703 741 5970

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
  - Classification according to Regulation (EC) No 1272/2008
    Flam. Liq. 3 H226 Flammable liquid and vapour.
    Skin Irrit. 2 H315 Causes skin irritation.
    Eye Dam. 1 H318 Causes serious eye damage.
    STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
    Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

- 2.2 Label elements
  - Labelling according to Regulation (EC) No 1272/2008
  - The product is classified and labelled according to the CLP regulation.
  - Hazard pictograms
    - GHS02
    - GHS05
    - GHS07
    - GHS09

- Signal word: Danger

- Hazard-determining components of labelling:
  - 2-methylpropan-1-ol
  - Hydrocarbons, C10, aromatics, <1% naphthalene

- Hazard statements
  - H226 Flammable liquid and vapour.
  - H315 Causes skin irritation.
  - H318 Causes serious eye damage.
  - H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
  - H411 Toxic to aquatic life with long lasting effects.

- Precautionary statements
  - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
  - P280 Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)
Mixture of substances listed below with nonhazardous additions.

After skin contact:
- P405 Store locked up.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER/doctor.
- P321 Specific treatment (see on this label).
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- 2.3 Other hazards
  - Results of PBT and vPvB assessment
    - PBT: None.
    - vPvB: None.

SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterisation: Mixtures
  - Description: Mixture of substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>EC number: 918-811-1</th>
<th>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 78-83-1</td>
<td>Flam. Liq. 3, Flammable, H226; Eye Dam. 1, H318; Skin Irrit. 2, H313; STOT SE 3, H336</td>
</tr>
<tr>
<td>EINECS: 201-148-0</td>
<td>2-methylpropan-1-ol</td>
</tr>
<tr>
<td>Reg.nr.: 01-2119463583-34</td>
<td>20-50%</td>
</tr>
</tbody>
</table>

| CAS: 8002-74-2       | Paraffin waxes and Hydrocarbon waxes |
| EINECS: 232-315-6    | substance with a workplace exposure limit |
| Reg.nr.: 01-2119488076-30 | 1-<3% |

| CAS: 91-20-3         | naphthalene |
| EINECS: 202-049-5    | Carc. 2, H331; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302 |
| Reg.nr.: 01-2119463583-34 | <0.5% |

- Additional information: For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures
  - General information: Immediately remove any clothing soiled by the product.
  - After inhalation:
    - Take affected persons into fresh air and keep quiet.
    - Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
    - In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact:
    - Immediately wash with water and soap and rinse thoroughly.
  - After eye contact:
    - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing:
    - Do not induce vomiting; call for medical help immediately.

- 4.2 Most important symptoms and effects, both acute and delayed
  - No further relevant information available.

- 4.3 Indication of any immediate medical attention and special treatment needed
  - No further relevant information available.

(Contd. of page 1)
SECTION 5: Firefighting measures

- 5.1 Extinguishing media
  - Suitable extinguishing agents: CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - For safety reasons unsuitable extinguishing agents: Water with full jet
- 5.2 Special hazards arising from the substance or mixture: Can form explosive gas-air mixtures.
- 5.3 Advice for firefighters
  - Protective equipment: Do not inhale explosion gases or combustion gases.
  - Additional information
    - Cool endangered receptacles with water spray.
    - Dispose of fire debris and contaminated fire-fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  - Ensure adequate ventilation
  - Keep away from ignition sources.
  - Wear protective clothing.
  - Wear protective equipment. Keep unprotected persons away.
- 6.2 Environmental precautions:
  - Do not allow to penetrate the ground/soil.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - Do not allow to enter sewers/surface or ground water.
- 6.3 Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Ensure adequate ventilation.
  - Do not flush with water or aqueous cleansing agents
- 6.4 Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling
  - Store in cool, dry place in tightly closed receptacles.
  - Ensure good ventilation/exhaustion at the workplace.
  - Prevent formation of aerosols.
- Information about fire - and explosion protection:
  - Keep ignition sources away - Do not smoke.
  - Protect from heat.
  - Protect against electrostatic charges.
- 7.2 Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles: Store in a cool location.
    - Information about storage in one common storage facility: Store away from oxidising agents.
    - Further information about storage conditions: Store in cool, dry conditions in well sealed receptacles.
- 7.3 Specific end use(s) No further relevant information available.
SECTION 8: Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.

- Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>CAS: 78-83-1 2-methylpropan-1-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL: Short-term value: 231 mg/m³, 75 ppm</td>
</tr>
<tr>
<td>Long-term value: 154 mg/m³, 50 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS: 8002-74-2 Paraffin waxes and Hydrocarbon waxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL: Short-term value: 6 mg/m³</td>
</tr>
<tr>
<td>Long-term value: 2 mg/m³</td>
</tr>
</tbody>
</table>

- DNELs

<table>
<thead>
<tr>
<th>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral consumer, long-term exposure, systemic effects 7.5 mg/kg bw/day (human)</td>
</tr>
<tr>
<td>Dermal consumer, long-term exposure, systemic effects 7.5 mg/kg bw/day (human)</td>
</tr>
<tr>
<td>Inhalative consumer, long-term exposure, systemic effects 151 mg/m³ (human)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS: 78-83-1 2-methylpropan-1-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral consumer, long-term exposure, systemic effects 25 mg/kg bw/day (human)</td>
</tr>
<tr>
<td>Inhalative consumer, long-term exposure, systemic effects 310 mg/m³ (human)</td>
</tr>
</tbody>
</table>

- PNECs

<table>
<thead>
<tr>
<th>CAS: 78-83-1 2-methylpropan-1-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td>fresh water 0.4 mg/l (not specified)</td>
</tr>
<tr>
<td>marine water 0.04 mg/l (not specified)</td>
</tr>
<tr>
<td>soil 0.0699 mg/kg (not specified)</td>
</tr>
<tr>
<td>sediment (fresh water) 1.52 mg/kg (not specified)</td>
</tr>
<tr>
<td>sediment (marine water) 0.152 mg/kg (not specified)</td>
</tr>
<tr>
<td>sewage treatment plant 10 mg/l (not specified)</td>
</tr>
</tbody>
</table>

- Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

- Personal protective equipment:

  - General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing
  Wash hands before breaks and at the end of work.
  Avoid contact with the eyes and skin.

  - Respiratory protection:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

  - Protection of hands:
  Protective gloves
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 5)
Trade name: LUBA-print® 351/G

- Material of gloves
  Butyl rubber, BR
  Recommended thickness of the material: ≥ 0.5 mm
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
- Penetration time of glove material
  For the mixture of chemicals mentioned below the penetration time has to be at least 480 minutes (Permeation according to EN 16523-1:2015: Level 6).
  The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.
- Eye protection: Tightly sealed goggles
- Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
  - General Information
  - Appearance:
    Form: Fluid
    Colour: Yellowish
  - Odour: Specific type
  - Odour threshold: Not determined.
  - pH-value: Not determined.
  - Change in condition
    - Melting point/freezing point: Undetermined.
    - Initial boiling point and boiling range: ≈ 107 °C (2-methylpropan-1-ol)
  - Flash point: ≈ 34 °C (DIN EN ISO 2719)
  - Flammability (solid, gas): Not applicable.
  - Ignition temperature: > 400 °C (2-methylpropan-1-ol)
  - Decomposition temperature: Not determined.
  - Auto-ignition temperature: Product is not self-igniting.

- Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
  - Explosion limits:
    - Lower: ≈ 0.6 Vol % (solvent naphtha (heavy))
    - Upper: ≈ 12 Vol % (2-methylpropan-1-ol)
  - Oxidising properties: None.
  - Vapour pressure: Not determined.
  - Density at 20 °C: ≈ 0.85 g/cm³ (DIN EN ISO 2811-1)
  - Relative density: Not determined.
  - Vapour density: Not determined.
  - Evaporation rate: Not determined.

(Contd. of page 6)
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: LUBA-print® 351/G

(Contd. of page 5)

**Solubility in / Miscibility with water:** Insoluble.

**Partition coefficient: n-octanol/water:** Not determined.

**Viscosity:**
- Dynamic at 23 °C: ≈ 50 mPas (DIN EN ISO 3219)
- Kinematic at 40 °C: > 20.5 mm²/s (DIN EN ISO 51562)

**Solvent separation test:** Not determined

**9.2 Other information**

No further relevant information available.

**SECTION 10: Stability and reactivity**

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
  - Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
  - 10.3 Possibility of hazardous reactions: No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

**SECTION 11: Toxicological information**

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

**LD/LC50 values relevant for classification:**

| Hydrocarbons, C10, aromatics, <1% naphthalene | Oral | LD50 6,318 mg/kg (rat) (OECD 401) |
| Dermal | LD50 >2,000 mg/kg (rabbit) (OECD 402) |

**CAS: 78-83-1 2-methylpropan-1-ol**

| Oral | LD50 2,460 mg/kg (rat) |
| Dermal | LD50 2,460 mg/kg (rabbit) (OECD 402) |

**CAS: 8002-74-2 Paraffin waxes and Hydrocarbon waxes**

| Oral | LD50 >5,000 mg/kg (rat) |

**CAS: 91-20-3 naphthalene**

| Oral | LD50 490 mg/kg (rat) |
| Dermal | LD50 5,000 mg/kg (rat) |

**Primary irritant effect:** Skin corrosion/irritation
Causes skin irritation.

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

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 7)
12.6 Other adverse effects

Low concentrations. Do not release untreated into natural waters.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

<table>
<thead>
<tr>
<th>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL50 2-5 mg/l (fish) (Onchorhynchus aquabonita / 96 h)</td>
</tr>
<tr>
<td>EL50 1-3 mg/l (algae) (green algae / 72 h)</td>
</tr>
<tr>
<td>NOELR 0.771 mg/l (daphnia) (Daphnia magna / 21 days)</td>
</tr>
</tbody>
</table>

CAS: 78-83-1 2-methylpropan-1-ol

| EC50 1,250 mg/l (algae) (green algae / 48 h) |
| 1,030 mg/l (daphnia) (Daphnia magna / 48 h) |
| EC10 750 mg/l (bacteria) (Pseudomonas putida / 16 h) |
| LC50 1,430 mg/l (fish) (Pimephales promelas / 96 h) |

12.2 Persistence and degradability

No further relevant information available.

12.3 Bioaccumulative potential

No further relevant information available.

12.4 Mobility in soil

No further relevant information available.

Ecotoxicological effects:

- Remark: Toxic for fish

- Behaviour in sewage processing plants:
  Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations. Do not release untreated into natural waters.

- Additional ecological information:

- General notes:
  Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
  Do not allow product to reach ground water, water course or sewage system.
  Toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment

According to Annex XIV of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria. Self classification.

12.6 Other adverse effects

No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue

07 07 04* other organic solvents, washing liquids and mother liquors

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.
### SECTION 14: Transport information

**14.1 UN-Number**
- ADR/RID/ADN, IMDG, IATA: UN1993

**14.2 UN proper shipping name**
- ADR/RID/ADN: 1993 FLAMMABLE LIQUID, N.O.S. (ISOBUTANOL (ISOBUTYL ALCOHOL)), ENVIRONMENTALLY HAZARDOUS
- IMDG: FLAMMABLE LIQUID, N.O.S. (ISOBUTANOL (ISOBUTYL ALCOHOL), Hydrocarbons, C10, aromatics, < 1% naphthalene), MARINE POLLUTANT
- IATA: FLAMMABLE LIQUID, N.O.S. (ISOBUTANOL (ISOBUTYL ALCOHOL))

**14.3 Transport hazard class(es)**
- ADR/RID/ADN, IMDG
  - Class: 3 Flammable liquids.
  - Label: 3

- IATA
  - Class: 3 Flammable liquids.
  - Label: 3

**14.4 Packing group**
- ADR/RID/ADN, IMDG, IATA: III

**14.5 Environmental hazards:**
Product contains environmentally hazardous substances:
- Hydrocarbons, C10, aromatics, < 1% naphthalene
- Special marking (ADR/RID/ADN): Symbol (fish and tree)
- Symbol (fish and tree)

**14.6 Special precautions for user**
- Warning: Flammable liquids.
- Hazard identification number (Kemler code): 30
- EMS Number: F-E-S-E
- Stowage Category: A

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**
- Not applicable.

**Transport/Additional information:**
- ADR/RID/ADN
  - Limited quantities (LQ): 5L
  - Transport category: 3

(Contd. on page 9)
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: LUBA-print® 351/G

Tunnel restriction code
D/E

UN "Model Regulation": UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOBUTANOL (ISOBUTYL ALCOHOL)), 3, III, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

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

- Directive 2012/18/EU
- Named dangerous substances - ANNEX I None of the ingredients is listed.
- Seveso category
  - E2 Hazardous to the Aquatic Environment
  - P3c FLAMMABLE LIQUIDS
- Qualifying quantity (tonnes) for the application of lower-tier requirements: 200 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements: 500 t
- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
- National regulations:
  - Information about limitation of use:
    - Employment restrictions concerning juveniles must be observed.
    - Employment restrictions concerning pregnant and lactating women must be observed.
  - Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases
- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- H351 Suspected of causing cancer.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H411 Toxic to aquatic life with long lasting effects.

Department issuing SDS:
Product Safety Department
E-Mail: msds@munzing.com

Abbreviations and acronyms:
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
Trade name: LUBA-print® 351/G

DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity - oral – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Asp. Tox. 1: Aspiration hazard – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2