ISOFLEX® TOPAS L 32 and ISOFLEX® TOPAS L 32 N
Special low-temperature greases

Description
ISOFLEX TOPAS L 32 and L 32 N have been designed for extremely low temperatures. These greases consist of a synthetic hydrocarbon oil and a special lithium soap. ISOFLEX L 32 and L 32 N are resistant to ageing and oxidation and provide good corrosion protection as well as water resistance. ISOFLEX TOPAS L 32 N also contains a UV indicator, which ensures quality checking even with minimum quantity lubrication.

Applications
ISOFLEX TOPAS L 32 and L 32 N are especially suitable for the lubrication of small gears used in automotive engineering for electrical adjustment mechanisms, e.g. window lifters, sun roofs, seats, headlamps, and fan flaps.

Both products have been approved by renowned car manufacturers, such as
Volkswagen VW TL 778 A
DaimlerChrysler DBL 6827.40 and DBL 6827.41.

ISOFLEX TOPAS L 32 and L 32 N can also be used for:
- Guideways, bowden cables, door locks
- Rolling bearings in small motors, fans, pumps
- Tooth flanks with plastic/plastic (e.g. POM, PA and PE) or plastic/steel material combinations.

Application notes
The lubricant is applied by spatula, brush, grease gun or cartridge.

Minimum shelf life
The minimum shelf life is approx. 36 months if the product is stored in the original closed container in a dry place.

Pack sizes
1 kg can
25 kg bucket
170 kg drum
ISOFLEX TOPAS L 32 also in 370 g cartridges

Product data

<table>
<thead>
<tr>
<th>Colour</th>
<th>beige</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture</td>
<td>homogeneous, short-fibred</td>
</tr>
<tr>
<td>Density at 20 °C, g/cm³</td>
<td>approx. 0.86</td>
</tr>
<tr>
<td>Service temperature range*, °C</td>
<td>- 60 to 130</td>
</tr>
<tr>
<td>Drop point, DIN ISO 2176, °C</td>
<td>&gt; 185</td>
</tr>
<tr>
<td>Worked penetration, DIN ISO 2137, at 25 °C, 0.1 mm</td>
<td>265 - 295</td>
</tr>
<tr>
<td>Consistency, NLGI grade, DIN 51818</td>
<td>2</td>
</tr>
<tr>
<td>Speed factor**, (n x dm)</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Apparent dynamic viscosity, viscosity grade***</td>
<td>L</td>
</tr>
<tr>
<td>Corrosion protection, DIN 51802 (SKF-Emcor), testing period 1 week, distilled water</td>
<td>0/1</td>
</tr>
<tr>
<td>Water resistance, DIN 51807 pt.1, 3h/90 °C</td>
<td>1 - 90</td>
</tr>
<tr>
<td>Flow pressure, DIN 51 805, at - 35 °C, mbar</td>
<td>max. 450</td>
</tr>
</tbody>
</table>

* Service temperatures are guide values which depend on the lubricant's composition, the intended use and the application method. Lubricants change their consistency, apparent dynamic viscosity or viscosity depending on the mechano-dynamical loads, time, pressure and temperature. These changes in product characteristics may affect the function of a component.

**Speed factors are guide values which depend on the type and size of the rolling bearing type and the local operating conditions, which is why they have to be confirmed in tests carried out by the user in each individual case.

*** Klüber viscosity grades: EL = extra light lubricating grease; L = light lubricating grease; M = medium lubricating grease; S = heavy lubricating grease; ES = extra heavy lubricating grease

ISOFLEX TOPAS L 32 and L 32 N
- Synthetic low-temperature greases
- Good corrosion protection
- Resistant to ageing and oxidation
- Biodegradable acc. to CEC-L 33-A-93 (21 d) > 70 %
- Especially suitable for small gears
- L 32 N contains UV indicator
ISOFLEX® TOPAS L 32 and L 32 N
Safety Data Sheet

1.1 Product name:
ISOFLEX TOPAS a) L 32 b) L 32 N
Code-No.: a) 004 130  b) 004 227

1.2 Klüber Lubrication München KG
Geisenhausenstraße 7
D-81379 München
Tel. ++49 - 89 7876 - 0 telephone exchange
Fax: ++49 - 89 7876 - 333

2. Composition / information on ingredients
Chemical characterization (preparation): a) & b) Synthetic hydrocarbon oil, lithium soap;  b) UV indicator

3. Hazards identification
No particular hazards known

4. First aid measures
After inhalation: Not applicable
After contact with skin: Wash off with soap and plenty of water
After contact with eyes: Rinse with plenty of water
After ingestion: Do not induce vomiting. Obtain medical attention
Advice to doctor: Treat symptomatically

5. Fire-fighting measures
Suitable extinguishing media: Water spray, foam, dry powder, carbon dioxide (CO2)
Unsuitable extinguishing media: High volume water jet
Special Hazards: In case of fire the following can be released: Carbon monoxide, hydrocarbons
Special protective equipment for firefighters: Standard procedure for chemical fires
Additional information: Water mist may be used to cool closed containers. In the event of fire and/or explosion do not breathe fumes

6. Accidental release measures
Personal precautions: Not required
Environmental precautions: Do not flush into surface water or sanitary sewer system
Methods for cleaning up / taking up: Use mechanical handling equipment. Dispose of absorbed material in accordance with the regulations
Additional information: None

7. Handling and storage
Advice on safe handling: No special handling advice required
Advice on protection against fire and explosion: No special precautions required
Requirements on storage rooms and vessels: Store at room temperature in the original container
Incompatible materials: Incompatible with oxidizing agents. Do not store together with food
Further information on storage conditions: None

8. Exposure controls / personal protection
Additional advice on system design: Not applicable
Ingredients and specific control parameters: None
Respiratory protection: No special protective equipment required
Hand protection: Protective gloves
Eye protection: No special protective equipment required
Body protection: No special protective equipment required
Other protection measures: No special protective equipment required
General protection and hygiene measures: Avoid prolonged and/or repeated contact with skin. Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream

9. Physical and chemical properties
Form: paste
Colour: beige
Odour: characteristic
Drop point: > 185 °C, DIN ISO 2176
Flash point: > 200 °C (base oil)
Ignition temperature: not applicable
Lower explosion limit: not applicable
Upper explosion limit: not applicable
Vapour pressure-first: not applicable
Density: approx. a) 0.85  b) 0.86 g/cm³, 20 °C
Water solubility: insoluble
pH value: not applicable
Kinematic viscosity: not applicable
Further information: none

10. Stability and reactivity
Conditions to avoid: None
Materials to avoid: Strong oxidizing agents
Hazardous decomposition products: None under normal use
Additional information: None

11. Toxicological information
The toxicological data has been taken from products of similar composition
Acute toxicity: LD50/oral/rat = > 2 g/kg (literature data)
Chronic toxicity: None
Human experience: Prolonged skin contact may cause skin irritation and/or dermatitis

12. Ecological information
Information on elimination (persistence and degradability): Readily biodegradable (> 70%). Test method: CEC-L-33-A93
Behaviour in environmental compartments: Ecological injuries are not known or expected under normal use
Ecotoxic effects: Aquatic toxicity is unlikely due to low solubility
Additional information: Do not discharge product unmonitored into the environment

13. Advice on Disposal
Code of waste: 120 112, Wastes from shaping and surface treatment of metals and plastics; wastes from shaping (including forging, welding, pressing, drawing, turning, cutting and filling); spent waxes and fats
Disposal: Can be incinerated when in compliance with local, state and federal regulations. The code of waste has to correspond to the Council Directive 75/442/EEC and be specific as far as the related sector and process are concerned
Dispose of contaminated packaging and recommended cleaning: Offer rinsed packaging material to local recycling facilities

14. Transport information
GGVS / GGVE: not applicable
ADN / ADNR: not applicable
IMDG-Code: not applicable
ICAO / IATA-DGR: not applicable
Further information: Not classified as dangerous in the meaning of transport regulations

15. Regulatory information
Labelling according to EU-guidelines: The product does not require a hazard warning label in accordance with EC-directives/German regulations on dangerous substances
National regulations: a) Labelling according to the Swiss regulations: No toxicological class, BAGT-no. 91491

16. Other information
Issue-department of Safety Data Sheet: Chemical Documentation, Tel.: ++49 - 89 7876 - 564

The data in this product information is based on our general experience and knowledge at the time of printing and is intended to give information of possible applications to a reader with technical experience. It constitutes neither an assurance of product properties nor does it release the user from the obligation of performing preliminary tests with the selected product. We recommend contacting our Technical Consulting Staff to discuss your specific application. If required and possible we will be pleased to provide a sample for testing. Klüber products are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this product information at any time without notice.

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