

## RENOLIN UNISYN CLP

### Fully-synthetic industrial gear lubricants based on polyalphaolefins

#### Description

The oils of the RENOLIN UNISYN CLP series are demulsifying, fully-synthetic industrial gear oils with elevated aging resistance, very good load-carrying capacity and wear protection. RENOLIN UNISYN CLP oils have good resistance to micropitting. Reliable lubrication of roller bearings is confirmed by the good results of the FE8 testing. The required failure load stages in the standard and intensified FZG test are reliably received. Moreover RENOLIN UNISYN CLP oils show a good filterability. RENOLIN UNISYN CLP oils are preferably used when increased requirements are set for high and low temperature usage limits. Due to the low pourpoint and the high viscosity index very good cold flow properties at cold start as well as a high lubrication film thickness at operating temperatures are possible. In gearboxes and circulating systems with sump temperatures up to 90 °C, longer oil-change intervals in comparison with previous mineral oils are achieved.

Miscibility with gearbox oils based on mineral oil and ester is generally given, which means that a simplified change-over to RENOLIN UNISYN CLP is possible. Nevertheless a complete change-over (perhaps with flushing procedure) is recommended to obtain the full performance of RENOLIN UNISYN CLP.

#### Advantages

- **Excellent wear protection, high EP performance**
- **Low foaming**
- **Good air release capacity**
- **Very good aging resistance**
- **Excellent corrosion protection**
- **Excellent viscosity-temperature behavior**
- **High natural VI (viscosity index)**
- **Multigrade character**
- **Miscible with mineral oil- and ester-based gear oils**
- **(Lifetime lubrication) prolongation of the service intervals possible**
- **For high and low operating temperatures**
- **Very good filterability**

## RENOLIN UNISYN CLP

### Fully-synthetic industrial gear lubricants based on polyalphaolefins

#### Application

The oils of the RENOLIN UNISYN CLP series are used for all applications in industry where a synthetic oil of the CLP type according to DIN 51517-3 is recommended by the manufacturer. Highly-stressed bearings, joints, pressure screws, spur gears, worm gears and planetary gears can be reliably, safely and economically supplied even at short-term peak temperatures up to 150 °C.

#### Specifications

The products meet and in many cases exceed the requirements according to:

- DIN 51517-3: CLP
- ISO 6743-6 and ISO 12925-1:  
CKC / CKD / CKE / CKSMP
- AGMA 9005/E02: EP
- AIST 224
- David Brown S1 53.101
- FAG requirements: FAG-FE8-Test: stage 1-4 pass (test report is available for ISO VG 320)
- SKF requirements: pass (100 °C-test)

The RENOLIN UNISYN CLP series is approved for example by Flender GmbH, Bocholt, Flender BA 7300, table A.

RENOLIN UNISYN CLP 680 is approved by GE for use in GEB25 / GDY106 Motorized Wheels (2016).

RENOLIN UNISYN CLP 320 is approved by Bucyrus/Caterpillar Inc. (Enclosed Gearcase Lubricants for Bucyrus, Marion and Ransomes-Rapier Draglines).

RENOLIN UNISYN CLP 320 is approved by CAT for Electric Rope Shovels (Enclosed Gearcase Lubricants).

For RENOLIN UNISYN CLP numerous approvals from well-known gear manufacturers and OEM are available, e.g. Bosch Rexroth, Chongchi, Echesa, Eickhoff, Flender, GET, Zollern, Moventas, Renk, ZF, Winergy, Eickhoff etc.).

## RENOLIN UNISYN CLP

### Fully-synthetic industrial gear lubricants based on polyalphaolefins

Typical technical data:

| Product name                                   | RENOLIN UNISYN CLP |      |                  |      |      |                 |
|--|--------------------|------|------------------|------|------|-----------------|
|  |                    | 68   | 100              | 150  | 220  |                 |
| Properties                                     | Unit               |      |                  |      |      | Test method     |
| ISO VG   |                    | 68   | 100              | 150  | 220  | DIN 51519       |
| Kinematic viscosity at 40 °C                   | mm <sup>2</sup> /s | 68   | 100              | 150  | 220  | DIN EN ISO 3104 |
| at 100 °C                                      | mm <sup>2</sup> /s | 10.7 | 14.5             | 19.6 | 26.7 |                 |
| Viscosity index                                | -                  | 147  | 150              | 150  | 155  | DIN ISO 2909    |
| Density at 15 °C                               | kg/m <sup>3</sup>  | 848  | 851              | 853  | 854  | DIN 51757       |
| Color index                                    | ASTM               | 0.5  | 0.5              | 0.5  | 1.0  | DIN ISO 2049    |
| Flashpoint, Cleveland open cup                 | °C                 | 240  | 250              | 250  | 260  | DIN ISO 2592    |
| Pourpoint                                      | °C                 | -56  | -53              | -45  | -42  | DIN ISO 3016    |
| Neutralization number                          | mgKOH/g            | 0.6  | 0.6              | 0.6  | 0.6  | DIN 51558       |
| Scuffing and scoring test FZG A/8.3/90         | failure load stage |      | >12              |      |      | DIN ISO 14635-1 |
| FZG A/16.6/140                                 | failure load stage |      | 12               |      |      | DIN ISO 14635-1 |
| Micropitting load capacity C/8.3/90            | GF Class           |      | GFT high, >10    |      |      | DIN 3990-16     |
| C/8.3/60                                       | GF Class           |      | GFT high, >10    |      |      | DIN 3990-16     |
| FE-8 roller bearing test, D-7.5/80-80          |                    |      | pass (excellent) |      |      | DIN 51819-3     |
| D-7.5/100-80                                   |                    |      | pass (excellent) |      |      |                 |
| Testing in mixed friction area acc. to Brugger | N/mm <sup>2</sup>  | 40   | 40               | 40   | 50   | DIN 51347-2     |

## RENOLIN UNISYN CLP

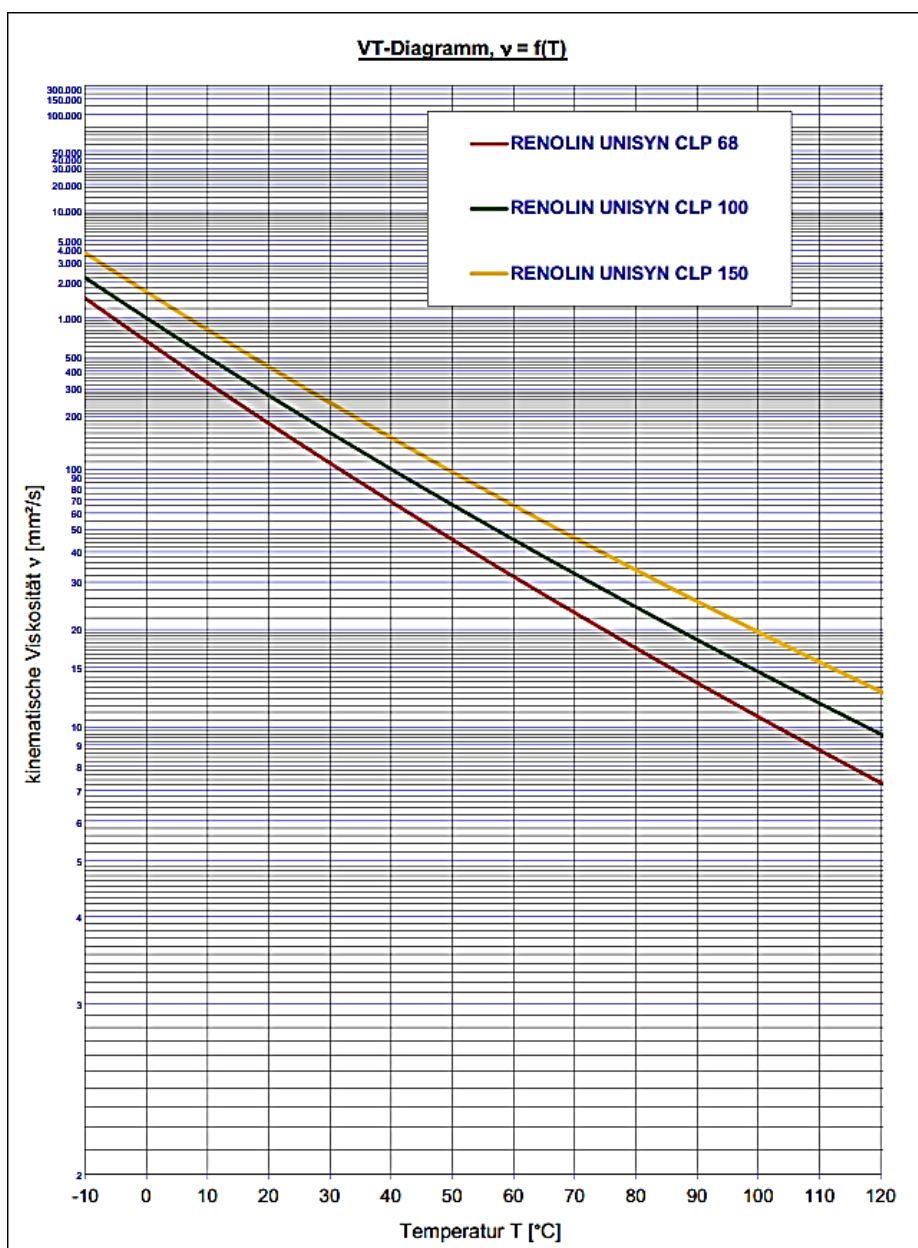
### Fully-synthetic industrial gear lubricants based on polyalphaolefins

Typical technical data:

| Product name                                   |                    | RENOLIN UNISYN CLP |      |                  |      | Test method     |
|--|--------------------|--------------------|------|------------------|------|-----------------|
|  |                    | 320                | 460  | 680              | 1000 |                 |
| Properties                                     | Unit               |                    |      |                  |      |                 |
| ISO VG   |                    | 320                | 460  | 680              | 1000 | DIN 51519       |
| Kinematic viscosity at 40 °C                   | mm <sup>2</sup> /s | 320                | 460  | 680              | 1000 | DIN EN ISO 3104 |
| at 100 °C                                      | mm <sup>2</sup> /s | 35.0               | 45.6 | 62.2             | 92.0 |                 |
| Viscosity index                                | -                  | 155                | 155  | 160              | 179  | DIN ISO 2909    |
| Density at 15 °C                               | kg/m <sup>3</sup>  | 860                | 861  | 862              | 864  | DIN 51757       |
| Color index                                    | ASTM               | 1.0                | 1.0  | 1.0              | 1.0  | DIN ISO 2049    |
| Flashpoint, Cleveland open cup                 | °C                 | 260                | 300  | 300              | 300  | DIN ISO 2592    |
| Pourpoint                                      | °C                 | -42                | -39  | -33              | -33  | DIN ISO 3016    |
| Neutralization number                          | mgKOH/g            | 0.6                | 0.6  | 0.6              | 0.6  | DIN 51558       |
| Scuffing and scoring test FZG A/8.3/90         | failure load stage |                    |      | >14              |      | DIN ISO 14635-1 |
| FZG A/16.6/140                                 | failure load stage |                    |      | >12              |      |                 |
| Micropitting load capacity C/8.3/90            | GF Class           |                    |      | GFT high, >10    |      | DIN 3990-16     |
| C/8.3/60                                       | GF Class           |                    |      | GFT high, >10    |      | DIN 3990-16     |
| FE-8 roller bearing test, D-7.5/80-80          |                    |                    |      | pass (excellent) |      | DIN 51819-3     |
| D-7.5/100-80                                   |                    |                    |      | pass (excellent) |      |                 |
| Testing in mixed friction area acc. to Brugger | N/mm <sup>2</sup>  |                    |      | 50               |      | DIN 51347-2     |

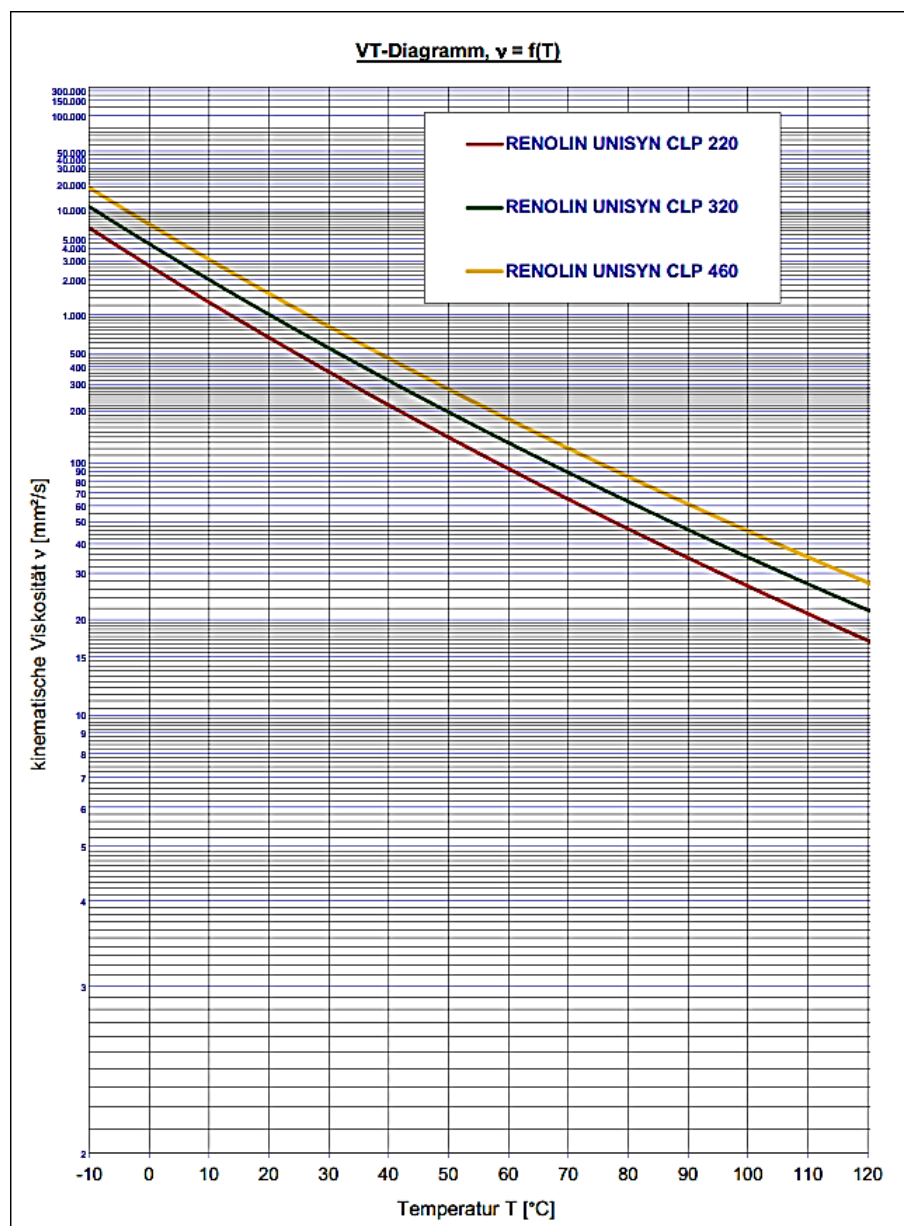
## RENOLIN UNISYN CLP

Fully-synthetic industrial gear lubricants based on polyalphaolefins



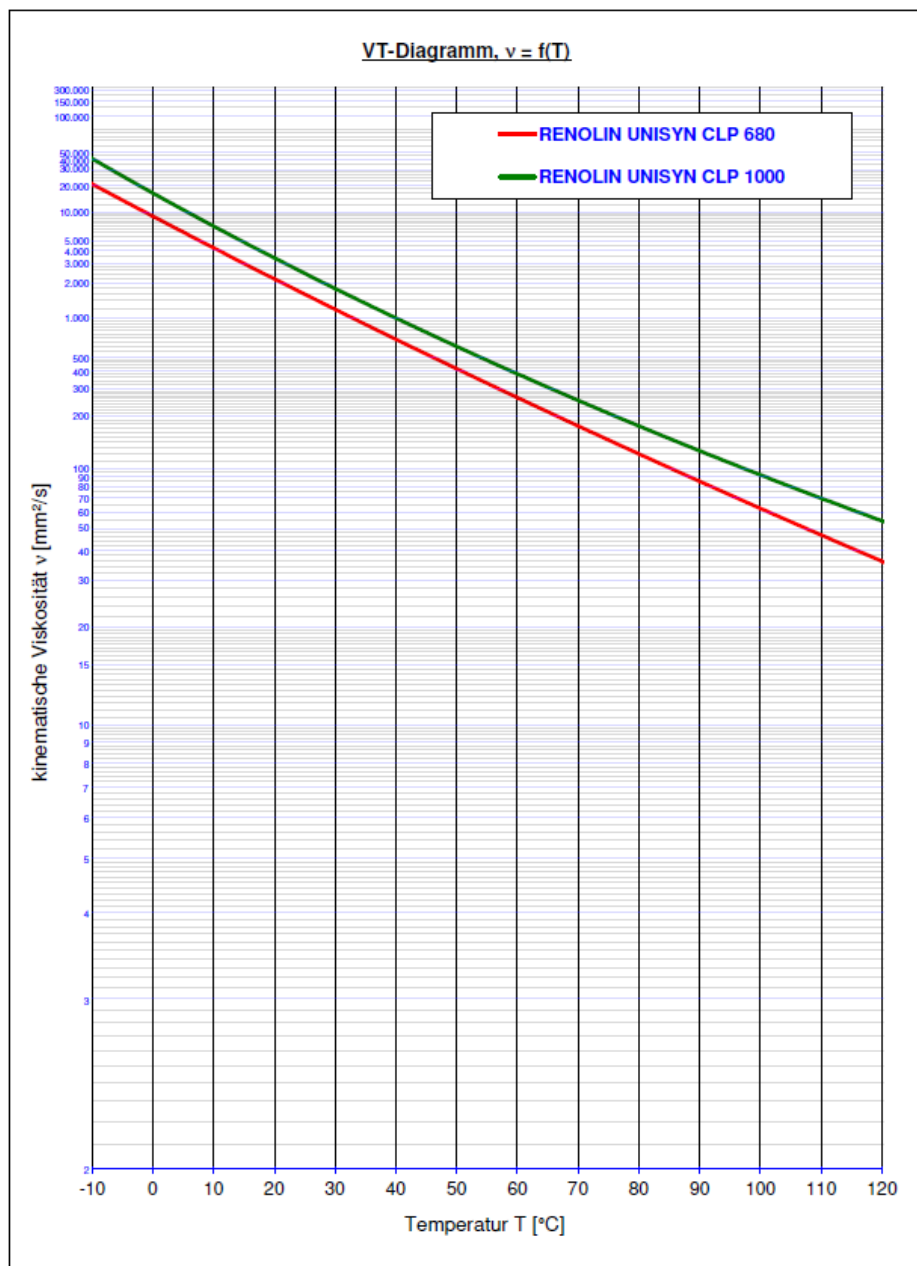
## RENOLIN UNISYN CLP

Fully-synthetic industrial gear lubricants based on polyalphaolefins



## RENOLIN UNISYN CLP

Fully-synthetic industrial gear lubricants based on polyalphaolefins



# Product Information

*MOVING YOUR WORLD*



## Note

The information contained in this product information is based on the experience and know-how of FUCHS LUBRICANTS GERMANY GmbH in the development and manufacturing of lubricants and represents the current state-of-the-art. The performance of our products can be influenced by a series of factors, especially the specific use, the method of application, the operational environment, component pre-treatment, possible external contamination, etc. For this reason, universally-valid statements about the function of our products are not possible.

Our products must not be used in aircraft or spacecraft. Our products may be used in the manufacture of components for aircraft or spacecraft if they are removed without residue from the components prior to assembly into the aircraft or spacecraft.

The information given in this product information represents general, non-binding guidelines. No warranty expressed or implied is given concerning the properties of the product or its suitability for any given application. We therefore recommend that you consult a FUCHS LUBRICANTS GERMANY GmbH application engineer to discuss application conditions and the performance criteria of the products before the product is used. It is the responsibility of the user to test the functional suitability of the product and to use it with the corresponding care.

Our products undergo continuous improvement. We therefore retain the right to change our product program, the products, and their manufacturing processes as well as all details of our product information sheets at any time and without warning, unless otherwise provided in customer-specific agreements. With the publication of this product information, all previous editions cease to be valid. Any form of reproduction requires express prior written permission from FUCHS LUBRICANTS GERMANY GmbH.

© FUCHS LUBRICANTS GERMANY GmbH. All Rights reserved.