



## GLW-E

GLW-E is a premium quality, extreme-pressure (EP) industrial gear oil developed for the lubrication of heavily loaded enclosed gear drives operating in wet environments under severe service conditions. It is specially formulated to emulsify readily with water to maintain effective lubrication in the presence of water. It is particularly recommended for use in industrial and mining equipment operating in a highly contaminated, wet environment where an emulsifiable AGMA EP gear oil is specified or preferred.

GLW-E is formulated to provide excellent lubricity and wear protection even in the presence of water and other contaminants. It has high load-carrying capacity, retains its high film strength in the presence of water, and protects against rust and corrosion for extended equipment life. It has good oxidation resistance and thermal stability at high temperatures and is formulated with "clean gear" additive technology to minimize deposit formation and provide outstanding gearbox cleanliness. It has good seal compatibility, will emulsify readily with water and is resistant to excessive foam buildup that can interfere with proper lubrication.

GLW-E is recommended for use in Joy Machinery longwall mining equipment as well as other mining, industrial and heavy mobile equipment operating under extreme loads and/or exposed to water contamination.

### ***Applications***

- Enclosed gear drives of longwall mining machinery
- Enclosed industrial gear drives operating in the presence of water, such as in steel mills and rock quarries
- Gear drives and pinion stands of metal rolling mills, ball mills and cement mills
- Enclosed gear drives on excavation and heavy construction equipment

GLW meets the requirements of the following industry and OEM specifications:

- ANSI/AGMA Standard 9005-E02, Anti-Scuff/Anti-Wear (EP) Oils
- DIN 51517 Part 3, Lubricating Oils, Type CLP
- German Steel Industry SEB 181226, Type CLP
- ISO 12925-1, Type L-CKC & Type L-CKD
- Joy Mining Machinery TO-MEP (ISO VG 220), TO-HEP (ISO VG 320), TO-HD (ISO VG 460)
- U.S. Steel 224

**Severe-Duty,  
Extreme-Pressure  
Industrial  
Gear Oil;  
Emulsifies With  
Water**

### **CONTACT INFORMATION**

**Phillips66  
Lubricants.com**

U.S. Customer  
Service:  
**1-800-368-7128**

Technical Hotline:  
**1-877-445-9198**

International  
Customer Service:  
**1-832-765-2500**

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### ***Features/Benefits***

- Excellent performance in wet or contaminated gearboxes
- Outstanding load-carrying capacity
- Excellent protection against scuffing and wear
- Good oxidation resistance and thermal stability
- Outstanding deposit control for gearbox cleanliness
- Protects against rust and corrosion
- Emulsifies readily with water
- Good seal compatibility
- Environmentally responsible; does not contain chlorinated paraffins



## GLW-E

### Typical Properties

| ISO Grade                                      | 220       | 320       | 460       |
|--|-----------|-----------|-----------|
| AGMA Grade                                     | 5 EP      | 6 EP      | 7 EP      |
| Specific Gravity @ 60°F                        | 0.890     | 0.893     | 0.898     |
| Density, lbs/gal @ 60°F                        | 7.41      | 7.44      | 7.47      |
| Color, ASTM D1500                              | 3.0       | 5.0       | 5.0       |
| Flash Point (COC), °C (°F)                     | 249 (480) | 254 (489) | 255 (491) |
| Pour Point, °C (°F)                            | -18 (0)   | -18 (0)   | -15 (5)   |
| Viscosity,                                     |           |           |           |
| cSt @ 40°C                                     | 220       | 323       | 460       |
| cSt @ 100°C                                    | 18.9      | 23.7      | 31.7      |
| SUS @ 100°F                                    | 1,164     | 1,723     | 2,459     |
| SUS @ 210°F                                    | 96.4      | 118       | 155       |
| Viscosity Index                                | 96        | 93        | 100       |
| Acid Number, ASTM D974, mg KOH/g               | 1.09      | 1.09      | 1.09      |
| Copper Corrosion, ASTM D130                    | 1b        | 1b        | 1b        |
| Demulsibility, ASTM D1401, 60 minutes @ 180°F, |           |           |           |
| Free Water, ml                                 | 0         | 0         | 0         |
| Foam Test, ASTM D892, Seq. I, ml               | 0/0       | 0/0       | 0/0       |
| Four-Ball EP, ASTM D2783,                      |           |           |           |
| LWI, kgf                                       | 57        | 57        | 57        |
| Weld Load, kgf                                 | 315       | 315       | 315       |
| Four-Ball Wear, ASTM D4172, Scar Diameter, mm  | 0.26      | 0.26      | 0.26      |
| FZG Scuffing Test, ASTM D5182 (mod.),          |           |           |           |
| Failure Load Stage                             | >14       | >14       | >14       |
| Oxidation Stability, ASTM D2893,               |           |           |           |
| Viscosity Increase @ 121°C, %                  | 5.5       | 5.5       | 5.5       |
| Rust Test, ASTM D665 B                         | Pass      | Pass      | Pass      |
| Timken OK Load, ASTM D2782, lb                 | 70        | 70        | 70        |

### Health and Safety Information

For recommendations on safe handling and use of this product, please refer to the Material Safety Data Sheet via <http://w3apps.phillips66.com/NetMSDS>.

Typical properties are average values only and do not constitute a specification. Minor variations that do not affect product performance are to be expected during normal manufacture, and at different blending locations. Product formulations are subject to change without notification.

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