



PRODUCT DATA SHEET



EKO HYDROLUB ZF-AW Zinc-free/ashless hydraulic systems oils

DESCRIPTION

EKO HYDROLUB ZF-AW range includes zinc free and ashless hydraulic systems oils. EKO HYDROLUB ZF-AW range products are made of selected base oils and of state of the art additives that provide anti-oxidation, anti-wear and anti-corrosion protection.

SPECIFICATIONS

DIN 51524 part II HLP, ISO 11158 TYPE HM, ISO 6743/4 (HM), CINCINNATI MACHIN EP-68/70/69 (for EKO HYDROLUB ZF-AW 32, 46, 68 respectively), DENISON HF-0, HF-1, HF-2, VICKERS M-2950-S, VICKERS M-2952-S, VICKERS I-286-S, AFNOR NF-E 48-603 HM, U.S. Steel 136/127, SS 155434, SEB 181 222, VDMA 24318.

APPLICATIONS

- Hydraulic systems with high pressure pumps and hydraulic systems including critical parts such as low tolerance servovalves.
- Hydraulic systems requiring high wear protection level or that operate under very high temperature conditions.
- Hydraulic systems where there is a probability of slight water contamination, as in the paper mill industry, the food industry and the steel industry.
- Hydraulic systems that include bearings and gears.

ADVANTAGES

- Excellent protection of metals (iron, copper alloys etc.) against corrosion and rust, even under conditions of very high temperature.
- Excellent hydrolytic stability.
- Excellent filtering properties, in the presence or absence of water.

ADVANTAGES

This data sheet provides basic information on the product as at the date of drafting. For further information regarding applications, please contact EKO ABEE Technical Support, tel. +30 210 5509 511 and +30 210 7725 418. Advice on safe handling is provided in the Safety Data Sheet.



PRODUCT DATA SHEET

- High thermal and oxidative stability, leading to the reduction of deposits and to an increased life span of the product, the equipment and the filters.
- Excellent anti-wear protection of pumps and of all hydraulic system parts.
- Resistance to foaming and to air bubble retention.
- Excellent properties of water separation, leading to excellent protection of the equipment in the presence of slight moisture and the immediate separation of larger quantities of water from the lubricant.

TYPICAL CHARACTERISTICS

| EKO HYDROLUB | | | | | | |
|--------------------------------------------------------------------|------------------|-------|-------------|-------------|-------------|--------------|
| Properties | Methods | Units | ZF-AW 32 | ZF-AW 46 | ZF-AW 68 | ZF-AW 100 |
| ISO Viscosity Grade | - | - | 32 | 46 | 68 | 100 |
| Density at 15°C | ASTM D4052 | g/ml | 0.871 | 0.876 | 0.885 | 0.904 |
| Kinematic viscosity at 100°C | ASTM D445 | cSt | 5.2 | 6.7 | 8.9 | 11.0 |
| Kinematic viscosity at 40°C | ASTM D445 | cSt | 30.1 | 45.4 | 70.1 | 99.2 |
| Viscosity index (VI) | ASTM D2270 | - | 101 | 102 | 100 | 95 |
| Copper corrosion | ASTM D 130 | - | | | | |
| 3h at 100°C | | | 1a | 1a | 1a | 1a |
| 24h at 100°C | | | 1a | 1a | 1a | 1a |
| 3h at 125°C | | | 1a | 1a | 1a | 1a |
| Rust-preventing characteristics | ASTM D665 A/B | - | Pass/pass | Pass/pass | Pass/pass | Pass/pass |
| Water separability, time to 40-40-0 (ml) | ASTM D1401 | min | 10 | 10 | 10 | 10 |
| Foaming characteristics, Seq. I/II/III Tendency/Stability | ASTM D892 | ml | 0/0 | 0/0 | 0/0 | 0/0 |



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| EKO HYDROLUB | | | | | | |
|-------------------------------------------------------------|----------------------|------------|-------------|-------------|-------------|--------------|
| Properties | Methods | Units | ZF-AW 32 | ZF-AW 46 | ZF-AW 68 | ZF-AW 100 |
| Pour point | ASTM D5950 | °C | -33 | -30 | -30 | -21 |
| Flash point | ASTM D92 | °C | 222 | 224 | 234 | 236 |
| TOST, time to TAN 2 | ASTM D943 | hours | 3500 | 3500 | >3000 | >3000 |
| RPVOT | ASTM D2272 | min | >350 | >350 | >350 | >350 |
| FZG gear test, A 8.3 / 90 visual damage-load stage | DIN 51354, part 2 | Fail Stage | >12 | >12 | >12 | >12 |

SPECIAL INSTRUCTIONS

Mixing of EKO HYDROLUB ZF-AW hydraulic oils with engine oils may lead to foaming, creation of deposits and filter clogging.

HEALTH AND SAFETY

Protect the environment while disposing of used product. Used lubricants should be collected at specific points to ensure they do not pollute the environment. Do not mix with solvents, brake fluids, antifreeze and water, to allow for proper handling.

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