



## Ecomax SE 22-68

### Biodegradable hydraulic fluid

#### Description

ECOMAX SE are a range of environmentally acceptable hydraulic oils based on synthetic esters, produced from completely renewable sources – vegetable oil. The products are recommended for mobile as well as stationary hydraulic systems.

#### Benefits

- Very high viscosity index
- High shear stability
- Good lubricating properties

- Good oxidation stability
- European Ecolabel reg. number NL/27/002



#### Applications

The right choice of the viscosity depends very much on the working and ambient temperature of the equipment. ISO VG 22 and 32 are more suitable for the lower temperatures where ISO 46 is the most all-round product. In case of higher temperatures choose the ISO VG 68. ISO/FDIS 15380 HEES.

#### Typical performance data

|                                    | Test method          | SE 15 | SE 22 | SE 32 | SE 46 | SE 68 |
|------------------------------------|----------------------|-------|-------|-------|-------|-------|
| Viscosity @ 40 °C, cSt             | ISO 3104             | 15    | 22    | 32    | 46    | 65    |
| Viscosity @ 100 °C, cSt            |                      | 4     | 4,5   | 7,0   | 8,3   | 12    |
| Viscosity @ -20 °C, cSt            |                      | 300   | -     | 1300  | 1450  | 2300  |
| Viscosity @ -30 °C, cSt            |                      | 700   | 1250  | 2500  | 3500  | -     |
| Viscosity index                    | ASTM D2270           | 170   | 150   | 210   | 195   | 195   |
| Pour point, °C                     | ISO 3016<br>ASTM D97 | < -45 | < -44 | < -42 | < -42 | -39   |
| Density @ 20 °C, kg/m <sup>3</sup> | ISO 3675             | 908   | 937   | 904   | 916   | 921   |
| Flash point, °C                    | ASTM D93             | >200  | >200  | >200  | >200  | >200  |

#### Environmental data

|                            |                       |                           |
|----------------------------|-----------------------|---------------------------|
| Biodegradability, %        | OECD 301 F            | Readily biodegradable >80 |
| Toxicity                   | OECD 201-203, 401     | Non toxic                 |
| Bioaccumulation            | OECD 305 D            | No accumulation           |
| Skin and eye irritation    | OECD 401-402, 404-405 | Not irritant              |
| Mutagenity                 | OECD 471              | Not mutagenic             |
| Biological renewability, % |                       | >80                       |

All performance data on this Technical Data Sheet are indicative only and can vary during production

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## Vickers vane wear test

| Vane pump   | Test method             | Limit, max |    |
|---|-------------------------|------------|----|
| 104C pump, 13.7 MPa, 1,200 min-1, 66 °C, 100 hrs                                  | ISO 20763<br>ASTM D7043 |            |    |
| <ul style="list-style-type: none"> <li>• Ring, mg</li> <li>• Vanes, mg</li> </ul> |                         | 120        | <2 |
|   |                         | 30         | <2 |
| 35VQ25 pump, 20.79 MPa, 2,400 min-1, 93 °C, 150 hrs                               | ASTM D6973              |            |    |
| <ul style="list-style-type: none"> <li>• Ring, mg</li> <li>• Vanes, mg</li> </ul> |                         | 75         | <2 |
|   |                         | 15         | <2 |

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