

## PRODUCT HIGHLIGHTS



### PRODUCT APPLICATION

| FARM MACHINES | CONSTRUCTION | MACHINE INDUSTRY | EARTHMOVING AND FORESTRY HYDRAULIC SYSTEM |
|---------------|--------------|------------------|---|
|               |              |                  |   |

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PREMIUM PRODUCT BY



## LUBRICANTS

# BIODEGRADABLE BIO VG 46 & 68 HYDRAULIC OIL



MyHP00231/22



**GRANTT BIO VG HYDRAULIC OIL** is an environmentally-friendly oil which is easily broken down by natural bacteria. It is made up of a natural oil base and preservatives that provide excellent lubrication qualities and is equal to typical lubricants.

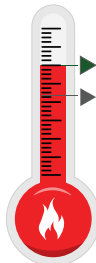
## BIODEGRADABLE BIO VG 46 & 68 HYDRAULIC OIL



It meets the ISO 15380 triglyceride (HETG) requirements for environmentally-friendly lubricants. It is designed to give maximum protection in hydraulic equipment used in sensitive areas within the environment.



Higher VI results in a much stable fluid change to temperature over a wider temperature range.



Higher flashpoint is more suitable for higher temperature equipment or machines.



The base stock of the product is used from renewable resources from Certified Sustainable Palm Oil (CSPO) suppliers.

### TECHNICAL DATA COMPARISON

| PARAMETERS                          | MINERAL-BASED AW 46 | GRANTT BIO VG 46    |
|-------------------------------------|---------------------|---------------------|
| Kinematic Viscosity at 40 °C        | 46                  | 46                  |
| Kinematic viscosity at 100 °C       | 6.8                 | 8.3                 |
| Viscosity Index                     | 108                 | 182                 |
| Flash point, °C                     | 210                 | 250                 |
| Density at 15 °C, kg/m <sup>3</sup> | 0.86                | 0.91                |
| Pour point, °C                      | -6                  | 0                   |
| Biodegradability, %                 | < 60 within 28 days | > 60 within 28 days |

| PARAMETERS                          | MINERAL-BASED AW 68 | GRANTT BIO VG 68    |
|-------------------------------------|---------------------|---------------------|
| Kinematic Viscosity at 40 °C        | 68                  | 68                  |
| Kinematic viscosity at 100 °C       | 9.1                 | 11.5                |
| Viscosity Index                     | 100                 | 161                 |
| Flash point, °C                     | 218                 | 300                 |
| Density at 15 °C, kg/m <sup>3</sup> | 0.88                | 0.91                |
| Pour point, °C                      | -6                  | 0                   |
| Biodegradability, %                 | < 60 within 28 days | > 60 within 28 days |

### VISCOSITY INDEX

#### GRANTT BIO VG vs MINERAL-BASED HYDRAULICS OIL

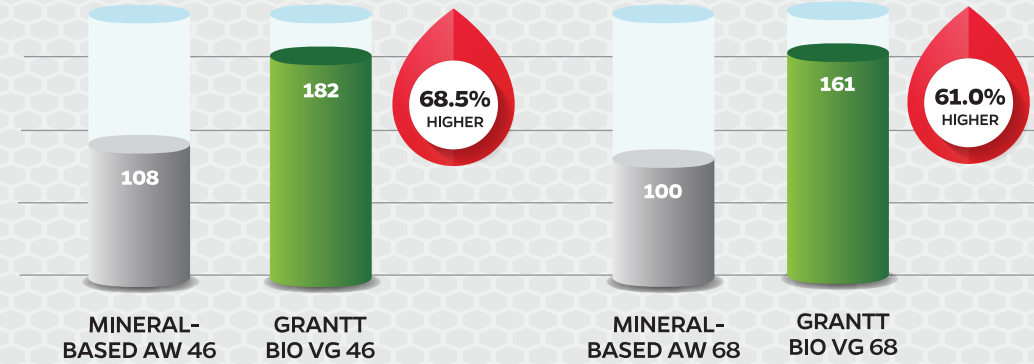
The Viscosity Index (VI) measures how effectively fluid can maintain its consistency in different temperatures.

Higher VI for both GRANTT BIO VG 46 and VG 68 makes it more stable over a wider temperature range.

Higher VI lubricants can create lubricating coatings that can reduce repairs for equipment and machines.

| FEATURES  | ADVANTAGES                                    | BENEFITS                                  |
|---|---|---|
| Up to 68% higher compared against mineral-based counterpart | Stable viscosity over wider temperature range | Machine/equipment performance more stable |

#### VG 46 AND VG 68 VISCOSITY INDEX



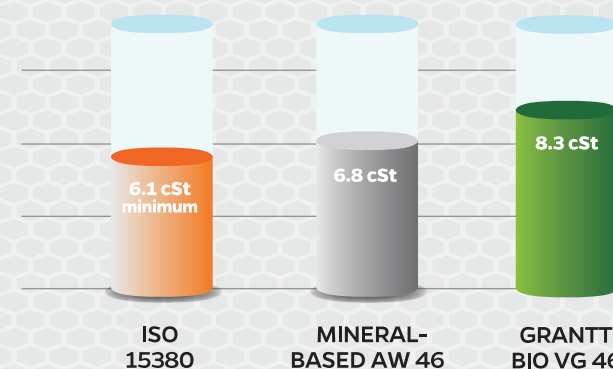
### VISCOSITY AT 100°C

#### GRANTT BIO VG 46 & VG 68 vs MINERAL-BASED HYDRAULICS OIL

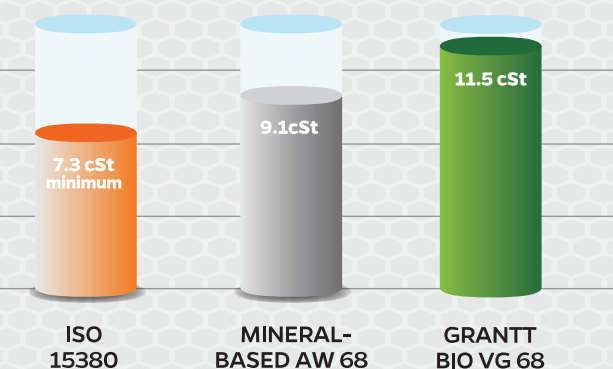
Viscosity is a measure of the flow resistance of hydraulic fluids. A fluid that is too thin (low viscosity) will not perform well. This leads to leakage and wear of parts.

| FEATURES   | ADVANTAGES      | BENEFITS       |
|--|-----------------|----------------|
| 58 % higher compared against mineral-based counterpart | Better fluidity | Reduce leakage |

#### VG 46 VISCOSITY AT 100°C



#### VG 68 VISCOSITY AT 100°C



### FLASHPOINT

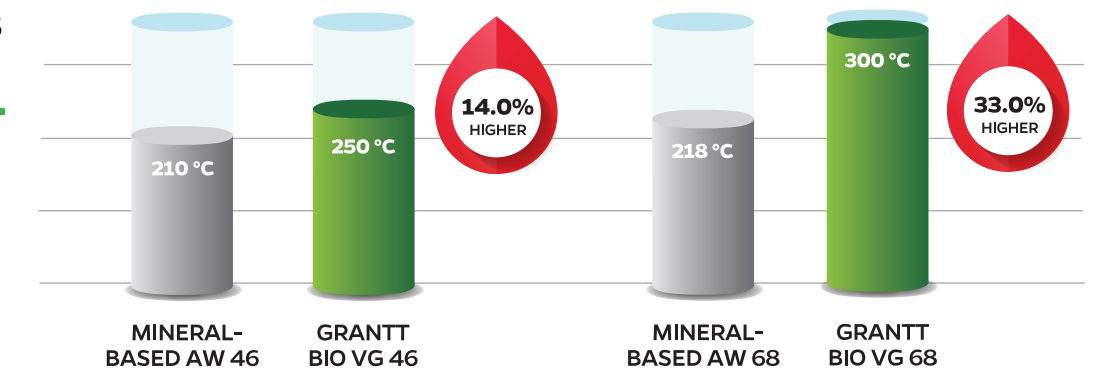
#### GRANTT BIO VG vs MINERAL-BASED HYDRAULICS OIL

Flashpoint is the safety measurement for lubricants when they turn to vapour from heat. It can help avoid fires and explosions.

Higher flashpoint temperature for GRANTT BIO VG 46 and VG 68 compared to typical hydraulics means it is better for higher temperature equipment or machines.

| FEATURES  | ADVANTAGES                                    | BENEFITS                                  |
|---|---|---|
| Up to 68% higher compared against mineral-based counterpart | Stable viscosity over wider temperature range | Machine/equipment performance more stable |

#### VG 46 AND VG 68 FLASHPOINT, °C



### WEAR PERFORMANCE : 4-BALL METHOD

#### GRANTT BIO VG vs MINERAL-BASED HYDRAULICS OIL

A 4-ball wear test measures the effectiveness of a lubricant in preventing wearing of equipment. **GRANTT BIO VG 46 and VG 68** have lower wear scar diameter compared to typical hydraulics. A small scar means lesser wear has been caused and the lubricant quality of the sample fuel is better.

| FEATURES  | ADVANTAGES       | BENEFITS                               |
|---|------------------|--|
| 25 % lower wear scar compared against mineral-based counterpart | Better lubricity | Reduce wear on machine/equipment parts |

#### VG 46 AND VG 68 SCAR DIAMETER, MM

