

FUNCTIONAL RD-535

Multifunctional Rock Drilling Additive Package for biodegradable base oils

APPLICATION:

FUNCTIONAL RD-535 is a high performance oil additive package containing EP/Antiwear, corrosion inhibition, water emulsification, and tackiness properties especially suited for rock drilling applications. **FUNCTIONAL RD-535** is readily biodegradable when formulated with vegetable base stocks, and is designed to meet the requirements of pneumatic tools, down-hole and surface drilling equipment. It is formulated with a tackifier to allow the lubricant to adhere to tooling surfaces further reducing corrosion and wear in the presence of compressed air. The wear reduction performance greatly reduces the incidence of premature bit shanking and lowers operating costs.

Key Data:

FUNCTIONAL RD-535 has a Timken > 70 pounds and a weld load of 250kg.

FUNCTIONAL RD-535 has excellent water emulsification properties. The D1401 test gives 73 ml of emulsion after 30 minutes. If water demulsification is required then use **Functional RD-535CP**.

COMPOSITION:

FUNCTIONAL RD-535 is a proprietary formulation recommended for vegetable oil base stocks.

Typical Properties	
Appearance	tacky, amber liquid
Odor	mild
Lbs per Gallon	8.26
Flash Point (COC)	150°C
Kinematic Viscosity at 100 °C D445	30.8. cst
Copper strip corrosion D130	1b
Sulfur	16.1 % by wt.
Phosphorous	0.78 % by wt.
Solubility in oil/water	soluble/insoluble

TREATMENT LEVEL:

FUNCTIONAL RD-535 recommended initial treat level is 5% weight. The optimum treat level will depend on the severity of the application.

To prepare an ISO 220, ISO 320 or ISO 460 grade using Canola as the base vegetable oil, a thickener such as **V-508S**, should be used at approximately 4.1%, 4.8% and 5.9%, respectively. The **V-508S** is a solid and should be dissolved in the vegetable oil first. The recommended minimum conditions are 3 to 6 hours stirring at 200°F (93°C). If a liquid thickener is desired, use **V-515** at 11% wt treat for ISO 100 grade and 19% for an ISO 220 grade. The **FUNCTIONAL RD-535** is then blended in upon cooling to make the final product.

This Technical Data Sheet and the Safety Data Sheet contain information believed to be accurate and reliable. No warranty is made, however, to information beyond the control of FUNCTIONAL PRODUCTS INC. The engineering and management personnel of the user are responsible for determining the suitability of this or any product for any specific application, and this information is offered to them for that purpose.

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The following data was obtained using a formulation consisting of 4.1% V-508S + 5% RD-535 in canola oil.

Properties and Performance of a formulated ISO 220 RD-535 Rock Drill oil	
Appearance	Amber viscous liquid
Odor	mild
Flash Point (COC)	>150°C
Kinematic Viscosity at 100 °C D445	36. cst
Kinematic Viscosity at 40 °C D445	224.2 cst
Viscosity Index (VI)	211
4-Ball EP Test, D2783, weld load	250 Kg
Timken Load Test, D2782, failure point	> 70 lbs
Demulsification, D1401, 30 minutes	1/6/73

HANDLING:

FUNCTIONAL RD-535 is a skin and eye irritant, and should be handled with suitable personal protection preferably in a well-ventilated area. The maximum heating temperature is 140° F. At higher temperatures, fumes could be released which could be an inhalation irritant.

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