

### FUNCTIONAL V-4051

#### Concentrated Bio-based Liquid Grease Additive

##### APPLICATION:

**FUNCTIONAL V-4051** is a highly concentrated solution of grafted polymer for use in greases to improve water resistance and mechanical stability. Its liquid form allows quick incorporation into grease without a long dissolving process and results in more consistent results than when using a solid polymer. It can be added to grease at the beginning of the reaction or with the cooling oil. **FUNCTIONAL V-4051** also increases the tackiness of the grease and reduces the required soap content resulting in higher yields.

##### COMPOSITION:

**FUNCTIONAL V-4051** is a solution of grafted hydrocarbon polymer in biodegradable methyl ester.

Typical properties	
Specific Gravity (ASTM D1298)	0.9
Lbs per Gallon (TM-04)	7.4
Flash Point (ASTM D92)	>150°C
Kinematic Viscosity (ASTM D445)	2000 - 3000 cSt at 100°C
Color (ASTM D1500)	< 3.0

##### TREATMENT LEVEL:

Typical treatment level of 1 – 5% by weight is used in greases to confer water resistance and mechanical stability. The required concentration is best determined by formulator and will vary depending on the grease type and the level of performance enhancement required.

Add **FUNCTIONAL V-4051** before the reaction step in the grease-making process for best results. **FUNCTIONAL V-4051** can be added to completed greases as a top treat for improved water spray-off.

##### Water Spray-Off (D4049) with V-4051 in #2 Lithium Complex

Base	1.5wt%	4.0wt%	4.8wt%
52	22.6	12.9	10.0

##### HANDLING:

Due to the high viscosity of **FUNCTIONAL V-4051**, elevated temperatures up to 185°F (85°C) can facilitate handling, but temperatures over 200°F (95°C) should be avoided if added after saponification. Safe handling precautions are the same as those to be taken with the base oil; see the current Safety Data Sheet. The tackiness of the resulting lubricant can be lessened by shearing, so mechanical shearing during blending and handling should be minimized.

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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