FUNCTIONAL PRODUCTS INC.

Innovative Chemistry for Lubricants

Technical Data Sheet

FUNCTIONAL SGP-563

Low Friction Emulsifying Saw Guide Oil Package for Vegetable Oils

APPLICATION:

FUNCTIONAL SGP-563 is a multifunctional package optimized for vegetable oil-based saw guide oils including multi-blade saws, gang saws and trimmers used in lumber mill operations. **FUNCTIONAL SGP-563** contains an engineered blend of antiwear and friction modifiers to provide exceptionally low friction and operating temperatures at high speeds versus competing mineral oil formulations.

FUNCTIONAL SGP-563 differs from **SGP-567** by the longer lasting emulsion, using calcium rather than phosphate AW chemistry, and ~40% lower coefficient of friction for reduced operating temperatures.

COMPOSITION:

FUNCTIONAL SGP-563 does not contain phosphates, halogens, or heavy metals.

Typical Properties	
Appearance	Orange to Brown Clear Liquid
Color (ASTM D1500)	< 4.0
Odor	Fatty
Specific Gravity	0.940 – 0.953
Lbs. per Gallon	7.85 – 7.95
Flash Point	>180°C / 356°F
Kinematic Viscosity (ASTM D445)	100-150 cSt @ 40°C, 10 - 16 cSt @ 100°C
Elemental Analysis	0.5-0.6% Calcium, 0.0% Phosphorus
Performance (1.5wt% in ISO 100 canola- saw guide oil)	
Demulsibility, 82°C (ASTM D1401)	2/78/0 (60 min)
Foaming, Schedule I (ASTM D892)	10/0
Turbine Oil Rust (ASTM D665A, D665B)	Pass / Pass
Copper Corrosion (ASTM D130, 3hrs)	1a
Weld Load (ASTM D2783)	200 kgf
Coefficient of Friction (ASTM D5183)	0.08-0.10@10-40kgf; 0.05-0.07@>40kgf Seize at ≥220kgf; no overheat (T>77°C)

TREATMENT LEVEL:

The recommended treatment level of **FUNCTIONAL SGP-563** is 1.5wt% in vegetable oil-based formulations using viscosity modifier and tackifier. See next page for recommended formulations.

HANDLING:

Store in a cool, dry area. Review the current Safety Data Sheet before use and use proper protective equipment. **FUNCTIONAL SGP-563** provides no hazards at recommended treat in a formulation.

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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BIOBASED FORMULATION GUIDE:

To achieve the higher ISO viscosity grades or to meet the specific ISO grades recommended by equipment manufacturers, biobased thickener **FUNCTIONAL V-515** and tackifier **FUNCTIONAL V-584** are recommended.

Recommended Biobased Formulations			
	ISO 68	**ISO 100**	**ISO 150**
Exceptionally Tacky > 80 DS*	10% V-584 1.5% SGP-563 Balance Canola Oil	25% V-584 1.5% SGP-563 Balance Canola Oil	33% V-584 1.5% SGP-563 Balance Canola Oil
Very Tacky 65 - 80 DS*	4% V-515 8% V-584 1.5% SGP-563 Balance Canola Oil	7% V-515 8% V-584 1.5% SGP-563 Balance Canola Oil	11% V-515 9% V-584 1.5% SGP-563 Balance Canola Oil
Tacky 50 - 65 DS*	5% V-515 6% V-584 1.5% SGP-563 Balance Canola Oil	8% V-515 7.5% V-584 1.5% SGP-563 Balance Canola Oil	13% V-515 6.5% V-584 1.5% SGP-563 Balance Canola Oil

*** DS** indicates the string length determined by Functional Products Ductless Siphon Tackiness Test at room temperature.

MINERAL OIL FORMULATION GUIDE:

FUNCTIONAL SGP-563 performs competitively in mineral oils but demonstrates the best friction and wear performance in vegetable oil based formulations (above). **FUNCTIONAL V-178** tackifier at 0.5wt% or **FUNCTIONAL V-176** at 0.75wt% perform best.

	Tacky ISO 46	**Tacky ISO 68**	**Tacky ISO 100**
220N Group II	97.5%	53.6%	8%
600N Group II	--	43.9%	89.5%
FUNCTIONAL SGP-563 (package)	1.5%	1.5%	1.5%
FUNCTIONAL V-178 (tackifier)	0.5%	0.5%	0.5%
FUNCTIONAL PD-610 (pour point)	0.5%	0.5%	0.5%

If using different base stocks (naphthenic, bright stock, recycled) for a saw guide oil or bar & chain then consult Functional Products for testing and optimization. Performance depends on base oil composition.

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