

### FUNCTIONAL WA-60SF

#### Sulfur-free Way Additive Package

#### APPLICATION:

**FUNCTIONAL WA-60SF** is a non-hazardous additive package and provides antiwear, mild EP, prevents stick-slip and protects against corrosion of both ferrous and copper alloys. Way lubes containing **FUNCTIONAL WA-60SF** are light colored and do not possess a disagreeable sulfur odor. **FUNCTIONAL WA-60SF** is compatible in a vegetable oil or mineral oil base stock and is recommended for light duty applications in small to medium size machine tools.

#### COMPOSITION:

**FUNCTIONAL WA-60SF** is a combination of antiwear/EP additives, friction modifiers, demulsifiers and corrosion inhibitors. The formulation does not contain sulfur or chlorine based additives or metals. Combined with a tackifier and formulated into a biobased fluid or mineral oil of suitable viscosity, it will provide all the necessary additive components for a way lubricant.

Typical Properties	
Appearance	Amber liquid
Color (ASTM D1500)	1.5
Odor	Mild amine
Lbs per Gallon	7.85
Flash Point	370°F (188°C)
Kinematic Viscosity at 40°C	60 cSt
Phosphorous, wt%	2.2
Performance at 1.5% treat in ISO 68 oil:	
4-ball wear test (ASTM D4172)	0.35 mm scar
4-ball EP weld point (ASTM D2783)	200 kg
Demulsibility (ASTM D1401)	40/40/0 (30 min)
Copper strip (ASTM D130)	1a
Fives Cincinnati stick/slip test	Pass

#### TREATMENT LEVEL:

**FUNCTIONAL WA-60SF** should be used at 1.5% by weight preferably in an ISO 68 low sulfur base oil to prepare sulfur-free way lubricants. **FUNCTIONAL WA-60SF** is soluble in an array of biobased oils and mineral oils. To thicken vegetable oil to ISO 68 grade, about 6% of **FUNCTIONAL V-508M** is recommended. **FUNCTIONAL WA-60SF** may be used with a tackifier such as **FUNCTIONAL V-584** for biobased oils or **FUNCTIONAL V-178** for mineral oil based way oils.

#### HANDLING:

Store in a cool, dry area. Review the current Safety Data Sheet before use. Please review our Industrial Products brochure for proper blending of a tackifier and a way oil package.

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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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