

### FUNCTIONAL MN-3500

#### Low Temperature Methacrylate-based Viscosity Index Improver for Multi-grade Gear Oil

#### APPLICATION:

**FUNCTIONAL MN-3500** is a liquid-form polyalkylmethacrylate viscosity modifier formulated in naphthenic oil that offers high thickening efficiency with excellent shear stability and low temperature properties. **FUNCTIONAL MN-3500** has been specifically formulated to provide additional VI improvement and pour point depressancy at low temperatures. The naphthenic oil base fluid of **FUNCTIONAL MN-3500** helps dilute wax content and improve solubility of additive packages.

#### COMPOSITION:

**FUNCTIONAL MN-3500** is a blend of polyalkylmethacrylates and highly refined naphthenic oil.

Typical Properties	
Lbs per Gallon (ASTM D 1475)	7.7
Specific Gravity	0.92
Kinematic Viscosity (ASTM D 445)	900 cSt at 100 °C
Thickening Efficiency (10% in ISO 32)	12.0 cSt at 100 °C
PSSI (5% in 150N, ASTM D 6278)	9%
Flash Point (ASTM D 92)	>150°C
Color (ASTM D 1500)	< 1.0

#### TREATMENT LEVEL:

Typical treatment level for methacrylate-based viscosity modifiers ranges from 5% to 20% for gear oils.

5.7wt% **FUNCTIONAL MN-3500** will increase an ISO 32 oil to ISO 46.

#### FUNCTIONAL MN-3500 Treat Level vs. Viscosity @ 100°C

wt% Treat	100N Oil (ISO 22)	150N Oil (ISO 32)	200N Oil (ISO 46)	350N Oil (ISO 68)
0%	3.9	5.4	6.5	8.3
5%	6.4	7.9	9.4	11.8
10%	9.4	11.3	13.4	16.8
20%	18.0	21.2	24.8	26.7

#### HANDLING:

**FUNCTIONAL MN-3500** should be warmed to about 50°C (120°F) to facilitate pumping and handling. The base oil should be heated to 60-80°C (140-180°F) during blending to allow for good mixing. Mixing time will vary with equipment but is typically at least one hour. Safe handling precautions are the same as those to be taken with base oil; see the current Safety Data Sheet.

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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