

# MRF-140CG Magneto-Rheological Fluid

## Description

LORD MRF-140CG fluid is a hydrocarbon-based magneto-rheological (MR) fluid formulated for general use in controllable, energy-dissipating applications such as shocks, dampers and brakes.

MRF-140CG fluid is a suspension of micron-sized, magnetizable particles in a carrier fluid. When exposed to a magnetic field, the rheology of MRF-140CG fluid reversibly and instantaneously changes from a free-flowing liquid to a semi-solid with controllable yield strength. Altering the strength of the applied magnetic field precisely and proportionally controls the consistency or yield strength of the fluid.

MRF-140CG fluid can be used in *valve mode* (fluid flowing through an orifice) or in *shear mode* (fluid shearing between two surfaces). In the absence of a magnetic field, MRF-140CG fluid flows freely or allows free movement. Upon application of a magnetic field, the fluid's particles align with the direction of the field in chain-like fashion, thereby restricting the fluid's movement within the gap in proportion to the strength of the magnetic field.

## Features and Benefits

**Fast Response Time** – responds instantly and reversibly to changes in a magnetic field.

**Dynamic Yield Strength** – provides high yield strength in the presence of a magnetic field and very low yield strength in the absence of a magnetic field; allows for a wide range of controllability.

**Temperature Resistant** – performs consistently throughout a broad temperature range, meeting the requirements of demanding applications such as automotive shock absorbers.

**Hard Settling Resistant** – provides high resistance to hard settling; easily redispersed.

**Non-Abrasive** – formulated to not abrade the devices in which the MR fluid is used.

## Application

**Mixing** – Under common flow conditions, no separation is observed between particles and the carrier fluid. However, a degree of separation may eventually occur under static conditions. If needed, use a paint shaker to redisperse the particles into a homogeneous state prior to use.

## Storage

Keep container tightly closed when not in use.

## Typical Properties\*

Appearance	Dark Gray Liquid
Viscosity, Pa-s @ 40°C (104°F) Calculated as slope 800-1200 sec <sup>-1</sup>	0.280 ± 0.070
Density	
g/cm <sup>3</sup>	3.54-3.74
(lb/gal)	(29.5-31.2)
Solids Content by Weight, %	85.44
Flash Point, °C (°F)	>150 (>302)
Operating Temperature, °C (°F)	-40 to +130 (-40 to +266)

\*Data is typical and not to be used for specification purposes.

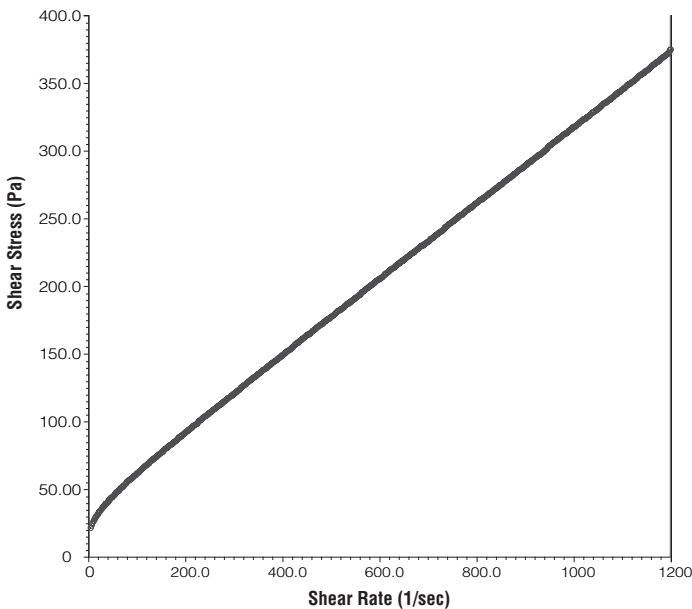
# LORD TECHNICAL DATA

## Cautionary Information

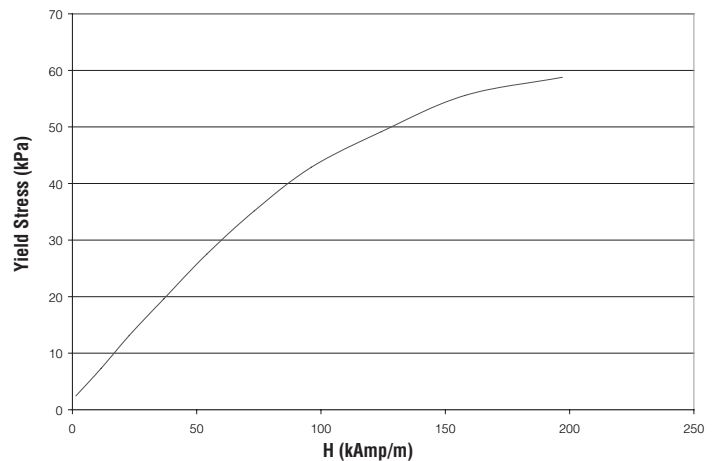
Before using this or any LORD product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

*For industrial/commercial use only. Not to be used in household applications. Not for consumer use.*

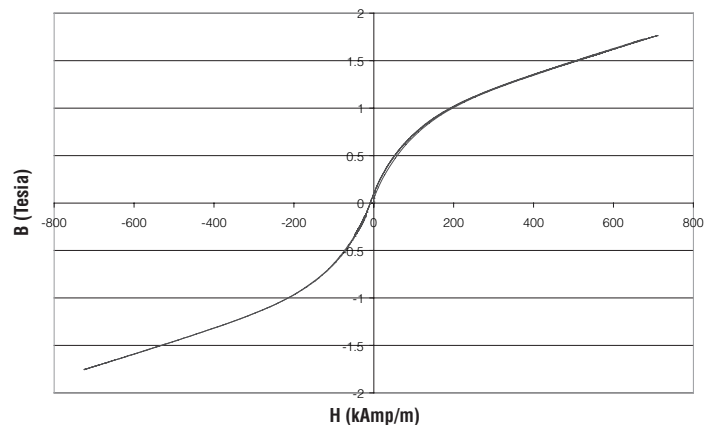
### Shear Stress as a function of Shear Rate with no Magnetic Field applied at 40°C (104°F)



### Yield Stress vs. Magnetic Field Strength



### Typical Magnetic Properties



Values stated in this technical data sheet represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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LORD provides valuable expertise in adhesives and coatings, vibration and motion control, and magnetically responsive technologies. Our people work in collaboration with our customers to help them increase the value of their products. Innovative and responsive in an ever-changing marketplace, we are focused on providing solutions for our customers worldwide.

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