**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**

For more information on MR technology, refer to the MR Design Guides located on [www.lord.com/mr](http://www.lord.com/mr).

*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 redispense the particles into a homogeneous state prior to use.

**Storage**

Keep container tightly closed when not in use.

**Typical Properties***

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Dark Gray Liquid</td>
</tr>
<tr>
<td>Viscosity, Pa-s @ 40°C (104°F)</td>
<td>0.280 ± 0.070</td>
</tr>
<tr>
<td>(Calculated as slope 800-1200 sec⁻¹)</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>3.54-3.74</td>
</tr>
<tr>
<td>(g/cm³)</td>
<td>(29.5-31.2)</td>
</tr>
<tr>
<td>(lb/gal)</td>
<td></td>
</tr>
<tr>
<td>Solids Content by Weight, %</td>
<td>85.44</td>
</tr>
<tr>
<td>Flash Point, °C (°F)</td>
<td>&gt;150 (&gt;302)</td>
</tr>
<tr>
<td>Operating Temperature, °C (°F)</td>
<td>-40 to +130 (-40 to +266)</td>
</tr>
</tbody>
</table>

*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 Material Safety Data Sheet (MSDS) and label for safe use and handling instructions.

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

Yield Stress vs. Magnetic Field Strength

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

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 Corporation
World Headquarters
111 Lord Drive
Cary, NC 27511-7923
USA

Customer Support Center (in United States & Canada)
+1 877 ASK LORD (275 5673)

www.lord.com

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