Tackifiers

<table>
<thead>
<tr>
<th>Tackifier</th>
<th>Description</th>
<th>Typical Viscosity cSt @ 100˚C</th>
<th>Treat Level wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-176</td>
<td>Good shear stability and good string length. PIB in paraffinic oil.</td>
<td>3,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-177</td>
<td>Concentrated PIB tackifier with good shear stability and string length.</td>
<td>10,500</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-178</td>
<td>Good shear stability and good string length. High concentrate PIB in paraffinic oil.</td>
<td>4,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-175</td>
<td>Ultra-high molecular weight PIB in oil for low treat, textile/fiber applications. V-475 for HX1 with high color stability.</td>
<td>6,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-198A</td>
<td>Excellent string length and fair shear stability. PIB in paraffinic oil. V-498 for HX1 applications.</td>
<td>5,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>PARATAC</td>
<td>Good shear stability and good string length. PIB in paraffinic oil. PARATAC XT for 900 cSt @ 100˚C with good string.</td>
<td>3,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-188</td>
<td>OCP tackifier with excellent shear stability and string length.</td>
<td>4,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-422</td>
<td>Good shear stability and good string length. HXI grade, PIB in technical white oil.</td>
<td>3,000</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-584</td>
<td>LuSC/VGP and HX1 tackifier for vegetable oil formulations. Provides excellent string.</td>
<td>2,500 @ 40˚C</td>
<td>3.0 – 10.0</td>
</tr>
<tr>
<td>V-802P</td>
<td>Water-white aqueous tackifier for environmentally friendly water based, PAG, and emulsion lubricants.</td>
<td>40,000 @ 40˚C</td>
<td>0.3 – 5.0</td>
</tr>
</tbody>
</table>

Viscosity Modifiers

<table>
<thead>
<tr>
<th>Viscosity Modifier</th>
<th>Description</th>
<th>Shear Stability Index (PSSI) ASTM D6278</th>
<th>Thickening Efficiency in ISO 32, cSt @ 100˚C</th>
<th>Typical Viscosity cSt @ 100˚C</th>
<th>Treat Level wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-158F</td>
<td>Liquid OCP viscosity modifier in paraffinic oil.</td>
<td>45</td>
<td>10% = 12.5</td>
<td>1,600</td>
<td>5 – 10</td>
</tr>
<tr>
<td>V-135</td>
<td>Bale form OCP viscosity modifier. 8% = 1000 cSt @ 100˚C</td>
<td>33</td>
<td>1% = 11.0</td>
<td>—</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-255</td>
<td>Pellet form shear stable OCP viscosity modifier. 12% = 1000 cSt @ 100˚C</td>
<td>25</td>
<td>1% = 10.5</td>
<td>0.5 – 2.0</td>
<td></td>
</tr>
<tr>
<td>V-460</td>
<td>Liquid shear stable OCP viscosity modifier, HX1 approved.</td>
<td>20</td>
<td>10% = 13.6</td>
<td>3,000</td>
<td>5 – 10</td>
</tr>
<tr>
<td>V-515</td>
<td>Liquid viscosity modifier for vegetable oil.</td>
<td>50</td>
<td>10% = 12.0</td>
<td>8,000</td>
<td>2 – 15</td>
</tr>
<tr>
<td>V-508F</td>
<td>Liquid LuSC/VGP and HX1 viscosity modifier for vegetable oil and esters.</td>
<td>28</td>
<td>12% = 45.0</td>
<td>7,000</td>
<td>5 – 10</td>
</tr>
<tr>
<td>MD-8000</td>
<td>Liquid dispersant PMA for improved varnish/sludge control in tractor HF and ATF.</td>
<td>40</td>
<td>10% = 16.0</td>
<td>2,000</td>
<td>1 – 5</td>
</tr>
<tr>
<td>MN-3500</td>
<td>Liquid PMA VII in naphthenic oil for extreme low temperature applications.</td>
<td>1</td>
<td>10% = 12.0</td>
<td>900</td>
<td>5 – 20</td>
</tr>
<tr>
<td>MH-2000</td>
<td>Liquid PMA VII with exceptional shear stability for hydraulic fluid (KRL shear loss = 35%)</td>
<td>1</td>
<td>10% = 9.2</td>
<td>1,100</td>
<td>5 – 20</td>
</tr>
<tr>
<td>MG-3000</td>
<td>Liquid PMA VII with exceptional shear stability for gear oils (KRL shear loss = 20%)</td>
<td>0</td>
<td>10% = 8.6</td>
<td>50</td>
<td>10 – 40</td>
</tr>
</tbody>
</table>

Grease Additives

<table>
<thead>
<tr>
<th>Grease Additive</th>
<th>Description</th>
<th>Treat Level wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-207</td>
<td>Powder polymer for quick dissolving in cooling oil. Superior shear stability and water spray-off for most greases.</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-4020</td>
<td>Pellet polymer to reduce water spray-off in grease at low treat. V-4004A for convenient liquid form.</td>
<td>0.2 – 1.0</td>
</tr>
<tr>
<td>V-191</td>
<td>Polymer emulsion stable against water during and after production. Improved water spray-off and tack in organic and synthetic greases.</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-4270</td>
<td>Liquid polymer to improve shear stability, water washout, and water spray-off in grease.</td>
<td>3.0 – 5.0</td>
</tr>
<tr>
<td>V-4051</td>
<td>Liquid polymer concentrate in bio-based ester to improve shear stability and water spray-off. Easily handled.</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>V-4060</td>
<td>Flake polymer to improve water spray off and grease consistency in HX1 greases.</td>
<td>0.5 – 2.0</td>
</tr>
</tbody>
</table>

Specialty Packages & Additives

<table>
<thead>
<tr>
<th>Specialty Packages</th>
<th>Description</th>
<th>Treat Level wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI-426</td>
<td>Corrosion inhibitor and anti-wear package for HX1 applications. For extreme pressure, CI-446EP in white oil and CI-526EP in veg oil.</td>
<td>0.5 – 2.0</td>
</tr>
<tr>
<td>GA-614</td>
<td>Multifunctional industrial gear oil package for mineral and vegetable oils.</td>
<td>1.5 – 3.0</td>
</tr>
<tr>
<td>HF-580</td>
<td>Biobased ashless hydraulic fluid package. Passes Vickers V104C pump test. Compatible in a variety of base fluids. HF-590 for LuSC Eco-Label.</td>
<td>2.5</td>
</tr>
<tr>
<td>RD-535</td>
<td>Biobased Gear Oil Package &gt;70 lb. Timken and weld load 250 kg. Additive package for rock drill, grease, or open gear application.</td>
<td>2.0 – 7.0</td>
</tr>
<tr>
<td>SGP-567</td>
<td>Biobased saw guide oil package containing friction modifier, corrosion inhibitor and anti-wear agents. SGP-571 for LuSC Eco-Label.</td>
<td>1.5</td>
</tr>
<tr>
<td>V-162</td>
<td>Anti-mist additive for oil based coolants. Use MW-612 for aqueous or synthetic fluids.</td>
<td>0.02 – 0.1</td>
</tr>
<tr>
<td>WA-60SF</td>
<td>Light color, low odor sulfur-free way oil package. Passes Cincinnati Fives stick-slip test. Adds no color to allow water-white way oils.</td>
<td>1.5</td>
</tr>
<tr>
<td>WA-64</td>
<td>Light color, low odor, compatible in a range of base oils. Cincinnati Fives stick-slip test.</td>
<td>1.75</td>
</tr>
</tbody>
</table>

Cold Flow Improvers

<table>
<thead>
<tr>
<th>Cold Flow Improver</th>
<th>Description</th>
<th>Treat Level wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD-585</td>
<td>Concentrated cold flow improver for vegetable oils. Excellent performance in vegetable oils as PPD and thickener: 1800 cSt @ 100˚C, 4 PSSI</td>
<td>0.1 – 1.0</td>
</tr>
<tr>
<td>PD-590</td>
<td>Readily biodegradable cold flow improver, meets LuSC Eco-Label and EPA Safer Choice certifications. No known carcinogens.</td>
<td>0.1 – 1.0</td>
</tr>
<tr>
<td>PD-610</td>
<td>Mineral oil pour depressant for industrial lubricants in Gr. I/II oil to -55˚C. PD-620 for economic Gr. I oils. PD-630 for Gr. III oils.</td>
<td>0.1 – 0.5</td>
</tr>
</tbody>
</table>
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