

*'Providing Tribological Solutions'*  
**MOV Long Life®, MOV Extra® and VGS® Greases**

<b>TENNESSEE VALLEY AUTHORITY</b> Standard Procurement Specification TVA-UW-3 Revision 18.009 5-8-92 <b>UNDERWATER GREASE FOR HYDRO PLANT WICKET GATES</b>		
Test	Limit	VSG Grade 1
<b>NLGI Grade</b>	1	1
<b>Penetration, ASTM D-217 @ 77°F ∇1°</b>	310-340	325
<b>Base Oil Viscosity @ 210°F (SUS)</b>	75-85	80
<b>Filler Type*</b>	Lithium soap or lithium complex	State of the art calcium sulphonate
<b>Additives</b>	Sulphur/ Phosphorous	No EP additives required. Meets 55lb Timken so easily EP.
<b>Dropping Point, ASTM D-566-81</b>	355°F minimum	500°F
<b>Grease Worker Test, ASTM D-217-78</b> (% increase in penetration)	5% maximum	2.5% after 100,000 strokes
<b>Roller Test, ASTM D-1831-78</b> (% change in penetration after 2 hours?)	22% maximum	8%
<b>Bleeding and evaporation, Federal Test Method 791a-321.2, 50 hours @ 100° C</b> Bleeding loss (%) Evaporation loss (%)	18.5% maximum 0.6 % maximum	2.5-3% <0.3%
<b>Wheel Bearing Test, ASTM D-1263-80</b> Bearing Condition	Good A, minimum	Good, A
<b>Rust Preventing Test, ASTM D 1743-81</b> 48 hours @ 125°F, 100% humidity	No Rust	No Rust

\* Grease filler is not performance related but was possibly intended to prevent compatibility problems. The thickener in VSG is generally compatible with these thickeners. TVA specification likely based on Shell Alvania EP1. Alvania is a trademark of Shell.