

# GRIFLUBE® BIO-SYN AS

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In response to an increased awareness and desire for environmentally compatible lubricants, Hill and Griffith developed the **GRIFLUBE® BIO-SYN** as a high performance biodegradable hydraulic fluid, offering superior lubrication capacity. This advanced product technology not only conforms to the highest standards for low toxicity and biodegradability; but was specifically designed for the casting industry, where the reliability of hydraulic systems and the potential for combustion are typically of issue.

**GRIFLUBE® BIO-SYN** will provide exceptional lubrication and extended oxidation stability in all types of foundry equipment from Ajax, Brown Boveri / ABP, and Inductotherm melt furnaces; to Disa, Herman, Hunter, Osborn, Sinto, Spo, and Wagner molding systems; to Lamberton, Clansman, EMI, Action, and Andromat manipulators. ASTM D2882 testing registers less than 4 mg total cam ring/vane weight loss.

**GRIFLUBE® BIO-SYN** was researched and designed as the proactive alternative to conventional vegetable oils, traditional polyol esters, and PAG type fire resistant fluids. It is fully compatible with all these types of chemistries, inclusive of Houghton's Cosmolubric, Quaker's Quintolubric, Shell Irus, and ACT's Ecosafe.

**GRIFLUBE® BIO-SYN** will readily biodegrade as defined by OECD 301C and CEC method L-33-T-82, easily exceeding 60% biological conversion of CH<sub>3</sub> - CH<sub>2</sub> molecular groups to CO<sub>2</sub> within 7 days. It will also pass the existing standards for safe aquatic toxicity, established at a minimum LD<sub>50</sub> of 1000ppm, exceeding a minimum LD<sub>50</sub> level of 2000ppm concentration over a period of 96 hours.

**GRIFLUBE® BIO-SYN** is inherently fire resistant and will not propagate a flame but will self-extinguish once the source of ignition has been eliminated. It has a Flash Point in excess of 550° F and a Fire Point in excess of 650° F. **GRIFLUBE® BIO-SYN** is certified by Factory Mutual Global, in accordance with their latest Spray Flammability Parameter standards.

**GRIFLUBE® BIO-SYN** has a minimum viscosity index of 215 which allows for maximum stability of the viscosity over an extreme range of temperatures, with a minimum pour point down to 0° F. Bio-Syn will not shear down or selectively deplete under high cycling conditions or varnish at elevated temperatures.

**GRIFLUBE® BIO-SYN** is compatible with most commonly used seals and hoses, including Viton, Teflon, Silicone, Polyurethane, and Buna N.

**GRIFLUBE® BIO-SYN** meets the stringent criteria as dictated by the USDA sponsored Bio Preferred Labeling Program and is on their approval ledger at [www.biopreferred.gov](http://www.biopreferred.gov)



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## TYPICAL PHYSICAL PROPERTIES:

Appearance	Translucent amber fluid	
Specific Gravity	0.92	
Viscosity Index, DIN 51564	> 215	
ISO Viscosity Grade	46	
Viscosity, SUS/cSt @ 100°F / 38°C	214 SUS / 46cSt	
Viscosity, SUS/cSt @ 212°F / 100°	C60 SUS / 10cSt	
Stable Pour Point, D97	< 0° F	
Total Acid Number	< 1.5	
Flash Point, C.O.C., D92	> 550°F	
Fire Point, C.O.C., D92	> 650°F	
Pump Wear Vickers 104C Vane (ASTM D2882) < 4 mg total wear		
Four Ball Wear (ASTM D-2266)	0.32 mm	
Four Square Gear Test (FZG)	Pass, all 12 stages	
Corrosion Test, D665A	Pass	
Copper Strip, D130	1a	
Non-Toxic, OECD 203	Pass	
Elastomer Compatibility:	Static	Dynamic
High Nitrile Rubber (Buna N)	Compatible	Compatible
Fluroelastomer (Viton/FKM)	Excellent	Excellent
Perfluoroelastomer (Kalrez/FFKM)	Excellent	Excellent
Polyurethane	Compatible	Compatible
Nylon	Compatible	Compatible
Teflon (PTFE)	Compatible	Compatible
Flurosilicone (FVMQ)	Compatible	Compatible

Ideal Proactive Preventive Maintenance Recommendations to ensure the optimum long-term integrity of the fluid, and subsequent long-term efficiency of the hydraulic components, endeavor to achieve the following standards:

- \*Maintain an ISO fluid cleanliness level of 16/15/11 or better
- \*Maintain moisture control of less than 300 ppm
- \*Maintain operating fluid temperatures of less than 130° F.

## PACKAGING:

Bulk Tank  
Tote  
Drums  
Pails

