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AMSOIL
The First in Synthetics®

DATA BULLETIN

Synthetic Multi-Viscosity Hydraulic Oil

All-Season, Anti-Varnish, Anti-Wear

Synthetic Multi-Viscosity Hydraulic Oil is formulated with varnish-control technology to keep hydraulic systems cleaner (see comparison below) for long life and reliable operation. It resists breakdown in the presence of heat while remaining fluid when cold to keep valves, pumps, servos and other components clean, protected and long-lasting. Synthetic Multi-Viscosity Hydraulic Oil is the perfect solution to the common problems that plague hydraulic applications, helping you save money.



Maximum Cleanliness

Synthetic Multi-Viscosity Hydraulic Oil is fortified with anti-varnish additives that chemically react with the building blocks of varnish, inhibiting its formation. It helps hydraulic systems remain clean for solid performance, immediate response and fewer breakdowns.

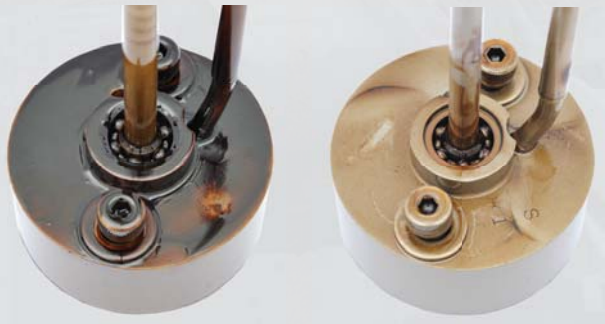
Excellent Year-Round Protection

Multi-Viscosity Hydraulic Oil's naturally heat-resistant base oils resist thermal breakdown and maintain their protective viscosity, allowing formation of a strong lubricating film for excellent wear protection. Because it doesn't contain the waxes inherent to conventional fluids, it flows more readily in cold temperatures, meaning bearings and other components receive almost immediate lubrication at start up, reducing long-term wear and instances of pressure spikes and erratic operation as a result of poor fluidity.

- **All-season** performance
- **Maintains** cleanliness
- **Promotes** maximum fluid life
- **Resists** foam
- **Maximizes** energy efficiency

Aluminum Beaker Oxidation Test

Tested April 2012



LEADING CONVENTIONAL HYDRAULIC FLUID (ISO 46)

AMSOIL SYNTHETIC MULTI-VISCOSITY HYDRAULIC OIL (ISO 46)

Excessive oxidation results in harmful deposits and varnish that cause a host of problems, including stuck valves and decreased efficiency. In severe oxidation testing, AMSOIL Synthetic Multi-Viscosity Hydraulic Oil resisted elevated heat and oxidation more effectively than the conventional fluid.

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TYPICAL TECHNICAL PROPERTIES
AMSOIL Synthetic Multi-Viscosity Hydraulic Oil

	ISO 22 (HVG)	**ISO 32** (HVH)	**ISO 46** (HVI)	**ISO 68** (HVJ)
ISO VG (ASTM D2422)	22	32	46	68
Kinematic Viscosity @100°C cSt (ASTM D445)	5.2	6.5	8.5	11.2
Kinematic Viscosity @40°C cSt (ASTM D445)	23.6	31.8	46.7	68.5
Viscosity Index (ASTM D2270)	161	165	161	155
Flash Point °C (°F) (ASTM D92)	228 (442)	224 (435)	246 (475)	252 (486)
Fire Point °C (°F) (ASTM D92)	242 (468)	246 (475)	266 (511)	270 (518)
Pour Point °C (°F) (ASTM D97)	-49 (-56)	-46 (-51)	-44 (-47)	-41 (-42)
Four-Ball Wear Test (ASTM D4172) (40 kg, 1200 rpm, 75°C, 60 min.)	0.42	0.42	0.41	0.41
Copper Strip Corrosion Test 100°C, 3 hrs. (ASTM D130)	1A	1A	1A	1A
Foam (ASTM D892, Sequence I, II & III)	0/0,10/0,0/0	0/0,10/0,0/0	0/0,10/0,0/0	0/0,35/0,0/0
Demulsibility (ASTM D1401)	40-40-0 (20)	40-40-0 (25)	40-40-0 (20)	40-40-0 (20)
Dielectric Strength (ASTM D877) Voltage, kV AC	47	45	44	45
Seal Tests Elastomer SRE-NBR 1, 100°C, 168 hrs. (ASTM D471)	Pass	Pass	Pass	Pass
Rust Testing Distilled and Salt Water (ASTMD 665A & B)	Pass	Pass	Pass	Pass
KRL Shear Test, 15% Max KV loss, Stay-in-Grade	Pass	Pass	Pass	Pass

Fights Component Wear

Synthetic Multi-Viscosity Hydraulic Oil features a shear-stable formulation fortified with the latest zinc-type anti-wear additives. It meets the stringent viscosity-retention requirements of Parker Hannifin* (Denison*) HF-0 and demonstrates excellent anti-wear performance and compatibility with yellow metals in standardized laboratory and pump manufacturer tests (see below). Synthetic Multi-Viscosity Hydraulic Oil demonstrates excellent protection for pumps, motors, valves and other components against wear.

YELLOW METAL PISTON SHOES



VANE PUMP CAM RING



After 608 hours of strenuous pump testing in a Parker Hannifin (Denison) T6H20C Hybrid pump, the piston shoes demonstrated only moderate polishing and trace, random scratches, proving AMSOIL Synthetic Multi-Viscosity Hydraulic Oil excels at protecting yellow metals. The vane pump cam ring exhibited only light polishing and trace scratching, further confirming the excellent wear protection provided by the oil.

APPLICATIONS & SPECIFICATIONS

The correct viscosity grade of AMSOIL Synthetic Multi-Viscosity Hydraulic Oil is recommended for high- and low-pressure gear, vane and piston stationary and mobile hydraulic systems, including those with bronze metallurgy. It is recommended for all types of applications requiring the following industry and equipment specifications:

Stock Code	**HVG**	**HVH**	**HVI**	**HVJ**
Parker Hannifin (Denison) HF-0, HF-1, HF-2		x	x	x
Vickers* I-286-S, M-2950-S		x	x	x
DIN 51524 Parts 2 & 3		x	x	x
Cincinnati Milacron* P-68		x		
Cincinnati Milacron P-70			x	
Cincinnati Milacron P-69				x

AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit www.amsoil.com/warranty.aspx.

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