

SWO SERIES HD OILS FOR ALL SLIDING APPLICATIONS

Whitmore's SWO oils are designed for use on the most demanding applications that involve metal-on-metal sliding contact. SWO oils contain extreme pressure additives combined with a high dose of fatty additive for lubricity. This combination is ideal in minimizing friction and wear where high load and sliding contact are encountered.

SWO oils are compatible with bronze, brass, leaded steel, and Babbitt material.

Whitmore's SWO oils use a non-zinc antiwear system that protects metal surfaces when heavy loads are encountered. The high ratio of fatty lubricity additives gives these products a low coefficient of friction, greatly reducing wear and aiding in the reduction of energy costs.

When Whitmore's SWO oils are used on machine tool slideways the result is smoother, more accurate machining and fewer rejects.

Another outstanding feature of Whitmore's SWO oils is their high water resistance. They both resist water wash and readily separate from water. In addition, SWO oils provide excellent rust and corrosion protection.

BENEFITS:

- **MAXIMUM WEAR PROTECTION** - contains non-zinc antiwear chemistry. The ISO 680 grade is especially useful in the most severely loaded sliding machine components such as worm gears, double enveloping worm gears, and bushings.
- **CLINGS TO METAL SURFACES** – fatty and tacky additives assure a tenacious film.
- **ELIMINATES CHATTERING AND STICK-SLIP** - smooth operation of machine tool reduces rejects.
- **DEMULSIBILITY** - separates readily from water and water-based coolants.

APPLICATIONS:

Use SWO oils where components are subjected to sliding motion, especially where under severe load.

- ISO Grade 68: Recommended for use on horizontal machine tool slideways.
- ISO Grade 220: For vertical slideways on machine tools and punch presses and on horizontal slideways that are subjected to severe washing action by cutting oils.
- ISO Grade 680: For use in heavily loaded worm gears and double enveloping worm gears, bushings, and trunnion bearings. Highly recommended for the support bushings of ball mills.

Besides those applications mentioned, SWO oils can be used to lubricate chains, roller bearings, and other applications where a tacky oil is beneficial.

ASTM #		TYPICAL CHARACTERISTICS	
D-445	ISO Grade	220	680
	Kinematic Viscosity		
	cSt @ 40°C	223	680
D-2161	cSt @ 100°C	18.8	39
	Saybolt Viscosity		
	SUS @ 100°F	1,012	3,673
D-2270	SUS @ 210°F	86	190
	Viscosity Index	94	95
D-97	Pour Point, °F (°C)	-5 (-21)	
Gardner Method	Density, lb/gal @ 60°F (15.5°C)	7.40	7.58
	Specific Gravity, g/cc @ 60°F (15.5°C)	0.8886	0.91
D-92	Flash Point, °F (°C) Cleveland Open Cup	505 (263)	>500 (260)
D-2783	Four Ball EP, Weld Point, kg	400	400
D-4172	Four Ball Wear, Scar Width, mm @ 40 kgf	0.38	0.35
D-665	Rust Test, Distilled Water	Pass	Pass
D-130	Copper Strip Corrosion, 212°F (100°C) @ 3 hr	1B	1B

The above are average values. A single test result may vary slightly without affecting performance.

PACKAGING

Drums	Pails
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THE WHITMORE MANUFACTURING COMPANY

930 Whitmore Drive • P.O. Box 9300 • Rockwall, Texas 75087 • USA • (972) 771-1000 • Fax: (972) 722-2108

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Performance Under Pressure Since 1893

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