

Shell VSI Circulating Oil

Hydraulic and lubricating oil for rust protection in vapor spaces

Shell developed VSI (Vapor Space Inhibiting) Circulating Oil with an anti-rust compound which is oil soluble and volatile. This corrosion inhibitor fills the vapor space above the oil level to form a rust preventive barrier on exposed metal surfaces and helps combat vapor space rusting. Moisture in enclosed air spaces over circulating oils is very likely to cause rusting when it condenses on the cool walls of gear cases or reservoirs. Further, this condensed moisture is constantly replenished as the system “breathes” through vents and other openings.

Performance Features and Benefits

- Excellent demulsibility
- Excellent corrosion protection

Main Applications

- Hydraulic, turbine, and general lubricating applications
- Enclosed lubricating oil systems where rusting is likely to occur
- Anti-friction bearings and gears, reservoirs, system housings, piping and similar system components
- Machine tools that may be idle for weekends or longer

Advice on applications not covered in this handbook may be obtained from your Shell representative.

Recommended Practices for Using Shell VSI Circulating Oil

- High temperature will accelerate inhibitor release while low temperature will retard it. An initial temperature of 80° to 100°F will assist in early distribution of the VSI agent. In operating systems recommended bulk oil temperatures are 80° to 150°F. Temperatures over 200°F should be avoided because of the excessive rust inhibiting vapor loss.
- A tightly closed system is best, and no attempt should be made to protect a completely open system. Most oil circulating systems and reservoirs afford a relatively closed system to keep the oil free of contamination. Any reduction in system ventilation will help improve the corrosion inhibiting action.
- The equipment should be clean before installing Shell VSI Circulating Oil. Contamination may promote rusting.
- Freshly cleaned surfaces should be immediately coated with Shell VSI Circulating Oil, if possible, to afford protection until rust inhibiting vapors can form.
- Shell VSI Circulating Oil is designed primarily for protection of ferrous metals. It is non-corrosive to most non-ferrous metals including brass, copper, bronze, zinc, babbitt, aluminum and magnesium. However, contact with lead and lead alloys should be avoided unless the alloys have been tested for suitability under actual operating conditions.
- For maximum effectiveness, the maximum distance from the oil to the surfaces requiring protection should be kept reasonably short. Experience indicates that with 80°F oil the distance should be no more than about six feet. Where temperatures are lower, the maximum distance should be less, and at temperatures over 80°F it may be somewhat greater.
- Because of the significant effect that temperature and ventilation have on depleting the rust-inhibiting additive, and because of differences in make-up rates, it is difficult to predict oil service life. However, experience has indicated that while the oil change interval is shorter than that for premium quality turbine oils, it is sufficiently long to fit in with plant preventive maintenance schedules.

Handling and Safety Information

For information on the safe handling, storage, or use of this product, refer to its Material Safety Data Sheet at <http://www.epc.shell.com/>. If you are a Shell Distributor, please call 1+800-332-6457 for all of your service needs. All other customers please call 1+800-237-8645 for all of your service needs.

Protect the Environment

Do not discharge into drains, soil, or water.

Typical Physical Characteristics

Shell VSI Circulating Oil	Test Method	ISO Viscosity Grade
Property		32
Gravity , °API @ 60°F	D 1298	31
Flash Point , COC, °F	D 92	395
Viscosity:		
@ 40°C, cSt	D 445	31.1
@ 100°C, cSt	D 445	5.2
Viscosity Index	D 2270	100
Pour Point , °C, (°F)	D 97	-10 (14)
Copper Corrosion	D 130	1b
Acid Number , mg KOH/g	D 974	0.45
Rust Test , Synthetic Sea Water	D 665B	No Rust

These characteristics are typical of current production. While future production will conform to Shell specifications, variation in these characteristics may occur.