



TECHNICAL DATA SHEET

EUTECTIC ENCLOSED GEAR OIL

Machined metal surfaces have a real contact area of approximately 2% of the theoretical maximum. To help improve the surface and avoid scuffing during the running-in process, extreme pressure (EP) additives are used. Whitmore's Eutectic gear oil multiplies this effect, and represents a breakthrough in the process of smoothing metal surfaces and stopping wear, beyond what is possible with conventional EP additives or solid lubricants.

In reference to EP additives, the SKF Bearing Maintenance Handbook says, "... they combine chemically with the metal at the microscopic points of contact. The resulting surface compound is weaker than the metal itself and is more easily sheared away."

In other words, successive microscopic layers of metal are removed from the surface. Besides smoothing the surfaces, this sacrificial process also prevents surface welding or "scuffing" wear. This is a good, but surface improvement is limited, especially where existing damage is present.

Like conventional EP additives, Eutectic additives also react with the metal surface in the presence of frictional heat. However, the process isn't exclusively about metal removal. This system relies partly on metal displacement. As with conventional EP additives, microscopic layers shear from the points of contact, but a second phenomenon takes place. Under high load the tips of the contacting asperities become less prone to shearing and begin to flow away from the high points where contact occurs. The metal moves towards "lower ground."

This gradual migration of metal from the contacting peaks towards the "valleys" produces substantially smoother surfaces, reducing friction and wear.

BENEFITS:

- INNOVATIVE ADDITIVE CHEMISTRY - smoothes and polishes metal surfaces.
- ENVIRONMENTALLY SAFE - free from stringent storage and disposal requirements of the EPA Hazardous Waste Law.
- EXTENDED DRAIN INTERVALS – greatly reduced sludge and wear particles.

APPLICATIONS:

Eutectic enclosed gear oils may be used in any gearbox where EP additives are recommended or permitted. They are especially recommended for units operating under very high load, shock load, or reversing action. Also recommended for gears which have previously been wear damaged.

Eutectic gear oils should be used in the same manner as conventional industrial EP gear oils. They should remain in the gearbox after the running-in process. Eutectic gear oils are not lapping compounds and do not contain any solid materials.

Typical applications include draglines, variable speed chain drives (PIV's), elevators, heavily loaded differentials, crushers, ball mills, kilns and extruders.

All viscosity grades of Eutectic meet the requirements of DIN 51517-3.

ASTM #		TYPICAL CHARACTERISTICS					
	ISO Grade	220	320	460	680	1000	5000
D-445	Kinematic Viscosity						
	cSt @ 40°C	235	345	475	736	1,080	5,117
	cSt @ 100°C	22	27	31	37	50	167
D-2270	Viscosity Index	111	101	96	82	90	117
D-97	Pour Point, °F	0	5	5	15	20	45
	°C	-18	-15	-15	-9	-7	7
Gardner Method	Density, lb/gal @ 60°F (15.5°C)	7.50	7.52	7.55	7.80	7.80	7.80
	Specific Gravity, g/cc @ 60°F (15.5°C)	0.900	0.905	0.906	0.937	0.937	0.937
D-92	Flash Point, °F	400	400	400	400	410	510
	°C	204	204	204	204	210	266
	Cleveland Open Cup						
D-2782	Timken OK Load, lb	65	65	70	70	70	70
D-2783	Four Ball EP						
	Weld Point, kg	500	500	500	500	500	500
D-4172	Four Ball Wear						
	Scar Width, mm @ 40 kg	0.40	0.40	0.40	0.40	0.40	0.38
D-665	Rust Test						
	A. Distilled Water	Pass	Pass	Pass	Pass	Pass	Pass
	B. Synthetic Sea Water	Pass	Pass	Pass	Pass	Pass	Pass
D-2893	Oxidation for Lubricating Oils,						
	% Viscosity Change	6	6	6	6	6	6
	FZG Test, Stages Passed	>12	>12	>12	>12	>12	>12

The above are average values. Minor variations which do not affect product performance are to be expected in normal manufacturing.

PACKAGING

Pails

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