

METATRON™ 280

DESCRIPTION:

Metatron™ 280 is a anti-wear, food grade oil that is specially formulated for use in the lubrication of food, feed and pharmaceutical processing and packaging equipment, especially those pieces of equipment that are subjected to high loads and high moisture conditions.



Metatron™ 280 meets the requirements for a NSF H-1 quality lubricant and the requirements of the United States Code of Federal Regulations 21CFR 178.3570, 178.3620(b), and 573.680 of the United State's Food and Drug Administration's Regulations

APPLICATIONS:

Metatron™ 280 can be used in the lubrication of all types of compressors, hydraulic, vacuum pump, pump, airline, chain, bearing, and general oiling applications where there is a chance of incidental contact with food, foodstuffs, drinking water, potable water, or ground water may occur.

Typically these applications can be found in the following industries

Meat and Poultry Processing Plants
 Fish and Seafood Processing Plants
 Soft Drink and Bottling Plants
 Cheese and Cheese Product Producers
 Snack Food Manufacturers
 Pet Food and Animal Feed Producers
 Pharmaceutical and Drug Manufacturers
 Food and Beverage Container Manufacturers
 Water Well Drillers

Egg Processing Plants
 Breweries and Wineries
 Vegetable and Fruit Processors
 Bakeries
 Pasta Manufacturers
 Oil Mills and Seed Cake Processors
 Cosmetic Manufacturers
 Paper and Paperboard Manufacturers
 Drinking and Potable Water
 Treatment Plants



COMPOSITION AND PERFORMANCE CHARACTERISTICS:

Metatron™ 280 is blends from the finest quality, highly refined, severely hydrofinished, purified, non-toxic, non-staining 100% paraffin base technical white and U.S.P. grade white oils available. Combined with these paraffin base food grade white soils is a specialized non-toxic food grade approved additive package, which provides the **Metatron™ 280** with the following performance characteristics.

1. Excellent lubricity and film strength
2. Enhanced oxidative stability
3. Excellent resistance to thermal degradation
4. A high viscosity index
5. Excellent hydrolytic stability and resistance to emulsification
6. Excellent resistance to acidic compounds
7. Exceptional anti-wear and load carrying capabilities.
8. Excellent rust and corrosion inhibition.
9. Excellent anti-foam and air release properties.
10. Protection against rancidity and build-up due to bacterial and fungal growth
11. Longer service life and less deposit formation

TYPICAL PROPERTIES:

ISO GRADE	22	32	46
SAE Grade	5	10	20
AGMA Grade	---	---	I
Specific Gravity @15.5°C (60°F)	0.8578	0.8618	0.862
Viscosity, SUS @ 38°C (100°F) (ASTM D-445)	88.6-110	149.6-205.5	224.3-241
Viscosity @40°C, cSt (ASTM D-445)	16.3-21.00	29.00-40.00	44.00-47.00
Viscosity @100°C, cSt (ASTM D-445)	3.3-4.2	5.2-6.5	6.5-7.5
Viscosity Index (ASTM D-2270)	100	112	110
Flash Point °C (°F) (ASTM D-92)	195°C (383°F)	207°C (405°F)	213°C (415°F)
Fire Point °C (°F) (ASTM D-92)	210°C (410°F)	224°C (435°F)	229°C (445°F)
Pour Point °C (°F) (ASTM D-92)	-12°C (10°F)	-12°C (10°F)	-12°C (-10°F)
Copper Strip Corrosion Test (ASTM D-130)	1a	1a	1a
Rust Test (ASTM D-665)			
Procedure A (Distilled Water)	Pass	Pass	Pass
Procedure B (Salt Water)	Pass	Pass	Pass
Demulsibility Test (ASTM D-1401)	40-40-0	40-40-0	40-40-0
Oil-Water-Emulsion (minutes)	(20minutes)	(20minutes)	(20minutes)
Oxidation Stability Test (ASTM D-943)			
Hours to TAN of 2	3,500	3,500	3,500
Sludge Tendencies (ASTM D-4310)			
Total sludge, mg.	---	36	36
Four Ball Wear Test (ASTM D-4172)			
(1hour/40kg/54°C)			
Wear Scar Diameter, mm.	0.45	0.4	0.4
Four Ball E.P. Test (ASTM D-2783)			
Weld Point, kgs.	---	250	250
Falex Continuous Load Procedure A (ASTM D-3233)			
Failure Load, lbs.	---	1740	1740
Conradson Carbon Residue (ASTM D-189)	0.03	0.03	0.03
Total Acid Number (ASTM D-664)	0.5	0.5	0.5
Vickers Pump Wear Test (ASTM D-2882)			
100 hours @ 1000Psi @ 66°C (150°F)			
Weight Loss, mg.	---	10	10
Ring	---	1.5	1.5
Vane	---	11.5	11.5
Total Weight Loss			
Vickers Pump Wear Test (ASTM D-2882)			
100 hours @ 1000Psi @ 66°C (150°F)			
Weight Loss, mg.			
Ring	---	15	15
Vane	---	5	5
Total Weight Loss	---	20	20
% Evaporation Loss 6.5 hours @ 204°C (400°F)			
(ASTM D-972)	---	10%	10%
% Evaporation Loss 22 hours @ 107°C (225°F)			
(ASTM D-972)	6%	2%	2%
Foam Test (ASTM D892)			
Sequence I	0/0	0/0	0/0
Sequence II	0/0	0/0	0/0
Sequence III	0/0	0/0	0/0
FZG A/8.3/90 (ASTM D-5182)	11 th	11 th	11 th
Load Failure Stage			

ISO GRADE	68	100	150
SAE Grade	20	30	40
AGMA Grade	2	3	4
Specific Gravity @15.5°C (60°F)	0.8662	0.8719	0.8693
Viscosity, SUS @ 38°C (100°F) (ASTM D-445)	279-345.9	498.2-519.40	734.6-821.9
Viscosity @40°C, cSt (ASTM D-445)	54.00-67.00	95.00-100	140-157
Viscosity @100°C, cSt (ASTM D-445)	7.5-9.1	10.00-12.00	14.00-16.00
Viscosity Index (ASTM D-2270)	105	110	105
Flash Point °C (°F) (ASTM D-92)	221°C (430°F)	236°C (457°F)	247°C (477°F)
Fire Point °C (°F) (ASTM D-92)	238°C (460°F)	252°C (485°F)	247°C (495°F)
Pour Point °C (°F) (ASTM D-92)	-9°C (15°F)	-9°C (15°F)	-7°C (-20°F)
Copper Strip Corrosion Test (ASTM D-130)	1a	1a	1a
Rust Test (ASTM D-665)			
Procedure A (Distilled Water)	Pass	Pass	Pass
Procedure B (Salt Water)	Pass	Pass	Pass
Demulsibility Test (ASTM D-1401)	40-40-0	40-40-0	40-40-0
Oil-Water-Emulsion (minutes)	(20minutes)	(20minutes)	(20minutes)
Oxidation Stability Test (ASTM D-943)			
Hours to TAN of 2	3,500	3,500	3,500
Sludge Tendencies (ASTM D-4310)			
Total sludge, mg.	36	36	36
Four Ball Wear Test (ASTM D-4172) (1hour/40kg/54°C)			
Wear Scar Diameter, mm.	0.4	0.4	0.4
Four Ball E.P. Test (ASTM D-2783)			
Weld Point, kgs.	250	250	315
Falex Continuous Load Procedure A (ASTM D-3233)			
Failure Load, lbs.	1740	1740	1800
Conradson Carbon Residue (ASTM D-189)	0.03	0.03	0.03
Total Acid Number (ASTM D-664)	0.5	0.5	0.5
Vickers Pump Wear Test (ASTM D-2882) 100 hours @ 1000Psi @ 66°C (150°F)			
Weight Loss, mg.	10	10	---
Ring	1.5	1.5	---
Vane	11.5	11.5	---
Total Weight Loss			
Vickers Pump Wear Test (ASTM D-2882) 100 hours @ 1000Psi @ 66°C (150°F)			
Weight Loss, mg.			
Ring	15	15	---
Vane	5	5	---
Total Weight Loss	20	20	---
% Evaporation Loss 6.5 hours @ 204°C (400°F) (ASTM D-972)	10%	10%	10%
% Evaporation Loss 22 hours @ 107°C (225°F) (ASTM D-972)	2%	2%	3%
Foam Test (ASTM D892)			
Sequence I	0/0	0/0	0/0
Sequence II	0/0	0/0	0/0
Sequence III	0/0	0/0	0/0
FZG A/8.3/90 (ASTM D-5182)	11 th	11 th	12 th
Load Failure Stage			

ISO GRADE	220
SAE Grade	50
AGMA Grade	5
Specific Gravity @15.5°C (60°F)	0.8766
Viscosity, SUS @ 38°C (100°F) (ASTM D-445)	1051.9-1250
Viscosity @40°C, cSt (ASTM D-445)	200-230
Viscosity @100°C, cSt (ASTM D-445)	18.70-20.70
Viscosity Index (ASTM D-2270)	105
Flash Point °C (°F) (ASTM D-92)	237°C (454°F)
Fire Point °C (°F) (ASTM D-92)	249°C (480°F)
Pour Point °C (°F) (ASTM D-92)	-1°C (30°F)
Copper Strip Corrosion Test (ASTM D-130)	Ia
Rust Test (ASTM D-665)	
Procedure A (Distilled Water)	Pass
Procedure B (Salt Water)	Pass
Demulsibility Test (ASTM D-1401)	40-40-0
Oil-Water-Emulsion (minutes)	(20minutes)
Oxidation Stability Test (ASTM D-943)	
Hours to TAN of 2	3,500
Sludge Tendencies (ASTM D-4310)	
Total sludge, mg.	36
Four Ball Wear Test (ASTM D-4172)	
(1hour/40kg/54°C)	
Wear Scar Diameter, mm.	0.4
Four Ball E.P. Test (ASTM D-2783)	
Weld Point, kgs.	315
Falex Continuous Load Procedure A (ASTM D-3233)	
Failure Load, lbs.	1950
Conradson Carbon Residue (ASTM D-189)	0.03
Total Acid Number (ASTM D-664)	0.5
Vickers Pump Wear Test (ASTM D-2882)	
100 hours @ 1000Psi @ 66°C (150°F)	
Weight Loss, mg.	---
Ring	---
Vane	---
Total Weight Loss	
Vickers Pump Wear Test (ASTM D-2882)	
100 hours @ 1000Psi @ 66°C (150°F)	
Weight Loss, mg.	
Ring	---
Vane	---
Total Weight Loss	---
% Evaporation Loss 6.5 hours @ 204°C (400°F)	
(ASTM D-972)	10%
% Evaporation Loss 22 hours @ 107°C (225°F)	
(ASTM D-972)	2.5%
Foam Test (ASTM D892)	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
FZG A/8.3/90 (ASTM D-5182)	12 th
Load Failure Stage	