



# TECHNICAL DATA

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## #280 FOOD GRADE HTC

Food Grade HTC is an 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.

Food Grade HTC meets the requirements for a USDA 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 States Food and Drug Administration's Regulations and is registered with and meets NSF International's guidelines for use as a lubricant with incidental contact (H1) in and around food processing areas.

Food Grade HTC 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

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TD-280 (Rev. 12/2009)

Food Grade HTC is blended from the finest quality, highly refined, severely hydro-finished, purified, non-toxic, non-staining 100% paraffin base technical white and U.S.P. grade white oils available. Combined with these paraffin base technical white oils is a specialized non-toxic food grade approved additive package, which provides the Food Grade HTC 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. Longer service life and less deposit formation

This product is acceptable as a lubricant with incidental food contact (H1) for use in and around food processing areas. Such compounds may be used on food processing equipment as a protective anti-rust film, as a release agent on gaskets or seals of tank closures, and as a lubricant for machine parts and equipment in locations in which there is a potential exposure of the lubricated part to food. The amount used should be the minimum required to accomplish the desired technical effect on the equipment. If used as an anti-rust film, the compound must be removed from the equipment surface by washing or wiping, as required to leave the surface effectively free of any substance which could be transferred to food being processed.

NSF Registration numbers for 280 Food Grade HTC:

280 Food Grade HTC ISO 32: 135459  
280 Food Grade HTC ISO 46: 135457  
280 Food Grade HTC ISO 68: 135446  
280 Food Grade HTC ISO 100: 135434  
280 Food Grade HTC ISO 150: 135743  
280 Food Grade HTC ISO 220: 135458

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	22	32	46	68	100	150	220
<b>ISO Grade</b>	5	10	20	20	30	40	50
SAE Grade	----	----	1	2	3	4	5
AGMA Grade	0.8578	0.8618	0.862	0.8662	0.8719	0.8693	0.8766
Specific Gravity @ 15.5°C (60°F)	88.6-110	149.6-205.5	224.3-241	279-345.9	498.2-519.40	734.6-821.9	1051.9-1250
Viscosity, SUS @ 38°C (100°F) (ASTM D-445)	16.3-21.00	29.00-40.00	44.00-47.00	54.00-67.00	95.00-100	140-157	200-230
Viscosity @ 40°C, cSt (ASTM D-445)	3.3-4.2	5.2-6.5	6.5-7.5	7.5-9.1	10.00-12.00	14.00-16.00	18.70-20.70
Viscosity @ 100°C, cSt (ASTM D-445)	100	112	110	105	110	105	105
Viscosity Index (ASTM D-2270)	383°/195°	405°/207°	415°/213°	430°/221°	457°/236°	477°/247°	454°/237°
Flash Point °F/C (ASTM D-92)	410°/210°	435°/224°	445°/229°	460°/238°	485°/252°	495°/247°	480°/249°
Fire Point °F/C (ASTM D-92)	10°/-12°	10°/-12°	10°/-12°	15°/-9°	15°/-9°	-20°/-7°	30°/-1°
Pour Point °F/C (ASTM D-97)	1a	1a	1a	1a	1a	1a	1a
Copper Strip Corrosion Test (ASTM D-130)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Rust Test (ASTM D-665)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Procedure A (Distilled Water)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Procedure B (Salt Water)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Demulsibility Test (ASTM D-1401)	40-40-0	40-40-0	40-40-0	40-40-0	40-40-0	40-40-0	40-40-0
Oil-Water-Emulsion	20	20	20	20	20	20	20
Minutes	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Oxidation Stability Test (ASTM D-943)	----	36	36	36	36	36	36
Hours to TAN of 2							
Sludge Tendencies (ASTM D-4310)							
Total Sludge, mg							
Four Ball Wear Test (ASTM D-4172)	0.45	0.4	0.4	0.4	0.4	0.4	0.4
(1 hour/40kg/130°F/54°C)							
Wear Scar Diameter, mm							
Four Ball EP Test (ASTM D-2783)	----	250	250	250	250	315	315
Weld Point, kgs.							
Falex Continuous Load Procedure A (ASTM D-3233)							
Failure Load, lbs.	----	1740	1740	1740	1740	1800	1950
Conradson Carbon Residue (ASTM D-189)	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Total Acid Number (ASTM D-664)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Vickers Pump Wear Test (ASTM D-2882)							
100 hours @ 1000psi @ 150°F/66°C)							
Weight Loss, mg	----	10	10	10	10	----	----
Ring	----	1.5	1.5	1.5	1.5	----	----
Vane	----	11.5	11.5	11.5	11.5	----	----
Total Weight Loss							

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ISO Grade	22	32	46	68	100	150	220
Vickers Pump Wear Test (ASTM D-2882) 100 hours @ 1000psi @ 150°F/66°C)							
Weight Loss, mg							
Ring	---	15	15	15	15	---	---
Vane	---	5	5	5	5	---	---
Total Weight Loss	---	20	20	20	20	---	---
% Evaporation Loss (ASTM D-972) 6.5 hours @ 400°F/204°C	---	10	10	10	10	10	10
% Evaporation Loss (ASTM D-972) 22 hours @ 225°F/107°C	6	2	2	2	2	3	2.5
Foam Test (ASTM D-892)							
Sequence I	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sequence II	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sequence III	0/0	0/0	0/0	0/0	0/0	0/0	0/0
ZF A/8.3/90 (ASTM D-5182) Load Failure Stage	11th	11th	11 <sup>th</sup>	11 <sup>th</sup>	11th	11th	12th

Packaging: 280 Food Grade HTC is available in 55 gallon drums, 30 gallon drums and 5 gallon pails.