SINCE 1839 Schaeffer MANUFACTURING COMPANY

ISO 9001 CERTIFIED

TECHNICAL DATA

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#281S PURE SYNTHETIC HEAT TRANSFER FLUID

Pure Synthetic Heat Transfer Fluid is a non-toxic, non-corrosive, non-fouling synthetic heat transfer fluid that is recommended for use in closed system or open system heat transfer applications, where a wide temperature range and environmentally safe fluid is required. Pure Synthetic Heat Transfer Fluid's fluidity at temperatures below -50°F (-46°C) and thermal stability up to 575°F (302°C) permits its use over a wide range of conditions. Pure Synthetic Heat Transfer Fluid is not significantly affected by long exposure to elevated temperatures, including transients to 870°F (466°C).

Pure Synthetic Heat Transfer Fluid is blended from the finest high quality severely hydro-finished Polyalphaolefin (PAO) synthetic base fluids available. These PAO synthetic base fluids allow the Pure Synthetic Heat Transfer Fluid to exhibit the following benefits:

1. High thermal and oxidative stability.
2. Very low volatility and evaporation characteristics.
3. High thermal efficiency for rapid and efficient transfer of heat.
4. Low vapor pressure at elevated temperatures.
5. High boiling points to prevent pressure buildup.
6. Non-fouling on degradation.
7. Flash and fire points significantly above 400°F.
8. Auto-ignition points above 608°F.
9. High viscosity index, meaning less change in viscosity with temperature.
10. Excellent hydrolytic stability and resistance to emulsification with water.
11. Non-corrosiveness.
12. Excellent compatibility with all types of seals, materials of construction and finishes commonly used in heat transfer systems.
13. Compatible with petroleum oil, ester based, synthetic hydrocarbon and DI, Tri and tertiary phenyl ether base fluids.
14. Virtually odorless and essentially non-toxic.
15. Long service life for trouble free operation.

Pure Synthetic Heat Transfer Fluids also 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 can be used as a heat transfer fluid in food, feed, pharmaceutical processing and packaging plants where incidental food contact may occur.

TYPICAL PROPERTIES

Specific Gravity @ 60°F/15.6°C	0.827
Viscosity, cSt. @ 40°C (ASTM D-445)	31.0
Viscosity, cSt. @ 100°C (ASTM D- 445)	5.7-6.1
Viscosity Index (ASTM D-2270)	138
Flash Point °F/°C (ASTM D-92)	475°/246°
Fire Point °F/°C (ASTM D-92)	527°/275°
Auto-ignition Temperature °F/°C	670°/354°
Pour Point °F/°C (ASTM D-97)	-61°/-52°
Total Acid Number (ASTM D-664)	<0.01
Aniline Point °F/°C (ASTM D-611)	261°/127°
Carbon Residue, Conradson, % wt	<0.001
Carbon Residue, Ramsbottom, %wt	0.01
Noack Volatility (ASTM D-5800)	
% Evaporation Loss	6.3%
Vapor Pressure (ASTM D-2879)	
mm Hg, 300°F/149°C	0.7
Thermal Decomposition Temperature °F/°C	620°/327°
Distillation, Gas Chromatograph	
% Distilled	°F
1	696°
5	736°
10	756°
20	774°
50	889°
90	977°
95	977°
99	1040°
Thermal Conductivity watt/meter-kelvin (W/m-°K)	
32°F/0°C	.1493001
100°F/38°C	.1476720
122°F/50°C	.1471456
200°F/93°C	.1447485
212°F/100°C	.1443799
250°F/121°C	.1433611
300°F/149°C	.1420226
302°F/150°C	.1419692
392°F/200°C	.1395592
400°F/204°C	.1393443
450°F/232°C	.1380073
482°F/250°C	.1371506
500°F/269°C	.1218798

Typical Properties Continued on Next Page

Thermal Conductivity Btu-inches/hour-square foot-F
(Btu-in/h-ft^2-°F)

32°F/0°C	1.03517
100°F/38°C	1.02388
122°F/50°C	1.02023
200°F/93°C	1.00361
212°F/100°C	1.00105
250°F/121°C	0.99399
300°F/149°C	0.98471
302°F/150°C	0.98434
392°F/200°C	0.96763
400°F/204°C	0.96614
450°F/232°C	0.95684
482°F/250°C	0.95093
500°F/260°C	0.84505

Specific Heat BTU/lb-°F

32°F/0°C	0.058
100°F/38°C	0.40
122°F/50°C	0.42
200°F/93°C	0.48
212°F/100°C	0.485
250°F/121°C	0.5
300°F/149°C	0.54
302°F/150°C	0.541
392°F/200°C	0.586
400°F/204°C	0.59
450°F/232°C	0.62
482°F/250°C	0.63
500°F/260°C	0.64

Specific Heat Kilojoule/kilogram-K/(kj/kg-°K)

32°F/0°C	0.24476
100°F/38°C	1.67472
122°F/50°C	1.947238
200°F/93°C	2.009664
212°F/100°C	2.028240
250°F/121°C	2.0934
300°F/149°C	2.260872
302°F/150°C	2.263544
392°F/200°C	2.451824
400°F/204°C	2.470212
450°F/232°C	2.595816
482°F/250°C	2.637864
500°F/260°C	2.67952

Coefficient of Expansion	$2.33X10^{-4}$/°F
Coefficient of Expansion	$4.2X10^{-4}$/°C
Thermal Diffusivity in^2/hr	
32°F/0°C	4.090
100°F/38°C	0.603
122°F/50°C	0.519
200°F/93°C	0.502
212°F/100°C	0.502
250°F/121°C	0.485
300°F/149°C	0.446
302°F/150°C	0.446
392°F/200°C	0.413
400°F/204°C	0.413
450°F/232°C	0.396
482°F/250°C	0.385
500°F/260°C	0.340
Thermal Diffusivity mm^2/second	
32°F/0°C	0.733
100°F/38°C	0.108
122°F/50°C	0.093
200°F/93°C	0.090
212°F/100°C	0.090
250°F/121°C	0.087
300°F/149°C	0.080
302°F/150°C	0.080
392°F/200°C	0.074
400°F/204°C	0.074
450°F/232°C	0.071
482°F/250°C	0.069
500°F/260°C	0.061