Schneiden Lubricants

Technical Data Sheet

Date of update:

SG-DR-T66

High-Temperature Heat Transfer Fluid (Modified Terphenyl Type)

Product Description

SG-DR-T66 is heat transfer fluid based on modified terphenyl, the materials is mainly from the distillation residue of Biphenyl process, SG-DR-T66 is one proven fluid and the world's most popular and customer satisfaction high temperature, liquid phase heat transfer fluid, In critical applications, SG-DR-T66 is the only choice.

Users can expect many years of reliable, trouble-free operation, even when operating continuously at the recommended maximum temperature of 350℃, It is miscible and interchangeable with other similarly constituted modified terphenyl fluids, such as: Therminol-66
The terphenyl (CAS No. 26140-60-3 and EC No. 247-477-3) is composed of a mixture of the ortho-, meta- and para-isomers of terphenyl and a lesser amount of Quaterphenyl isomers.

The Temperature Range for use:

Liquid: 0 to 350 ℃

Applications

It can be used in a wide variety of industries, such as:

- Chemicals
- PET production
- Synthetic Fiber plants
- Plastics
- Biodiesel
- Many other applications that require a high temperature heat transfer fluid.

Application Notice

(1) Using temperature is 0 -350℃, and the best range is 0 -345℃.

(2) Before use SG-DR-T66, the equipment must be clean and must use cleaning oil to get through flush equipment s in order to clear away precipitant.

⑶ It can be mix -used with overseas same type products: Therminol-66, Gilotherm -Th, Therm -S-900 heat transfer fluid
⑷ To ensure average heat transfer, firstly start -up valve circle, then escalate temperature; In the first time to use Modified Terphenyl, must slowly increase Temperature, and when temperature reach to 105 ℃-130℃ and 210℃-230℃ period, it is necessary to keep some time.
⑸ During long time use of heat transfer fluid, its capability and properties is changing, we suggest that users should regularly sample and test it, if the performances have big changes, please think to replace at once.

Matters Related Use

- Flame impingement.
- Operating the heater above its rated capacity.
- Modifying the fuel-to-air mixing procedure to reduce the flame height and pattern. This can yield higher flame and gas temperatures together with higher heat flux in the shorter flame area.

Key Features

- Continuous operation capability up to **350 °C**.
- Liquid-phase behavior throughout the full operating range (0–350 °C).
- Long-term thermal stability for trouble-free operation.
- Compatible and mix-usable with other modified terphenyl fluids.
- Suitable for a wide range of industrial processes requiring high temperature heat transfer.

Typical Properties

Item	Standard
Appearance	Clear Pale Yellow liquid
Constituent	Partial modified Terphenyl
Average Molecular Weight	252
Density(20℃) g/ml	1.000-1.010
Chroma(Pt-Co)	≤300
Flash Point ℃(ASTM D-92)	184
Fire Point ℃(ASTM D-92)	212
Auto-ignition Temperature ℃(ASTM D-2155)	≥374
Water %	≤150ppm
Viscosity (40℃), mm2/s	29.6
Boling Range 10%	≥330℃
Boling Range 90%	≤392℃
Maximum Film Tem ℃	375
Pour Point(℃)	-32
Expansion Coefficient(200℃)	0.000819/℃
S	≤5ppm
CL	≤5pm
Acid Value(mg KOH/g)	≤0.01
Normal Boiling Point	≥359℃

Properties At Different Temperature

Temperature		Liquid Density			Liquid Heat Capacity		Liquid Enthalpy**		Heat of Vaporization	
° F	° C	lb/gal	lb^3/ft	kg/m^3	Btu/lb-° F [cal/g-° C]	kJ/kg•K	Btu/lb	kJ/kg	Btu/lb	kJ/kg
20	-7	8.56	64.0	1026	0.352	1.47	7.0	16.2	179.6	417.5
30	-1	8.53	63.8	1022	0.356	1.49	10.5	24.4	178.5	414.8
40	4	8.50	63.6	1019	0.361	1.51	14.1	32.7	177.3	412.2
60	16	8.44	63.1	1011	0.370	1.55	21.4	49.7	175.1	407.1
80	27	8.38	62.7	1003	0.379	1.58	28.9	67.1	173.0	402.0
100	38	8.32	62.2	997	0.388	1.62	36.5	84.9	170.8	397.1
120	49	8.26	61.8	989	0.397	1.66	44.4	103.2	168.7	392.2
140	60	8.19	61.3	982	0.406	1.70	52.4	121.8	166.7	387.5
160	71	8.13	60.8	974	0.415	1.74	60.6	140.9	164.7	382.8
180	82	8.07	60.4	967	0.424	1.78	69.0	160.5	162.7	378.3
200	93	8.01	59.9	960	0.434	1.81	77.6	180.4	160.8	373.8
220	104	7.94	59.4	952	0.443	1.85	86.4	200.8	158.9	369.3
240	116	7.88	59.0	944	0.452	1.89	95.3	221.6	157.0	365.0
260	127	7.82	58.5	937	0.462	1.93	104.5	242.8	155.2	360.6
280	138	7.75	58.0	929	0.471	1.97	113.8	264.5	153.3	356.4
300	149	7.69	57.5	921	0.480	2.01	123.3	286.6	151.5	352.1
320	160	7.62	57.0	914	0.490	2.05	133.0	309.2	149.7	347.9
340	171	7.56	56.5	906	0.500	2.09	142.9	332.2	147.9	343.8
360	182	7.49	56.1	898	0.509	2.13	153.0	355.6	146.1	339.6
380	193	7.43	55.6	890	0.519	2.17	163.3	379.5	144.3	335.4
400	204	7.36	55.1	882	0.528	2.21	173.7	403.8	142.5	331.2
420	216	7.29	54.5	874	0.538	2.25	184.4	428.6	140.7	327.0
440	227	7.22	54.0	866	0.548	2.29	195.2	453.8	138.9	322.8
460	238	7.15	53.5	857	0.558	2.33	206.3	479.6	137.0	318.5
480	249	7.08	53.0	849	0.568	2.38	217.6	505.7	135.2	314.2
500	260	7.0	52.5	840	0.578	2.42	229.0	532.3	133.3	309.8
520	271	6.94	51.9	832	0.588	2.46	240.7	559.4	131.3	305.3
540	282	6.87	51.4	823	0.598	2.50	252.5	587.0	129.4	300.7
560	293	6.79	50.8	814	0.608	2.54	264.6	615.0	127.4	296.0
580	304	6.72	50.2	805	0.618	2.59	276.8	643.5	125.3	291.2
600	316	6.64	49.7	796	0.628	2.63	289.3	672.5	123.2	286.3
620	327	6.56	49.1	786	0.639	2.67	302.0	701.9	121.0	281.2
640	338	6.48	48.5	777	0.649	2.72	314.9	731.9	118.7	276.0
650	345	6.44	48.2	772	0.655	2.74	321.4	747.0	117.6	273.3
660	349	6.40	47.9	767	0.660	2.76	328.0	762.3	116.4	270.5
680	360	6.32	47.3	757	0.671	2.81	341.3	793.2	113.9	264.9
700	371	6.23	46.6	747	0.682	2.85	354.8	824.7	111.4	259.0

Properties At Different Temperature

Liquid Thermal Conductivity			Liquid Viscosity			Vapor Pressure				Temperature	
Btu/ ft-hr-° F	kcal/ m-hr-° C	•KW/m	lb/ft-hr	cSt [mm²/s]	cP [mPa•s]	psia	mm Hg	kgf/cm²	kPa	° F	° C
0.0685	0.1020	0.1185	10070	4060	4160					20	-7
0.0684	0.1018	0.1183	3820	1544	1579					30	-1
0.0683	0.1016	0.1181	1679	681	694					40	4
0.0681	0.1013	0.1177	456	186.3	188.4					60	16
0.0678	0.1009	0.1173	171.9	70.8	71.0					80	27
0.0675	0.1005	0.1168	81.2	33.7	33.6					100	38
0.0672	0.1001	0.1163	45.0	18.78	18.58					120	49
0.0669	0.0996	0.1158	27.9	11.74	11.53					140	60
0.0666	0.0991	0.1152	18.79	7.97	7.77	0.0016	0.085	0.00012	0.011	160	71
0.0662	0.0986	0.1145	13.48	5.76	5.57	0.0029	0.15	0.00021	0.020	180	82
0.0658	0.0980	0.1139	10.14	4.37	4.19	0.0051	0.26	0.00036	0.035	200	93
0.0654	0.0974	0.1132	7.91	3.44	3.27	0.0086	0.45	0.00061	0.060	220	104
0.0650	0.0967	0.1124	6.36	2.78	2.63	0.014	0.74	0.0010	0.098	240	116
0.0646	0.0961	0.1117	5.23	2.31	2.16	0.023	1.2	0.0016	0.16	260	127
0.0641	0.0954	0.1108	4.39	1.951	1.813	0.036	1.9	0.0025	0.25	280	138
0.0636	0.0946	0.1100	3.74	1.677	1.545	0.056	2.9	0.0039	0.38	300	149
0.0631	0.0939	0.1091	3.23	1.461	1.335	0.084	4.3	0.0059	0.58	320	160
0.0625	0.0931	0.1082	2.82	1.289	1.167	0.125	6.4	0.0088	0.86	340	171
0.0620	0.0922	0.1072	2.49	1.148	1.031	0.182	9.4	0.0128	1.26	360	182
0.0614	0.0914	0.1062	2.22	1.032	0.918	0.262	13.5	0.0184	1.80	380	193
0.0608	0.0905	0.1051	1.995	0.935	0.825	0.370	19.1	0.0260	2.55	400	204
0.0602	0.0895	0.1040	1.805	0.854	0.746	0.517	26.7	0.0363	3.56	420	216
0.0595	0.0886	0.1029	1.643	0.785	0.679	0.712	36.8	0.0501	4.91	440	227
0.0588	0.0876	0.1018	1.504	0.725	0.622	0.969	50.1	0.0681	6.68	460	238
0.0581	0.0865	0.1006	1.384	0.674	0.572	1.30	67.4	0.0916	8.98	480	249
0.0574	0.0855	0.0993	1.280	0.629	0.529	1.73	89.6	0.122	12.0	500	260
0.0567	0.0843	0.0980	1.188	0.591	0.491	2.28	118	0.160	15.7	520	271
0.0559	0.0832	0.0967	1.108	0.557	0.458	2.97	154	0.209	20.5	540	282
0.0552	0.0821	0.0954	1.037	0.527	0.429	3.84	199	0.270	26.5	560	293
0.0543	0.0809	0.0940	0.974	0.500	0.403	4.91	254	0.346	33.9	580	304
0.0535	0.0796	0.0926	0.918	0.477	0.379	6.24	323	0.439	43.0	600	316
0.0527	0.0784	0.0911	0.868	0.456	0.359	7.85	406	0.552	54.2	620	327
0.0518	0.0771	0.0896	0.822	0.438	0.340	9.81	508	0.690	67.7	640	338
0.0514	0.0764	0.0888	0.801	0.429	0.331	10.9	566	0.769	75.4	650	345
0.0509	0.0757	0.0880	0.781	0.421	0.323	12.2	630	0.856	83.9	660	349
0.0500	0.0744	0.0865	0.744	0.407	0.308	15.0	776	1.05	103	680	360
0.0491	0.0730	0.0848	0.711	0.393	0.294	18.4	949	1.29	127	700	371

Typical Applications

SG-DR-T66 is suitable for a diverse range of high-temperature systems, including:

- Chemical processing plants
- PET manufacturing
- Synthetic fiber production
- Plastic and polymer processes
- Biodiesel production
- Any system requiring high-temperature liquid-phase heat transfer fluid
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Usage Guidelines

System Preparation

- Equipment must be thoroughly cleaned before filling. Cleaning oil should be used to remove residues or precipitates.

Startup Procedure

- Begin with circulation only before heating.
- Increase temperature gradually.
- Hold at **105–130 °C** and **210–230 °C** to ensure uniform heating and fluid conditioning.

Maintenance

- Periodically sample and test the fluid.
- If performance deviates significantly, replacement is recommended.

Third Party Test Report

Elements in used Lube Oils and Base Oils by ICP-AES	ASTM D5185-13e1				
Aluminium Content		<1	mg/kg	--	--
Barium Content		<1	mg/kg	--	--
Boron Content		<1	mg/kg	--	--
Cadmium Content §		<1	mg/kg	--	--
Calcium Content		<1	mg/kg	--	--
Chromium Content		<1	mg/kg	--	--
Copper Content		<1	mg/kg	--	--
Lead Content		<1	mg/kg	--	--
Magnesium Content		<1	mg/kg	--	--
Manganese Content		<1	mg/kg	--	--
Molybdenum Content		<1	mg/kg	--	--
Nickel Content		<1	mg/kg	--	--
Phosphorus Content		<1	mg/kg	--	--
Potassium Content		<1	mg/kg	--	--
Silicon Content		<1	mg/kg	--	--
Sodium Content		<1	mg/kg	--	--
Tin Content		<1	mg/kg	--	--
Titanium Content		<1	mg/kg	--	--
Vanadium Content		<1	mg/kg	--	--
Zinc Content		<1	mg/kg	--	--
Iron Content		<1	mg/kg	--	--

§ - Analyte not in published method scope

PROPERTY	METHOD	RESULT	UNITS	MIN	MAX	
Cleveland Flash Point (Open cup)	ASTM D92-12b	184	°C	--	--	
Cleveland Fire Point (Open cup)	ASTM D92-12b	216	°C	--	--	
Acid Number (Inflection end-point)	ASTM D664-11a(Method A)	0.03	mg KOH/g	--	--	#
Distillation of Petroleum Products at Atmospheric Pressure	ASTM D86-12					
5% Recovered at		341.0	°C	--	--	
10% Recovered at		342.0	°C	--	--	
15% Recovered at		343.0	°C	--	--	
20% Recovered at		344.0	°C	--	--	
25% Recovered at		344.0	°C	--	--	
30% Recovered at		345.0	°C	--	--	
35% Recovered at		345.0	°C	--	--	
40% Recovered at		346.0	°C	--	--	
45% Recovered at		347.0	°C	--	--	
50% Recovered at		348.0	°C	--	--	
55% Recovered at		348.0	°C	--	--	
60% Recovered at		350.0	°C	--	--	
65% Recovered at		351.0	°C	--	--	
70% Recovered at		353.0	°C	--	--	
75% Recovered at		357.0	°C	--	--	
80% Recovered at		361.0	°C	--	--	
85% Recovered at		371.0	°C	--	--	
90% Recovered at		387.0	°C	--	--	
91% Recovered at		393.0	°C	--	--	
Kinematic Viscosity at 100°C	ASTM D445-15	3.948	mm²/s	--	--	
Kinematic Viscosity at 40°C	ASTM D445-15	29.36	mm²/s	--	--	

** End of Analytical Results **

Schneiden Global