susterra®
bio-based performance

Product Data Sheet

Susterra® Propanediol—Non-Inhibited Glycol-based Low Temperature Heat Transfer Fluid

Typical Properties of Susterra® Propanediol

Composition:	
1,3-Propanediol:	(% by weight) 99.7
Water & impurities:	(% by weight) 0.3
Color (Hazen/APHA):	0 - 15
Specific gravity:	1.053
Boiling Point:	417°F / 214°C
Viscosity, cP @20°C	49

Summary

Susterra® propanediol is a 100% bio-based, petroleum free glycol derived from fermentation of corn sugar resulting in the same chemical formula as propylene glycol; however, having a slightly different structure (1,3-propanediol vs 1,2-propylene glycol, respectively). This structural difference gives it some unique properties including low temperature viscosity, a higher boiling point, and resistance to degradation, thus making it an ideal glycol candidate for use in low temperature heat transfer fluid (LTHTF) systems commonly found in industrial beverage manufacturers like breweries and distilleries. The use of Susterra® propanediol can deliver comparable performance to an ethylene glycol-based system with the safety and toxicity profile of a propylene glycol-based system allowing for approval for food contact (NSF International HTX-1 specification).

In addition to being renewably sourced, bio-based 1,3-propanediol is manufactured using a sustainable process that produces 47% less greenhouse gas emissions and consumes 49% less non-renewable energy than equivalent petroleum-based diols. At the manufacturing facility's full capacity, this is equivalent to taking 36,000 passenger cars off the road and turning off 1.3 million 100W incandescent lightbulbs for one full year.

Recommended use temperature range: 40°F (4.44°C) to -41.8°F (-41.0°C).

Suitable applications: secondary cooling and heating, freezing and burst protection of pipes, various deicing, defrosting and dehumidifying applications, and a base for engine coolants where stability over a wide range of temperatures is important.

For **Health and Safety information** for this product, contact DuPont Tate & Lyle Bio Products Company, LLC directly at 1-866-404-7933 (page 1 of Susterra® Propanediol SDS).

In general, if Susterra® 1,3-Propanediol is being substituted for propylene glycol, the same inhibitor package can be used.

Typical Freezing Point of Susterra® Propanediol aqueous solutions. [1]

Vol% Susterra® PDO	WT% Susterra® PDO	Density PDO	Density Mixture	Density PDO/ Density Mixture	FP, °F	FP, °C
20	**20.8**	**1.0531**	**1.0135**	**1.0391**	**19.3**	**-7.1**
30	**30.9**	**1.0531**	**1.0210**	**1.0314**	**9.4**	**-12.6**
40	**40.9**	**1.0531**	**1.0295**	**1.0229**	**-4.1**	**-20.1**
50	**50.8**	**1.0531**	**1.0370**	**1.0155**	**-20.5**	**-29.2**
60	**60.6**	**1.0531**	**1.0434**	**1.0093**	**-49.8**	**-45.4**
100	**100.0**	**1.0531**	**1.0531**	**1.0000**	**-13.3**	**-25.2**

[1] Typical properties, not to be construed as specifications.

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Saturation Properties for 30% Susterra® Propanediol (1,3-propanediol) Concentration by Volume*

Temp. °C	Temp. °F	Thermal Conductivity (W/m·K)	Thermal Diffusivity (E-8 m2/s)	Volumetric Heat Capacity (MJ/m3·K)	Heat Capacity kj/(kg)(K)	Heat Capacity BTU/(lb)(F)
-9.6	14.7	0.3856	11.91	3.237	3.136	0.749
0.1	32.2	0.3956	11.85	3.338	3.249	0.776
30.1	86.2	0.4530	12.36	3.666	3.613	0.863
60.0	140.0	0.5101	13.62	3.745	3.750	0.896
90.0	194.0	0.5678	15.01	3.783	3.904	0.932
109.2	228.6	0.6385	16.56	3.855	4.096	0.978

Saturation Properties for 40% Susterra® Propanediol (1,3-propanediol) Concentration by Volume*.

Temp. °C	Temp. °F	Thermal Conductivity (W/m·K)	Thermal Diffusivity (E-8 m2/s)	Volumetric Heat Capacity (MJ/m3·K)	Heat Capacity kj/(kg)(K)	Heat Capacity BTU/(lb)(F)
-9.9	14.2	0.3451	11.40	3.028	2.904	0.694
0.1	32.2	0.3542	11.33	3.127	3.014	0.720
30.2	86.4	0.4048	11.72	3.453	3.369	0.805
60.1	140.2	0.4597	12.89	3.566	3.539	0.845
90.2	194.4	0.5419	14.59	3.714	3.778	0.902
110.0	230.0	0.6129	16.12	3.803	3.939	0.941

Saturation Properties for 50% Susterra® Propanediol (1,3-propanediol) Concentration by Volume*.

Temp. °C	Temp. °F	Thermal Conductivity (W/m·K)	Thermal Diffusivity (E-8 m2/s)	Volumetric Heat Capacity (MJ/m3·K)	Heat Capacity kj/(kg)(K)	Heat Capacity BTU/(lb)(F)
-25.3	-13.5	0.3662	11.96	3.063	2.893	0.691
-19.9	-3.8	0.3654	11.84	3.085	2.918	0.697
0.2	32.4	0.3697	11.52	3.210	3.067	0.733
30.3	86.5	0.3868	11.16	3.467	3.360	0.803
60.1	140.2	0.4126	12.24	3.370	3.324	0.794
90.0	194.0	0.4734	13.53	3.498	3.542	0.846
114.5	238.1	0.5346	14.86	3.597	3.732	0.891

* Typical properties, not to be construed as specifications.

For additional information or samples:

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DuPont Tate & Lyle BioProducts™