Physical properties of

KETTLITZ-Mediatherm 250 LL

1	***Upper Application Limits/Reference Temperatures***		
1.1	Boiling Point	(°C)	> 330
1.2	Flash Point (DIN 51584)	(°C)	> 190
1.3	Ignition Temperature (DIN 51794)	(°C)	> 350
1.4	Density at 15 °C (DIN 51757)	(g/cm³)	0.885 ± 0.010
1.5	Max. Heater Outlet Temperature resp. Media Temperature	(°C)	approx. 315
1.6	Max. Film Temperature	(°C)	approx. 335
1.7	Decomposition Temperature (closed system)	(°C)	> 340
1.8	Volatility (2 h/160 °C)	(%)	< 1
1.9	Viscosity at 40 °C (DIN 51562)	(mm²/s)	25 ± 3
2	***Lower Application Limits/Reference Temperature***		
2.1	Filling and Starting of Equipment ($\nu \leq 300$ mm²/s)	(°C)	approx. -5
2.2	Economical Application in Heat Transfer Systems ($\nu \leq 5$ mm²/s)	(°C)	approx. 90
3	***Further Physical Properties***		
3.1	Color	(ASTM D 1500)	max. 4
3.2	Molecular Weight	(relative)	approx. 350
3.3	Neutralization Value (DIN 51558)	(mg KOH/g)	< 0.1
3.4	Conradson Coke Residue (DIN 51551)	(weight-%)	0
3.5	Water Content (DIN ISO 3733)	(%)	< 0.01
3.6	Sulfur Content	(%)	< 0.001
3.7	Corrosive Influence on Copper, (Corrosion Degree DIN 51759)		1-100 A 3
3.8	Setting Point (DIN 51583)	(°C)	< -50

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Physical properties of Mediatherm 250 LL in relation to the temperature

Temperature ϑ in °C	Density ρ in g/cm³	Kinematic Viscosity ν in mm²/s	Dynamic Viscosity η in mPa·s	Coefficient of Cubical Expansion β in 1/K · 10^{-4}	Real Specific Thermal Capacity C_p in $\frac{KJ}{kg \cdot K}$	Volum. Specific Thermal Capacity C_v in $\frac{KJ}{m^3 \cdot K}$	Thermal Conductivity λ in W/(m·K)	Thermal Diffusivity a in mm²/s	Prandtl-Value Pr —
-40 °C									
-20 °C	0.910	1 529.3	1 391.7	7.69	1.77	1.61	0.132	0.0820	18 660.9
0 °C	0.896	265.6	238.0	7.81	1.84	1.65	0.130	0.0789	3 368.3
20 °C	0.882	55.4	48.9	7.94	1.92	1.69	0.129	0.0762	727.3
40 °C	0.868	25.0	21.7	8.06	2.00	1.74	0.127	0.0732	341.7
60 °C	0.854	* 12.2	10.4	8.20	2.07	1.77	0.126	0.0713	171.2
80 °C	0.840	6.5	5.5	8.33	2.15	1.81	0.124	0.0687	94.7
100 °C	0.826	* 4.0	3.3	8.48	2.22	1.83	0.123	0.0671	59.6
120 °C	0.812	* 2.8	2.3	8.62	2.30	1.87	0.122	0.0653	42.9
140 °C	0.798	* 2.0	1.6	8.77	2.37	1.89	0.120	0.0634	31.5
160 °C	0.784	* 1.6	1.3	8.93	2.45	1.92	0.119	0.0620	25.8
180 °C	0.770	* 1.2	0.9	9.09	2.52	1.94	0.117	0.0603	19.9
200 °C	0.756	* 1.0	0.8	9.26	2.60	1.97	0.116	0.0590	16.9
220 °C	0.742	* 0.9	0.7	9.43	2.68	1.99	0.114	0.0573	15.7
240 °C	0.728	* 0.8	0.6	9.62	2.75	2.00	0.113	0.0564	14.2
260 °C	0.714	* 0.7	0.5	9.80	2.83	2.02	0.112	0.0554	12.9
280 °C	0.700	* 0.7	0.5	10.00	2.90	2.03	0.110	0.0542	12.6
300 °C	0.686	* 0.6	0.4	10.20	2.98	2.04	0.108	0.0528	11.6
320 °C	0.672	* 0.6	0.4	10.42	3.05	2.05	0.106	0.0517	11.4

* mathematically determined values for ν

$$\nu = e^{-4.288 + \frac{1308.7}{132.7 + \vartheta}}$$