SERIOLA 32 & 100

Heat transfer fluid

Mineral based heat transfer fluid.

APPLICATIONS

Heat transfer circuits

Temperature range :
0°C ⟶ 290°C
Without air contact

- **SERIOLA 32 and 100** are recommended for heat transfer installations using thermal fluid circulation, in **open and closed circuits**.
- **SERIOLA 32 and 100** are suitable for heating and temperature control in all industries, and particularly for following manufacturing processes:
  - → **Steam production**
  - → **Paper Industry**
  - → **Timber Industry**
  - → **Textile Industry**
  - → **Oil & Gas**

SPECIFICATIONS

- ISO 6743-12 L-QB-290 / DIN 51522 – class Q
- **SERIOLA 32** is approved by the French Health Direction for drinking water treatment.

ADVANTAGES

Long life

- Compared to conventional fluids, **SERIOLA 32 and 100** deliver high oxisdation resistance thanks to a duly selected antioxidant.

TYPICAL CHARACTERISTICS	METHODS	UNITS	SERIOLA *Typical values*	
			32	**100**
Appearance	-	Visual	Yellow	Light Brown
Density at 15°C	ISO 12185	kg/m^3	865	881
Kinematic Viscosity at 40°C	ISO 3104	mm^2/s	30	110
Pour point	ISO 3016	°C	- 15	- 9
Flash point – Open Cup	ISO 2592	°C	230	260
Flash point – Closed Cup	ISO 2719	°C	223	257
Fire point	ISO 2592	°C	260	290
Initial Boiling Point	ASTM D2887	°C	310	379
Final Boiling Point	ASTM D2887	°C	549	615
Auto ignition temperature	ASTM E659	°C	353	400
Conradson carbon residue	ISO 6615	%w	< 0.1	< 0.1
Minimal operating temperature	-	°C	0	0
Maximum **bulk** temperature	GB/T 23800	°C	290	290
Maximum **film** temperature	GB/T 23800	°C	310	310

Above characteristics are mean values given as an information.

STORAGE RECOMMENDATIONS
- Store the product at ambient temperature
- Minimize the periods of exposure to temperatures above 35°C
- Shelf life : 5 years from date of manufacture (unopened)

SERIOLA 32 – THERMODYNAMIC DATA							
T (°C)	Density (kg/m^3)	Thermal Conductivity (W/m.°C)	Specific Heat (kJ/kg.°C)	Vapour pressure (mbar)	Kinematic Viscosity (mm^2/s or cSt)	Dynamic Viscosity (mPa.s)	Enthalpy of Vaporization (kJ/mol)
0	874	0.141	1.826	0	327	286	
10	868	0.139	1.868	0	156	136	
20	862	0.138	1.910	0	83.7	72.1	
30	856	0.137	1.952	0	49,1	44,2	
40	850	0.136	1.994	0	31,0	27,2	
50	844	0.134	2.036	0	20,8	17,84	
60	838	0.133	2.078	0	14,7	12,36	
70	832	0.132	2.121	0	10,8	8,95	
80	826	0.130	2.163	0	8,28	6,73	
90	820	0.129	2.205	0	6,51	5,22	
100	814	0.128	2.247	0	5,24	4,15	
110	808	0.127	2.289	0	4,32	3,38	
120	802	0.126	2.331	0	3,62	2,80	
130	796	0.124	2.373	0	3,08	2,36	
140	790	0.123	2.416	0	2,66	2,02	87.92
150	784	0.122	2.458	0	2,33	1,75	87.50
160	778	0.121	2,500	0	2,06	1,53	87.09
170	772	0.120	2.542	0	1,84	1,35	86.68
180	766	0.119	2.584	0	1,65	1,21	86.26
190	760	0.118	2.626	1	1,50	1,09	85.85
200	754	0.117	2.636	1	1,37	0,98	85.44
210	748	0.115	2.660	1	1,26	0,90	85.02
220	742	0.114	2.684	2	1,16	0,82	84.62
230	736	0.113	2.707	3	1,08	0,76	84.20
240	730	0.112	2.731	5	1,01	0,70	83.79
250	724	0.111	2.754	7	0,945	0,65	83.35
260	718	0.110	2.781	10	0,890	0,61	82.93
270	712	0.109	2.808	14	0,840	0,57	82.52
280	706	0.108	2.835	20	0,796	0,54	82.11
290	700	0.106	2.862	27	0,757	0,51	81.69
300	694	0.105	2.889	37	0,723	0,48	81.28
310	688	0.104	2.916	50	0,66	0,45	80.87

Thermal expansion coefficient : $7.3.10^{-4}$ /°C

→ **Thermal conductivity** : property of a material to conduct heat. ***The higher thermal conductivity, the more efficient the heat transfer fluid will be***. Less heat will be required.

→ **Specific heat** : fluid's ability to store the heat. It isdefined by the required energy to raise 1°C the temperature of 1 gram of a fluid.

→ **Vapor pressure** : pressure exerted by a vapor in thermodynamic equilibrium with its condensed phases (solid or liquid) at a given temperature in a closed system. For a heat transfer fluid, a low vapor pressure is recommended to operate safely.

⟶ **Enthalpy of vaporization :** amount of energy (enthalpy) that must be added to the liquid substance, to transform a quantity of that substance into a gas.

SERIOLA 100 – THERMODYNAMIC DATA							
T (°C)	Density (kg/m^3)	Thermal Conductivity (W/m.°C)	Specific Heat (kJ/kg.°C)	Vapour pressure (mbar)	Kinematic Viscosity (mm^2/s or cSt)	Dynamic Viscosity (mPa.s)	Enthalpy of Vaporization (kJ/mol)
0	890	0.131	1.859	0	2314	2059	
10	884	0.130	1.898	0	918	811	
20	878	0.130	1.936	0	417	366	
30	871	0.129	1.975	0	212	185	
40	865	0.128	2.014	0	118	102	
50	859	0.128	2.053	0	71,3	61,3	
60	853	0.127	2.091	0	45,6	39,1	
70	847	0.126	2.130	0	31,1	26,3	
80	840	0.125	2.169	0	22,1	18,6	
90	834	0.125	2.207	0	16.3	13,6	
100	828	0.124	2.246	0	12,4	10,3	
110	822	0.123	2.285	0	9,71	7,98	
120	815	0.123	2.323	0	7,79	6,36	
130	809	0.122	2.362	0	6,38	5,17	
140	803	0.121	2.401	0	5,32	4,27	
150	797	0.121	2.440	0	4,50	3,59	
160	791	0.120	2.478	0	3,87	3,06	
170	784	0.119	2.517	0	3,36	2,64	
180	778	0.118	2.556	0	2,95	2,30	
190	772	0.118	2.594	0	2,62	2,02	
200	766	0.117	2.633	0	2,34	1,79	
210	760	0.116	2.672	0	2,11	1,60	
220	753	0.116	2.710	0	1,91	1,44	
230	747	0.115	2.749	0	1,75	1,31	
240	741	0.114	2,788	0	1,60	1,19	
250	735	0.114	2.827	0	1,48	1,09	
260	729	0.113	2.865	0	1,37	1,00	
270	722	0.112	2.904	0	1,28	0,92	
280	716	0.111	2.943	0	1,20	0,86	
290	710	0.111	2.981	0	1,12	0,80	
300	704	0.110	3.020	0	1,06	0,74	
310	697	0.109	3.059	0	1,00	0,70	

Thermal expansion coefficient : 7,2.10^{-4} /°C

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