

SERIOLA 32 & 100



Heat transfer fluid



Mineral based heat transfer fluid.

APPLICATIONS

Heat transfer circuits

Temperature range :

0°C → 310°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-QC / DIN 51522 – class Q
- **SERIOLA 32** is approved by the French Health Direction for drinking water treatment.

ADVANTAGES

Long life

- **SERIOLA 32 and 100** are formulated from selected base oils, with of the following properties:
 - very high thermal stability.
 - very high flash point.
 - high viscosity index

TYPICAL CHARACTERISTICS	METHODS	UNITS	SERIOLA Typical values	
			32	100
Appaerance	-	Visual	Yellow	Light Brown
Density at 15°C	ISO 12185	kg/m ³	865	890
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	280
Flash point – Closed Cup	ISO 2719	°C	223	260
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	-	°C	310	310
Maximum film temperature	-	°C	330	330

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)

TOTAL LUBRIFIANTS
INDUSTRIE

15-02-2022 (supersedes 10-01-2020)

SERIOLA 32 & 100

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TOTAL

SERIOLA 32 – THERMODYNAMIC DATA

T (°C)	Density (kg/L)	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	0,875	0,1358	1,811	0	303	265	
10	0,868	0,1350	1,848	0	147	128	
20	0,862	0,1343	1,884	0	79,6	68,6	
30	0,855	0,1336	1,920	0	47,1	40,2	
40	0,848	0,1328	1,957	0	30,0	25,4	
50	0,841	0,1321	1,993	0	20,3	17,1	
60	0,834	0,1314	2,030	0	14,4	12,0	
70	0,827	0,1306	2,066	0	10,7	8,85	
80	0,820	0,1299	2,102	0	8,16	6,69	
90	0,813	0,1292	2,139	0	6,44	5,23	
100	0,806	0,1284	2,175	0	5,20	4,19	
110	0,799	0,1277	2,212	0	4,30	3,43	
120	0,792	0,1270	2,248	0	3,60	2,85	
130	0,785	0,1262	2,284	0	3,07	2,41	
140	0,778	0,1255	2,321	0	2,66	2,07	87.92
150	0,771	0,1248	2,357	0	2,33	1,80	87.50
160	0,764	0,1240	2,394	0	2,06	1,57	87.09
170	0,757	0,1233	2,430	0	1,84	1,39	86.68
180	0,750	0,1226	2,467	0	1,66	1,25	86.26
190	0,743	0,1218	2,503	1	1,50	1,11	85.85
200	0,736	0,1211	2,539	1	1,37	1,01	85.44
210	0,729	0,1204	2,576	1	1,26	0,92	85.02
220	0,722	0,1196	2,612	2	1,17	0,84	84.62
230	0,715	0,1189	2,649	3	1,08	0,77	84.20
240	0,708	0,1182	2,685	5	1,01	0,72	83.79
250	0,701	0,1174	2,721	7	0,95	0,67	83.35
260	0,694	0,1167	2,758	10	0,89	0,62	82.93
270	0,687	0,1160	2,794	14	0,84	0,58	82.52
280	0,680	0,1152	2,831	20	0,80	0,54	82.11
290	0,673	0,1145	2,867	27	0,76	0,51	81.69
300	0,666	0,1138	2,903	37	0,73	0,49	81.28

Thermal expansion coefficient : $6.965.10^{-4}/^{\circ}\text{C}$

- **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 is defined 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.

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SERIOLA 100 – THERMODYNAMIC DATA

T (°C)	Density (kg/L)	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	0,900	0,1320	1,786	0	2293	2063	
10	0,893	0,1312	1,821	0	911	813	
20	0,887	0,1305	1,857	0	415	368	
30	0,880	0,1298	1,893	0	211	185	
40	0,874	0,1291	1,929	0	118	103	
50	0,867	0,1284	1,965	0	71,2	61,7	
60	0,861	0,1277	2,001	0	45,8	39,4	
70	0,854	0,1270	2,037	0	31,1	26,6	
80	0,848	0,1263	2,073	0	22,1	18,7	
90	0,841	0,1255	2,109	0	16,3	13,7	
100	0,835	0,1248	2,145	0	12,4	10,3	
110	0,828	0,1241	2,180	0	9,70	8,03	
120	0,822	0,1234	2,216	0	7,80	6,41	
130	0,815	0,1227	2,252	0	6,39	5,21	
140	0,809	0,1220	2,288	0	5,32	4,30	
150	0,802	0,1213	2,324	0	4,51	3,62	
160	0,796	0,1206	2,360	0	3,87	3,08	
170	0,789	0,1198	2,396	0	3,36	2,65	
180	0,783	0,1191	2,432	0	2,95	2,31	
190	0,776	0,1184	2,468	0	2,62	2,03	
200	0,770	0,1177	2,503	0	2,34	1,80	
210	0,763	0,1170	2,539	0	2,11	1,61	
220	0,757	0,1163	2,575	0	1,92	1,45	
230	0,750	0,1156	2,611	0	1,75	1,31	
240	0,744	0,1149	2,647	0	1,61	1,20	
250	0,737	0,1141	2,683	0	1,48	1,09	
260	0,731	0,1134	2,719	0	1,38	1,01	
270	0,725	0,1127	2,755	0	1,28	0,93	
280	0,718	0,1120	2,791	0	1,20	0,86	
290	0,712	0,1113	2,826	0	1,13	0,80	
300	0,705	0,1106	2,862	0	1,06	0,75	

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This lubricant used as recommended and for the application for which it has been designed does not present any particular risk.
A material safety data sheet conforming to the regulations in use in the E.C. can be obtained from your local commercial adviser or down loaded from www.quick-fds.com.