



## EOVK.MH10678 Transformer Fluids

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### Transformer Fluids

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**COOPER POWER SYSTEMS INC**  
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MH10678

"Envirotemp® FR3". Classed 4 to 5 less hazardous than paraffin oil in respect to fire hazard. Flash point (closed cup) 255 C (491 F). Fire point 358 C (676 F). Ignition temperature 428 C (802 F).

Also Classified as a "less-flammable liquid" as specified in the National Electric Code® when used in 3-phase transformers, 45 through 10,000 kVA with the following "use restrictions":

A. For use only in 3-phase transformers having tanks capable of withstanding an internal pressure of 12 psig without rupture,

B. Required use of pressure relief devices on transformer tank in accordance with the following tabulation to limit internal pressure buildup and prevent tank rupture due to gas generation under low current arcing faults, and

C. Required use of current limiting fusing in the transformer primary having  $I^2t$  characteristics not exceeding the values in the following tabulation. Under-fluid expulsion fuses may be used in series with the current-limiting fuses, in accordance with the manufacturer's protection scheme, OR

D. Required use of overcurrent protection in the transformer primary having  $I^2t$  characteristics not exceeding the values in the following tabulation. If the fuse is designed to vent during operation (such as an expulsion fuse), it shall be located external to the transformer tank.

TRANSFORMER	REQUIRED PROTECTION		REQUIRED PRC
	Required Current OR Limiting Fusing(+) Max $I^2t$ (A <sup>2</sup> s)	Required Overcurrent Protection(+) Max $I^2t$ (A <sup>2</sup> s)	Minimum Required Pressure Relief Capacity(++) SCFM at 15 psi
45	500,000	700,000	35
75	500,000	800,000	35
112.5	550,000	900,000	35
150	600,000	1,000,000	50
225	650,000	1,200,000	100
300	750,000	1,400,000	100
500	900,000	1,900,000	350

750	1,100,000	2,200,000	350
1,000	1,250,000	3,400,000	350
1,500	1,500,000	4,500,000	700
2,000	1,750,000	6,000,000	700
2,500	2,000,000	7,500,000	5,000
3,000	2,250,000	9,000,000	5,000
3,750	2,500,000	11,000,000	5,000
5,000	3,000,000	14,000,000	5,000
7,500	3,000,000	14,000,000	5,000
10,000	3,000,000	14,000,000	5,000

(+) - This is an additional requirement to the overcurrent protection required in accordance with Section 450-3 of the current date National Electrical Code®.

(++) - Opening pressure, 10 psig maximum.

"R-Temp Fluid." Classed 4 to 5 less hazardous than paraffin oil in respect to fire hazard. Flash point (closed cup) 268.3 C (515 F). Fire point 310.6 C (610 F). Ignition temperature 331 C (627.8 F).

Also Classified as a "less-flammable liquid" as specified in the National Electric Code® when used in 3-phase transformers, 45 through 10,000 kVA with the following "use restrictions":

A. For use only in 3-phase transformers having tanks capable of withstanding an internal pressure of 12 psig without rupture,

B. Required use of pressure relief devices on transformer tank in accordance with the following tabulation to limit internal pressure buildup and prevent tank rupture due to gas generation under low current arcing faults, and

C. Required use of current limiting fusing in the transformer primary having  $I^2t$  characteristics not exceeding the values in the following tabulation. Under-fluid expulsion fuses may be used in series with the current-limiting fuses, in accordance with the manufacturer's protection scheme, OR

D. Required use of overcurrent protection in the transformer primary having  $I^2t$  characteristics not exceeding the values in the following tabulation. If the fuse is designed to vent during operation (such as an expulsion fuse), it shall be located external to the transformer tank.

TRANSFORMER  3-Phase Transformer Rating, kVA	REQUIRED PROTECTION		REQUIRED PRC
	Required Current OR Limiting Fusing(+) Max $I^2t$ (A <sup>2</sup> s)	Required Overcurrent Protection(+) Max $I^2t$ (A <sup>2</sup> s)	Minimum Required Pressure Relief Capacity(++) SCFM at 15 psi
45	500,000	700,000	35
75	500,000	800,000	35
112.5	550,000	900,000	35
150	600,000	1,000,000	50
225	650,000	1,200,000	100
300	750,000	1,400,000	100

500	900,000	1,900,000	350
750	1,100,000	2,200,000	350
1,000	1,250,000	3,400,000	350
1,500	1,500,000	4,500,000	700
2,000	1,750,000	6,000,000	700
2,500	2,000,000	7,500,000	5,000
3,000	2,250,000	9,000,000	5,000
3,750	2,500,000	11,000,000	5,000
5,000	3,000,000	14,000,000	5,000
7,500	3,000,000	14,000,000	5,000
10,000	3,000,000	14,000,000	5,000

(+) - This is an additional requirement to the overcurrent protection required in accordance with Section 450-3 of the current date National Electrical Code®.

(++) - Opening pressure, 10 psig maximum.

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