

TEMPERATURE CORRECTION FACTORS FOR THIN-FILM MEMBRANES

The temperature correction factors (TCF) listed below are for FilmTec™ membrane only.

<u>Feedwater Temperature</u>		<u>TCF</u>	<u>1/TCF</u>
<u>°C</u>	<u>°F</u>		
2	35.6	0.428	2.33
3	37.4	0.446	2.24
4	39.2	0.464	2.16
5	41.0	0.482	2.07
6	42.8	0.502	1.99
7	44.6	0.521	1.92
8	46.4	0.542	1.85
9	48.2	0.563	1.78
10	50.0	0.584	1.71
11	51.8	0.607	1.65
12	53.6	0.630	1.59
13	55.4	0.654	1.53
14	57.2	0.678	1.47
15	59.0	0.703	1.42
16	60.8	0.729	1.37
17	62.6	0.756	1.32
18	64.4	0.784	1.28
19	66.2	0.812	1.23
20	68.0	0.841	1.19
21	69.8	0.871	1.15
22	71.6	0.902	1.11
23	73.4	0.934	1.07
24	75.2	0.966	1.03
25	77.0	1.000	1.00

Product flow rate at 25°C x TCF = Product flow rate at other temperatures.

Product flow rate at other temperatures x (1/TCF) = Product flow rate at 25°C.

For other temperatures, the formula¹ is as follows;

$$TCF = e^{2640(1/298-1/T)} \quad \text{for temperatures } \geq 25^{\circ}\text{C}$$

$$TCF = e^{3020(1/298-1/T)} \quad \text{for temperatures } \leq 25^{\circ}\text{C}$$

where $T = 273 + ^{\circ}\text{C}$ of actual water temperature.

¹ Formula taken from FilmTec™ Form No. 609-02084-0905 and is printed here for reference only.
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The temperature correction factors (TCF) listed below are for TriSep ACM and X-20 elements only.

<u>Feedwater Temperature</u>		<u>TCF</u>	<u>1/TCF</u>
<u>°C</u>	<u>°F</u>		
2	35.6	0.443	2.26
3	37.4	0.460	2.17
4	39.2	0.478	2.09
5	41.0	0.497	2.01
6	42.8	0.515	1.94
7	44.6	0.535	1.87
8	46.4	0.555	1.80
9	48.2	0.576	1.74
10	50.0	0.597	1.67
11	51.8	0.619	1.62
12	53.6	0.642	1.56
13	55.4	0.665	1.50
14	57.2	0.689	1.45
15	59.0	0.713	1.40
16	60.8	0.739	1.35
17	62.6	0.765	1.31
18	64.4	0.791	1.26
19	66.2	0.819	1.22
20	68.0	0.847	1.18
21	69.8	0.876	1.14
22	71.6	0.906	1.10
23	73.4	0.936	1.07
24	75.2	0.968	1.03
25	77.0	1.000	1.00

Product flow rate at 25°C x TCF = Product flow rate at other temperatures.

Product flow rate at other temperatures x (1/TCF) = Product flow rate at 25°C.

For other temperatures, the formula² is as follows;

$$TCF = e^{2900(1/298-1/T)}$$

where $T = 273 + °C$ of actual water temperature.

² Formula taken from TriSep Engineering Manual Temperature Correction Factors for TriSep Elements and is printed here for reference only.

The temperature correction factors (TCF) listed below are for **EM[®] MEMBRANES** only.
 The rated flow at 25 °C for AMI part number M-T2521A is 325 GPD +/-15%.
 The rated flow at 25 °C for AMI part number M-T2521AHF is 405 GPD +/-15%.

<u>Feedwater Temperature</u>		<u>TCF</u>	<u>1/TCF</u>
<u>°C</u>	<u>°F</u>		
5	41	0.388	2.58
6	42.8	0.420	2.38
7	44.6	0.450	2.22
8	46.4	0.474	2.11
9	48.2	0.500	2.00
10	50	0.529	1.89
11	51.8	0.562	1.78
12	53.6	0.595	1.68
13	55.4	0.621	1.61
14	57.2	0.649	1.54
15	59	0.680	1.47
16	60.8	0.719	1.39
17	62.6	0.746	1.34
18	64.4	0.775	1.29
19	66.2	0.806	1.24
20	68	0.840	1.19
21	69.8	0.870	1.15
22	71.6	0.901	1.11
23	73.4	0.926	1.08
24	75.2	0.962	1.04
25	77	1.000	1.00
26	78.8	1.031	0.97
27	80.6	1.064	0.94
28	82.4	1.099	0.91
29	84.2	1.136	0.88
30	86	1.176	0.85

Product flow rate at 25°C x TCF = Product flow rate at other temperatures.
 Product flow rate at other temperatures x (1/TCF) = Product flow rate at 25°C.

For other temperatures, the formula³ is as follows;

³ Formula taken from correspondence with Applied Membranes, Inc and is printed here for reference only.
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$$TCF = e^{2640(1/298-1/T)} \quad \text{for temperatures } \geq 25^{\circ}\text{C}$$
$$TCF = e^{3020(1/298-1/T)} \quad \text{for temperatures } < 25^{\circ}\text{C}$$

where $T = 273 + ^{\circ}\text{C}$ of actual water temperature.