



Anti-Fog
SYSTEMS LLC

FRIDGE FILM CONDENSATION

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Reading Condensation Chart

Dew Point Temperature(°F) in relation with air temperature(°F) and relative humidity content

Air Temp °	DewPoint Temp ° F at a relative humidity content %														
	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	
86.0	50.9	55.2	58.8	62.2	65.1	68.0	70.5	72.9	75.0	76.8	78.3	79.6	80.8	82.8	84.4
84.2	49.5	53.6	57.2	60.6	63.5	66.2	68.5	71.1	73.0	74.6	76.0	77.3	78.5	81.0	82.6
82.4	47.8	52.0	55.6	59.0	61.9	64.6	67.1	69.4	71.6	73.8	75.6	77.4	79.2	80.8	
80.6	46.4	50.2	54.0	57.4	60.3	63.0	65.5	67.8	70.0	72.0	73.9	75.7	77.4	79.0	
78.8	44.8	48.9	52.5	55.8	58.6	61.3	63.7	66.0	68.2	70.2	72.1	73.9	75.6	77.2	
77.0	43.2	47.3	50.9	54.0	57.0	59.5	62.1	64.4	66.4	68.5	70.3	72.1	73.8	75.4	
75.2	41.7	45.7	49.3	52.3	55.2	57.9	60.4	62.6	64.8	66.7	68.5	70.3	72.1	73.6	
73.4	40.1	44.1	47.7	50.7	53.6	56.3	58.6	61.0	63.0	64.9	66.9	68.5	70.3	72.0	
71.6	38.5	42.6	46.0	49.1	52.0	54.5	57.0	59.2	61.3	63.3	65.1	66.9	68.5	70.2	
69.8	37.0	41.0	44.4	47.5	50.4	52.9	55.2	57.6	59.5	61.5	63.3	65.1	66.7	68.4	
68.0	35.4	39.4	42.8	45.9	48.7	51.3	53.6	55.8	57.9	59.7	61.5	63.3	64.9	66.6	
66.2	33.8	37.8	41.2	44.2	46.9	49.6	52.0	54.1	56.1	58.1	59.9	61.5	63.1	64.8	
64.4	32.4	36.1	39.6	42.6	45.3	46.4	50.2	52.7	54.5	56.2	58.1	59.7	61.3	63.0	
62.6	30.9	34.5	37.9	41.0	43.7	46.2	48.4	50.7	52.7	54.5	56.2	58.1	59.7	61.2	
60.8	29.5	32.9	36.3	39.4	42.1	44.6	46.6	48.7	50.7	52.4	54.2	56.1	57.9	59.4	
59.0	28.1	31.5	34.7	37.8	40.5	43.0	44.9	46.8	48.5	50.2	52.0	53.8	55.6	57.6	
57.2	26.7	30.1	33.1	36.1	38.7	41.2	43.0	44.7	46.4	48.1	49.8	51.5	53.3	55.8	
55.4	25.3	28.6	31.8	34.3	37.0	39.6	41.2	42.8	44.4	46.1	47.7	49.3	50.9	52.5	54.0
53.6	23.9	27.3	31.8	32.7	35.4	37.8	40.1	41.7	43.3	44.9	46.5	48.1	49.7	51.3	52.2
51.8	22.6	25.9	28.8	31.3	33.8	36.1	38.3	40.5	42.4	44.1	45.9	47.5	48.9	50.4	
50.0	21.2	24.4	27.3	29.8	32.2	34.5	36.7	38.7	40.6	42.4	44.1	45.7	47.1	48.6	

The humidity in store measured in %

The Air Temperature in store measured in °F

At 71.6 °F Air Temperature, and 55 % humidity the outside of the door should not have a lower temperature than 54.5°F, otherwise condensation can occur

Copy of Condensation Chart

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84.2	49.5	53.6	57.2	60.6	63.5	66.2	68.5	71.1	73.4	75.4	77.4	79.2	81.0	82.6
82.4	47.8	52.0	55.6	59.0	61.9	64.6	67.1	69.4	71.6	73.8	75.6	77.4	79.2	80.8
80.6	46.4	50.2	54.0	57.4	60.3	63.0	65.5	67.8	70.0	72.0	73.9	75.7	77.4	79.0
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71.6	38.5	42.6	46.0	49.1	52.0	54.5	57.0	59.2	61.3	63.3	65.1	66.9	68.5	70.2
69.8	37.0	41.0	44.4	47.5	50.4	52.9	55.2	57.6	59.5	61.5	63.3	65.1	66.7	68.4
68.0	35.4	39.4	42.8	45.9	48.7	51.3	53.6	55.8	57.9	59.7	61.5	63.3	64.9	66.6
66.2	33.8	37.8	41.2	44.2	46.9	49.6	52.0	54.1	56.1	58.1	59.9	61.5	63.1	64.8
64.4	32.4	36.1	39.6	42.6	45.3	46.4	50.2	52.3	54.5	56.3	58.1	59.7	61.3	63.0
62.6	30.9	34.5	37.9	41.0	43.7	46.2	48.6	50.7	52.7	54.5	56.3	58.1	59.5	61.2
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59.0	28.0	31.5	34.7	37.8	40.5	43.0	45.1	47.3	49.3	51.1	52.9	54.5	56.1	57.6
57.2	26.8	30.2	33.1	36.1	38.7	41.2	43.5	45.5	47.5	49.3	51.1	52.7	54.3	55.8
55.4	25.3	28.6	31.8	34.3	37.0	39.6	41.9	43.9	45.9	47.7	49.3	50.9	52.5	54.0
53.6	23.9	27.3	31.8	32.7	35.4	37.8	40.1	42.3	44.1	45.9	47.7	49.3	50.7	52.2
51.8	22.6	25.9	28.8	31.3	33.8	36.1	38.3	40.5	42.4	44.1	45.9	47.5	48.9	50.4
50.0	21.2	24.4	27.3	29.8	32.2	34.5	36.7	38.7	40.6	42.4	44.1	45.7	47.1	48.6

Temp, Relative Humidity and Refrigeration

These factors must be taken into consideration when analyzing the point at which condensation will occur

CONDENSATION OUTSIDE OF THE DOORS

- Relative Humidity
- Air Temperature and Air Conditioning

CONDENSATION INSIDE OF THE DOORS

- Sweat Heaters and Refrigeration Equipment
 - Consumer Door Usage
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Temp, Relative Humidity and Refrigeration Cont. **CONDENSATION OUTSIDE OF THE DOORS**

Relative Humidity, Air Temp and Air Conditioning

Typically, by shutting off the heating, the outside of the door will have the following temp.

2 Layer Door: 41 – 50°F

3 Layer Door: 50 – 68°F

By maintaining a maximum ambient air temp of 75°F, and keeping the relative humidity levels below 55%, condensation is unlikely to occur on the outside of the doors.

Additionally, running the air conditioning systems will reduce humidity levels to lower than 30%, eliminating the likely-hood of condensation.

CONCLUSION

- By maintaining the ambient air temperature and humidity in store, at the industry suggested levels.

AND

- By removing costly anti-sweat heaters from low temp display cases and introducing Anti-Fog Systems Film.

THE DECISION IS CLEAR BOTH INSIDE AND OUT



**REDUCED ENERGY COSTS, GREATER SAVINGS, AND
OVERALL CUSTOMER SATISFACTION**
