

Inflatable PFDs in Cold Weather

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Inflatable PFD's may not inflate or may slowly inflate and will experience reduced buoyancy if the air temperature is below freezing. Cold reduces the volume of gas and results in a reduction in buoyancy. In these cases, manual or oral inflation may be required to reach effective buoyancy. To be on the safe side you should switch to non-inflatable PFD's when the air temperature is below freezing.

The problem is that air temperature and volume are related. This relationship is described by Charles' Law, which you remember from your high school science class. The gas volume factor is shown below.

Temperature Degrees F	Volume Factor
70	1
60	0.98
50	0.96
40	0.94
30	0.93
20	0.91
10	0.89
0	0.87

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