

The Danger of Storing Blood in a Non-medical Refrigerator

The medical community uses specialized equipment and procedures to minimize patient risk while providing significant health benefits. Cold stored blood that is available for infusion as soon as possible to a trauma patient is a significant benefit in reducing fatalities in cities and on battlefields made possible by portable refrigerators. The storage of this blood has risks to be minimized by dependable and safe cold-chain equipment and procedures. So significant are the risks of blood transfusion, governments have laws prescribing the storage temperature of blood¹ and the capability and quality of the cold chain equipment used to store blood.

Table 1. Refrigerators Compared

FDA Class II Portable Blood Refrigerator	Camping Refrigerator
Interior wall temperature never goes below freezing	Walls destroy blood when they dip below freezing even if thermostat reports a safe temperature
Rated for -32°C (-25°F) up to 50°C (122°F) environments	Fails without warning in hot or cold environments
Thermostat specifically designed to represent blood temperature regardless of ambient conditions	Thermostat not accurate enough to report temperature excursions in corners of refrigerator

Camping refrigerators are not designed to maintain the tight temperatures required by blood banks and FDA regulation. If a single point temperature logging device is used, it may not detect excursions from the 1 to 6 °C range in other parts of the refrigerator. This means that it will either accidentally freeze some of the blood or allow some blood to be too warm while the temperature probe reports no problems. The accumulated damage to the blood can be significant and dangerous to infuse into a patient.

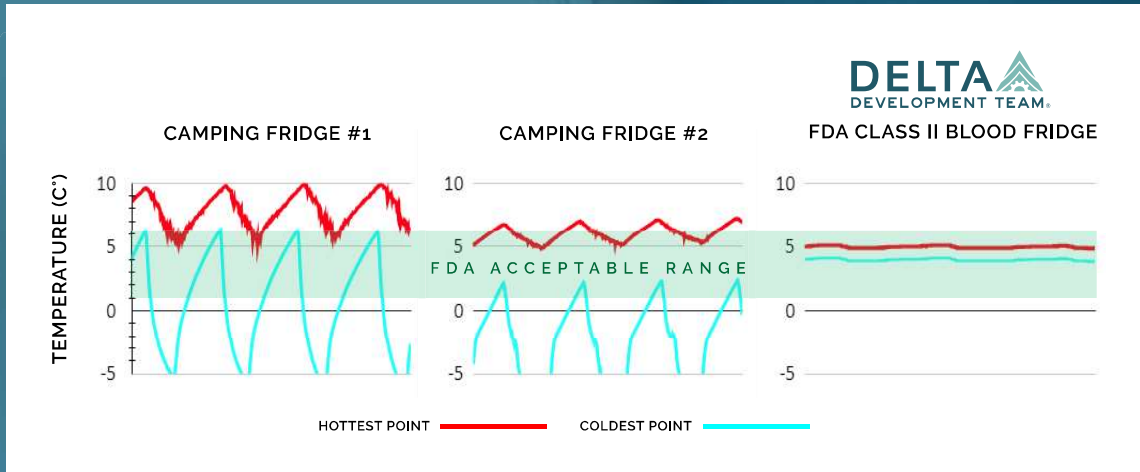
Delta tested our FDA Class II Portable Blood Refrigerator alongside camping refrigerators. The charts below show how the camping refrigerators fail to meet FDA required temperatures and will freeze your blood supply. Delta's Portable Blood Refrigerator maintains an even tighter temperature than required by the FDA. The FDA required temperature range is highlighted in green. See graphs on the next page for the given test condition below.

Test Conditions		
Ambient Temperature	Power Source	Blood Bag Load
40°C	120VAC	Unloaded (Empty)

1. CFR TITLE 21 CHAPTER I. SUBCHAPTER F. Part 640 Sec. 640.11
2. CFR TITLE 21 CHAPTER I. SUBCHAPTER H. Part 820
3. CFR TITLE 29 CHAPTER XVII. Part 1910

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Camping Refrigerator

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