

VRLA BATTERIES OPERATING IN HIGH TEMPERATURES

Scope: To present a solution to the problem of VRLA batteries in monoblock configuration suffering from short life when in temperatures over 77 deg F/25 deg. C. This brief overview is complemented by Power Battery Co. paper, HTS 1, available on request.

Background: VRLA batteries have many advantages, i.e. lower maintenance requirements, greater high rate efficiency, space efficiency and cost (compared to flooded batteries). They also have limitations, having to do with the effects of recombination on both positive and negative plates and with irretrievable water loss. These uncorrected conditions will result in shorter life than designed and expected. These limitations are accelerated in higher temperatures.

Solution: Power Battery Company has been conducting research, tests and development for several years with the goal of producing VRLA monoblock batteries that can consistently deliver “normal” life in temperatures up to at least 90 deg. F. This work has been aimed at all aspects of battery design and construction, including alloys, active material combinations, grid thickness, container design and others. We have been successful in achieving our goals, and are now producing batteries that can operate in higher temperatures and have a life expectancy as when operating at 77 deg F/25 deg. C. This technology has been named HTS. The comparison of capacity over time at high temperature is illustrated below.

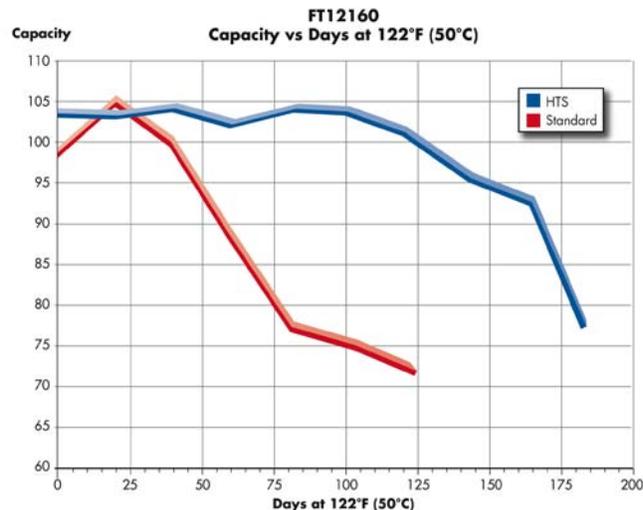


Figure 1: The HT test batteries have a life more than twice the non-HT batteries to 80% of rated capacity

Benefits: The HTS technology will overcome fundamental imbalances in typical VRLA batteries and will have an even greater impact as ambient temperatures are increased. Power Battery will guarantee the life of an HTS battery operating in 90 deg F conditions for longer than the normal guarantee period for telecom applications. Operating savings can accrue not only from extended battery life, but also from having the option of raising the controlled temperature levels in cell phone shelters, data center battery rooms, and other areas where the temperature is kept low just for battery considerations.

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