

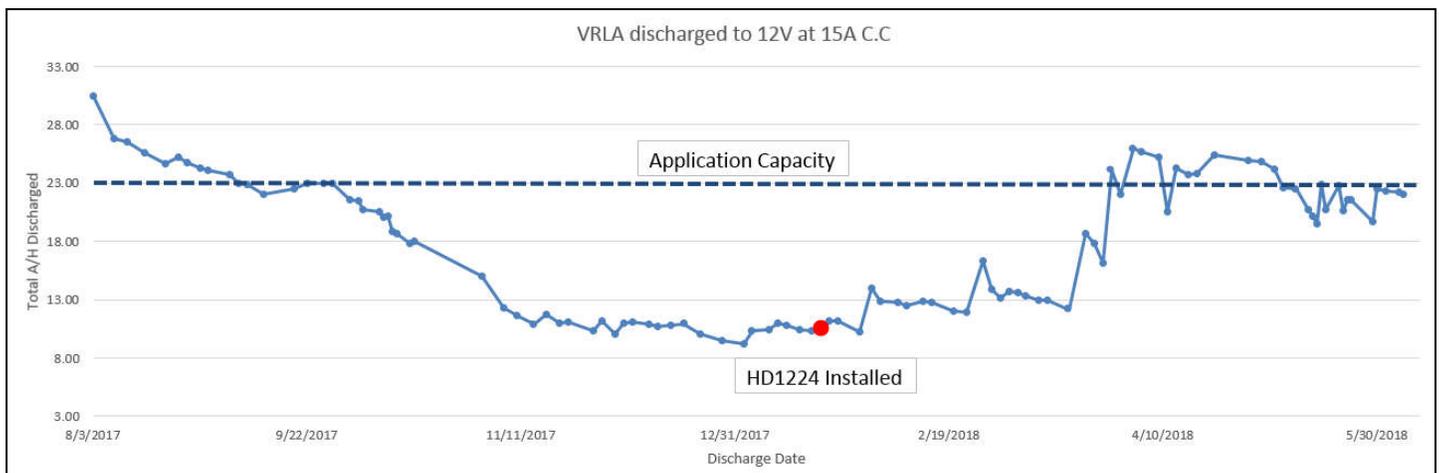


A Canadus Technologies Company

Canadus Power Systems HD-1224 Desulfation Explained for New Batteries

Effect on new batteries:

The figure below shows a new battery conditioned on a three-stage battery charger. Each cycle, represented by a dot on the graph, consists of a charge and discharge cycle. The dot (the discharge) is shown in amp-hours and represents about 1/3 of the available capacity. The 10-amp constant current discharge was terminated when the battery terminal voltage (battery voltage under load) reached 12.0V. From the very beginning it is evident that the charger is losing ground, leaving an increasing amount of unconverted lead sulfate crystals with almost every charge cycle. This is how sulfation takes root. The battery is not receiving a “full charge” and small lead-sulfate crystals are left behind to grow larger, making them more stable and less likely to be recovered during subsequent recharge cycles.



New battery conditioned with Canadus HD-1224 Battery Desulfator

This example illustrates the HD-1224’s effectiveness on a new battery that had declined below its application capacity, a direct result of sulfation. Once installed, the HD-1224 improved the battery’s capacity back to it’s application capacity. This occurred over a period of ten months. Because the removal of sulfation with the HD-1224 is not as responsive or complete as “intensive charging” we suggest the HD-1224 be placed on new batteries. On new batteries, the HD-1224 will maintain a battery at its original application capacity from the start, never allowing sulfation and its debilitating effects on the battery to occur.

Summary:

A battery's application capacity is a direct result of how it is being charged. In most real-world examples, the application capacity is significantly lower than a battery's potential capacity. This lost capacity is tied up in lead sulfate crystals, which over time grow progressively larger and more stable until they cannot be easily recovered through normal application charging. In the trucking examples 14.2V charging alone is not sufficient to prevent sulfation from occurring.

Sulfation can be reversed with intensive charging at higher voltages, but it is not practical within the trucking application.

The Canadus HD-1224 works complementary to application charging to eliminate and prevent large, stable crystals (sulfation) from forming over time, simply providing the intermittent high voltages (17V-18V) necessary to prevent sulfation, while eliminating the impractical need for, and negative effects of continuous charging at high voltages (15V-16V).

If used with new batteries, the HD-1224 can prevent reactive lead sulfate from growing into large, stable crystals (sulfation) as seen in field applications.