

ABSTRACT

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Advances in the Design and Application of Catalysts for VRLA Batteries

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This presentation will expand upon the information presented at last year's INFOBATT conference by presenting further advances in the design of the catalyst device itself and refinements in the rehydration & catalyst addition process. As with last year's presentation, this presentation will be a mix of theoretical, scientific and practical information.

Philadelphia Scientific's discovery of hydrogen sulfide in VRLA cells, which is a poison to precious metal catalysts, has prompted the development of a new catalyst design. The basics of how hydrogen sulfide is generated in VRLA cells and how a catalyst can survive with this poison in a VRLA cell will be explained at a level understandable to the end user of catalyst products.

With more and more battery manufacturers adding catalyst to their new VRLA batteries on the assembly line, what can be done with batteries that are already in use in the field? How old can a VRLA cell be and still have a catalyst and water added to it? Can internal resistance be a guide in determining the extent of recovery efforts needed? Answers to these questions will be presented in addition to an explanation of the advances made in the rehydration process. Anderson's Electronics has been performing the catalyst addition and rehydration process throughout Canada for the last few years and has developed a database of approximately 3,500 VRLA cells. An analysis of this large data set will be presented.

Specifically the topics areas that will be covered are:

- A review of catalyst basics
- Hydrogen sulfide in VRLA cells.
- Catalyst poisoning
- Filter Science
- A design to survive poisons
- Catalyst life estimates
- A more exact way to rehydrate VRLA cells
- An analysis of 3,500 Canadian VRLA cells that have undergone the catalyst addition and rehydration process.
 - What kind of recovery has been seen?
- Update on long term field tests running in Canada.
 - Data from year 3 will be presented.