

Beronworth Standby Systems Limited

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Engineering Note 5 - Battery Technology

Central Battery Systems incorporate all the batteries, the charger and changeover device in one enclosure. Upon mains failure, power is passed from these batteries via fireproof cables to emergency lighting luminaries to illuminate the escape route.

BATTERY ELECTROLYTE in ALL batteries is dangerous and can cause severe burns if allowed to come into contact with the skin or eyes. It will also attack clothing, some paint finishes and metals. LEAD-ACID batteries contain sulphuric acid solution. NICKEL-CADMIUM batteries contain potassium hydroxide (caustic potash) solution.

In **SEALED** cells the electrolyte is absorbed by the plates and separators and sealed into the container. Electrolyte contact is only possible if the cell container is broken. **VENTED or WET** cell (Plante and Flat Plate lead acid or Nickel Cadmium cells) contain free liquid electrolyte which will spill if the cell is overturned, over filled or the cell container is broken.

HYDROGEN and OXYGEN are released from the vented cells during charging and can be present at other times, particularly if cells are moved or shaken. These gasses can be explosive in the presence of sparks or flames. The emission of gasses from sealed cells is limited by the use of gas recombination technology within the cell and accurate charging regimes. If sealed cells are over charged, they will emit hydrogen and oxygen which will be released by the pressure vent.

Battery Types

Maintenance free sealed lead acid batteries

Standard wet lead acid batteries

Maintenance free sealed nickel-cadmium batteries

Wet nickel-cadmium batteries

WARNING:

All types of batteries hold enough charge to cause severe arcs if they are shorted out or connected in reverse polarity. A fire can start if arcs are allowed to get out of control.

When handling batteries all metal objects should be kept well away from the terminals. All tools should be suitably insulated.

During connection of battery banks always ensure that the cell blocks are connected in accordance with the manufacturers instructions.

Always consult Health and Safety documents when handling batteries.

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