

TERMS COMMONLY USED IN CONNECTION WITH LEAD-ACID BATTERIES

First, all lead batteries are based on an electro-chemistry involving lead and lead dioxide with a sulfuric acid electrolyte. There are many variations on, and descriptions for, lead-acid batteries divided as follows:

- Terminology based on positive plate physical construction
- Terminology based on composition of materials in grids of positive pasted plates
- Terminology based on description of the electrolyte system

Terminology Based On Positive Plate Physical Construction

1. *Pasted plate construction*: Active materials consisting of ground-up oxides of lead are made up into a thick “mud” which is “pasted” onto a lead grid that provides physical strength and electrical conductivity. Positive and negative plates are similar except for the composition of the active materials, which are pasted onto the grids.
2. *Plante plate construction*: “Plante” refers to positive plates that are formed of pure lead material. The negative plate in these batteries remains pasted plate construction.
3. *Tubular plate construction*: “Tubular” refers to positive plates that are constructed from a series of perforated tubes that contain the positive active materials. Like the plante and pasted types, the negative plate remains pasted plate construction

Terminology Based On Composition Of Materials In Grids Of Positive Pasted Plates

1. *Lead antimony*: The plate grid material is made of lead with antimony added for strength. Older batteries used 6% antimony whereas some newer ones use less.
2. *Lead calcium*: The grid material is made of lead with calcium added for strength.
3. *Lead selenium*: The grid material is made of lead with selenium added for strength.

Terminology Based On Description Of The Electrolyte System

1. *Flooded*: Refers to battery cells having liquid electrolyte around and above the plates. This type of battery cell always requires suitable venting.
2. *Wet*: Synonymous with flooded
3. *Gel-cell*: This refers to liquid electrolyte that has been solidified by the addition of silica gel. These battery cells are frequently referred to as “sealed” cells because under normal circumstances no gases are emitted from the battery. The sealing cap is a pressure relief valve that allows excess pressure to vent if the battery is overcharged or otherwise abused.
4. *AGM*: Absorbed Glass Mat – this refers to the absorbent material between plates that contains the entire electrolyte in the cell. In these cells there is no free electrolyte. AGM batteries offer closed cycle recombination like the gel-cell described above, and include the same type of pressure relief valve. AGM and gel-cells perform the same job, and look the same from the outside.
5. *VRLA*: Valve Regulated Lead Acid – this is the generic term that describes both gel-cell and AGM batteries. This term refers to any battery that offers normally closed-cycle recombination, and which includes an excess pressure relief valve. It describes both AGM and gel-cell batteries.