



Hydrometers and Specific Gravity

Hydrometer Measures Weight

A hydrometer measures the specific gravity, SG, of electrolyte, that is, how much the electrolyte weighs compared to pure water. The heavier the electrolyte, the higher the state of charge. There are several reasons why SG readings are misinterpreted. First, if you don't know the SG of the electrolyte when it was poured into the battery, then you have no way of knowing what the SG should be for a full charge. Even if you know the original SG, chances are good that your hydrometer is not very accurate. Even if your hydrometer were accurate, you'd still have to correct for temperature of the electrolyte. One last caveat is the fact that the battery must have been rested before any SG reading is reliable. Resting a battery

means no charge or discharge for 24 hours preceding the SG sample.

Battery Health Determination

Despite problems obtaining valid state of charge measurements, the hydrometer is easily used to determine battery health. In a healthy battery all cells will have about the same SG. If there are small cell to cell variations, then an equalization charge is needed. A typical SG is 1.265. That is the electrolyte weighs 1.265 times as much as water. Usually the decimal point is dropped and the SG is referred to as 1265 points. Cell to cell differences of up to 30 points can be corrected by equalization. A difference of 50 points or more from cell to cell indicate a bad battery.