How do I know if a charger is "gel friendly" or "AGM friendly"?

Unfortunately, many chargers on the market falsely claim to be "gel friendly" or "OK for sealed batteries". Some are known to overcharge/undercharge the batteries. Along the same line, "smart" chargers perform well while others do not. The best choice of charger often depends on the application.

Use only "voltage-regulated" or "voltage-limited" chargers. Standard constant current or taper current chargers must not be used.

Almost all applications require temperature sensing and voltage compensation. *Beware: many chargers measure the ambient temperature which could be significantly different from the battery's internal temperature.* Low frequency current ripple (to about 333 Hz) can be detrimental to sealed batteries depending on the application.

On applications where the charger is connected continuously to a float voltage, especially where simultaneous charge and discharge may occur, the level of current ripple must be taken into consideration. If you are not sure if a charger is performing properly, follow this procedure:

a. Using a fully discharged VRLA battery (OCV about 11.8V) and a digital voltmeter, record the initial open circuit voltage at the battery terminals.

b. Using an automatic charger as described above, set voltage, if adjustable. (14.1V for gel, 14.4V for AGM models).

c. Connect and start charging. Record initial on-charge voltage and current .

d. Each hour or so, check and record the on-charge voltage across the battery terminals. Except for occasional, brief "blips" or pulses, the voltage should not exceed the voltage limits noted in "b" above

e. At the end of charge (when the current is very low or goes to zero) check and record the voltage. Note that the charger may have turned off by then.

f. The disconnected battery should be at 100% or above after a 24 hour rest.

During the charging time, the charger should not have exceeded the limit (except for occasional, brief pulses). This indicates that the charger is working properly. Keep in mind that the voltage limit is at 68°F/20°C. Charging at higher or lower temperatures will change this limit. A temperature-sensing charger should always be used, as manual adjustments are never accurate and will damage any VRLA battery.