



Forklift Battery Care Instructions

Watering Instructions

- 1) Use clean water that has a low mineral content. Distilled water is not required however in areas where hard water exists, distilled water or bottled water may be the most economical option.
- 2) Always water each battery cell individually after charging the battery, never before.
- 3) Do not overfill the battery. Water each battery cell individually until the perforated element protector, located just below the cell cap, is covered with approximately $\frac{1}{4}$ " of water. For best results, Fleetman Consulting Inc. highly recommends using a battery filling system with "blink" indicator light. This system is available to be installed on all lead acid forklift batteries. Contact Fleetman for more information.

Charging Instructions

- 1) Correct charging methods can only be practiced if the person responsible for deciding when to put the battery on charge has accurate data from the forklift truck about the battery's state of charge. It is highly recommended that a qualified forklift technician check the forklift truck to make sure the battery discharge indicator (BDI) exists and that it has been properly calibrated.
- 2) Please keep in mind that a brand new battery has a fixed number of charge cycles available to the user before the active material in the battery is fully consumed. A charge cycle is defined as the process whereby you take a fully charged battery, discharge it to whatever degree and then charge it back up again to 100%. Once that process is complete, it equates to (1) charge cycle. Regardless of whether you discharge the battery 30% or 50%, it still equals (1) charge cycle consumed. Therefore, if a new battery has only a fixed number of charge cycles available throughout its' useful life (est. 1,500), it would then only make sense to discharge the battery to the greatest extent possible before putting the battery back on charge. The goal should be to maximize the amount of energy extracted from the battery over time. Forklift batteries are very expensive so it is very important that they are charged in a way that will maximize their life. Light duty applications requiring a forklift for one or two hours per day should not be charging the battery daily but instead should be paying close attention to the battery discharge indicator to determine when to charge, ie as close to a 20% state of charge as possible. The same applies to busy operations that have a habit of charging during coffee breaks and lunch breaks well before the battery reaches the 20% level. Both of these examples could be compared to a fuel tank leak in your car. Once the fuel is gone, it's gone forever. As well, a forklift battery should never sit for more than a month without being charged or it will begin to sulfate which will permanently and negatively affect the battery's performance.
- 3) Never discharge a forklift battery below a 20% state of charge. Discharging a forklift battery below a 20% state of charge will cause the battery's voltage to drop below normal. To compensate, the battery will then begin to supply the forklifts electrical system with higher amperage to meet the forklift's electrical needs. Higher amperage means higher heat and high heat contributes to premature electrical component failure which may result in unnecessary and costly repairs. Most forklifts today have a device called a lift interrupt which prevents the battery from being discharged below 20% but many of these devices are not set correctly or in the case of older forklifts, they simply don't exist. Ask your forklift technician to check this device periodically to make sure it is functioning correctly.
- 4) Make sure the forklift battery charger is properly matched to the forklift battery. There have been many cases where the battery is too large for the charger or vice versa. In some cases, the charger may have a different voltage compared with the battery. As well, make sure the right battery is plugged into the right charger. At facilities where there are many forklifts, consider having different plugs for different battery sizes and voltages to make sure the right battery doesn't get connected to the wrong charger.
- 5) Place the battery on an equalize charge every 5 to 10 charge cycles (not more and not less) to maintain battery performance at peak efficiency. Failure to do so will shorten the life of your battery. Look for the equalize button on your charger and follow the instructions.
- 6) Hydrogen gas is released from each lead acid battery cell during the normal charging process so it is very important that the battery charging area be well ventilated, ideally with high ceilings and free from any open flame or spark.

Cleaning Instructions

- 1) If acid from the battery cells is covering the top of the battery (from overfilling or from the normal charging process) take the time to clean the top of the battery with a mild mixture of baking soda and water. It is critically important to make sure the mixture of baking soda and water does not get inside the battery cells during the cleaning process as it will neutralize the acid in the battery and the battery will no longer function. It is also very important to dry the top of the battery after cleaning. Battery acid is highly corrosive and conductive so wear protective clothing, eyewear and make sure you have an emergency eye wash station nearby. If the acid issue is ignored, the battery cells will continue to discharge themselves from each lead post across the acid slime on the top of the battery to the steel case. The result of this discharge process will be a white, flaky mushroom material that you will find around the perimeter of the battery. Letting this natural process occur will only use up charge cycles and shorten the life of your battery. Battery cleaning should be performed once per year or as required.

For more information, contact Scott McLeod, President of Fleetman Consulting Inc. by calling (604)614-3530 | fleetmanconsulting.com.

***** **Important Note : Use These Instructions Only As A Guide. For Best Results, Refer To Your Battery & Charger Manuals.** *****