Discharge current of lead-acid battery in electric vehicle

How does a lead acid battery discharge?

The next phase of discharging is in the bulk or main part of the discharge. During this phase, most of the energy of the battery is discharged. For a lead acid battery, this happens in a relatively linear manner, with the voltage dropping in proportion to the Depth of Discharge, or inversely proportional to the State of Charge.

What is a lead acid battery?

Lead acid (PbA) batteries are one of the most widely used types of batteries today. Every automobile has a lead acid battery for starting the engine and powering the electric system. Older electric vehicles used large numbers of lead acid batteries arranged together into a battery pack to form the traction battery to propel the vehicle.

What is the research method of a lead acid battery?

The method of the research is experimentalin which different patterns and relations found between the parameters of the battery are analyzed. The basic tests performed included the pulse charging of flooded and VRLA type lead acid batteries in various frequencies with the maximum of 2.5 MHz.

How a battery is charged and discharged?

Using three algorithmsof this type,the batteries are charged when a constant voltage source is available,while the charge is discharged when the source is cut off while preserving the nominal voltage and current limits of the battery to prevent damage.

Which electrolyte is used in a lead acid battery?

The electrolyte in the lead acid battery is dilute Sulfuric acid. H2SO4 is heavy than water and pure H2SO4 has specific gravity of 1.7 but the one used in the battery has the specific gravity of 1.3. Hydrometer is the instrument used in measuring the specific gravity of the electrolyte.

What is the effect of pulse charging in lead acid batteries?

Effect of Pulse Charging in Lead acid Batteries Used in Electric Vehicles of Nepal The major factor in reducing the life of the lead acid battery is sulfation. Sulfation forms a layer of Lead Sulphate crystal in the electrodes making it less conductive or even blocking the electrical current to pass through it.

6 ???· Lead acid batteries are relatively safe to use, exhibit no memory effect, and are simple to determine the state of charge (SOC) or depth of discharge (DOD). The details on ...

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Using three algorithms of this type, the batteries are charged when a constant voltage source is available, while the charge is discharged when the source is cut off while ...

manufacturer in order to prevent excessive discharge rates that would damage the battery or reduce its capacity. Along with the maximum continuous power of the motor, this defines the top sustainable speed and acceleration of the vehicle. o Maximum 30-sec Discharge Pulse Current -The maximum current at which the battery can be discharged ...

Lead-acid battery is a battery used since the first appearance of electric vehicles in the late 1800s. But the battery is heavy, could only travel for short distance and needed long time to charge ...

shows that some of the discarded lead acid batteries were revived up to 90 percent of the original condition. This process could help the vehicle owners if the process proves economical too. ...

Lead-Acid, Nickel Metal Hydride, and Lithium-ion batteries are the commonly used types of batteries for Electric-Drive Vehicles (EDVs), including Battery Electric Vehicles (BEVs), Hybrid Electric Vehicles (HEVs), and Plug-in Hybrid Electric Vehicles (PHEVs). Such batteries are mainly used in automotive and traction applications. They also find their ...

The lead-acid battery (LAB) has already benefited from more than 150 years of technical development. Gaston Planté built the first LAB in 1859 when he took two lead sheets separated by rubber strips, rolled them into a spiral, immersed them in a sulfuric acid electrolyte, and formed them by applying a direct current.

The result of this research is temperature value increase when batteries supply higher current to electric motor, while voltage is decreasing, also the value of battery capacity has dropped...

Abstract--Peukert"s equation describes the relationship between battery capacity and discharge current for lead acid batteries. The relationship is known and widely used to this day. This...

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In today"s world, electric hybrid vehicle (EHV) is a prevailing vehicle technology in that the major part is electric battery and lead-acid battery is the widely usable battery in the EHV because of its cost and efficiency. The real disadvantage in lead-acid battery is that it easily sulfates because of improper charging or discharging. Hence, desulfation circuit or charge ...

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This article proposes a new coulometric approach to calculate the state of charge of a lead-acid battery in electric vehicles. The main existing state of charge algorithms have two major defects: a state of charge definition not adapted to electric vehicle applications and the nonoptimal use of static performance of the accumulator to estimate ...

The lead-acid battery is connected with Ultra-Capacitor (UC) through a bidirectional DC-DC converter to enable proper charging and to discharge of controller in a. The lifetime extension of lead ...

This chapter provides a description of the working principles of the lead-acid battery (LAB) and its characteristic performance properties such as capacity, power, efficiency, self-discharge rate, and durability. Environmental and safety aspects are discussed, and it is ...

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