

Batteries AUSE

TEACHER: Joseba de la Calle
josebadelacalle@ale-aretxabaleta.eus



Lanbide Heziketako
Ikastetxe Integratua



WWW.IARETXABALETAKO.COM

Discharge types:

Deep discharge:

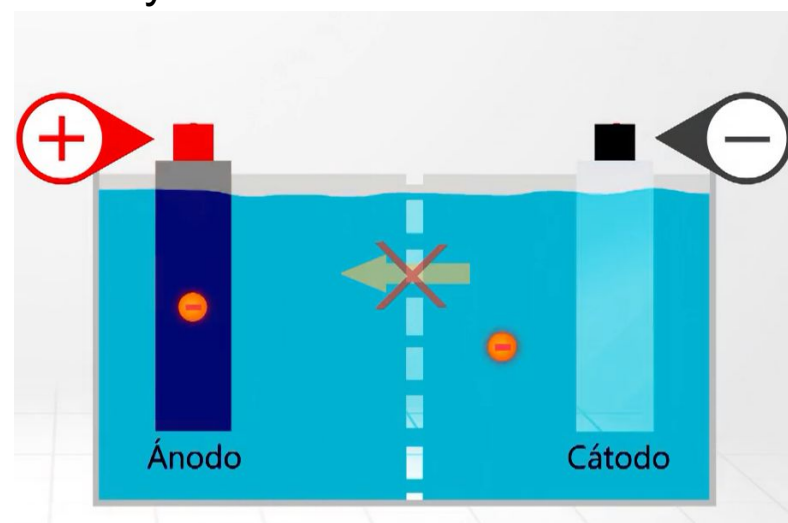
Small currents in extended periods of time. Normally lithium-based batteries.

Start Up Batteries:

Their main function is to feed the starter motor. Therefore, they work with large intensities for short periods of time. They usually are lead acid-based batteries.

Lead acid batteries

As the result of an electric reaction, electrons are released from the positive plate and are attracted into the negative one. These electrons cannot go back into the anode through the electrolyte.

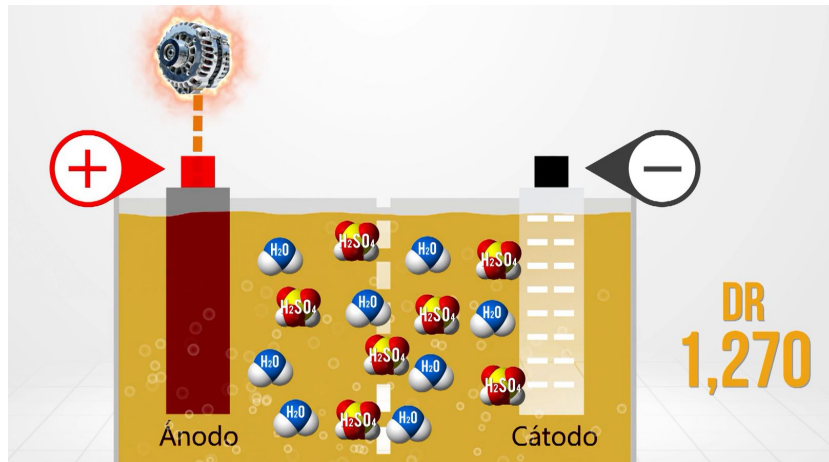


The only possible way for the electrons to return to the anode is through an electrical circuit.

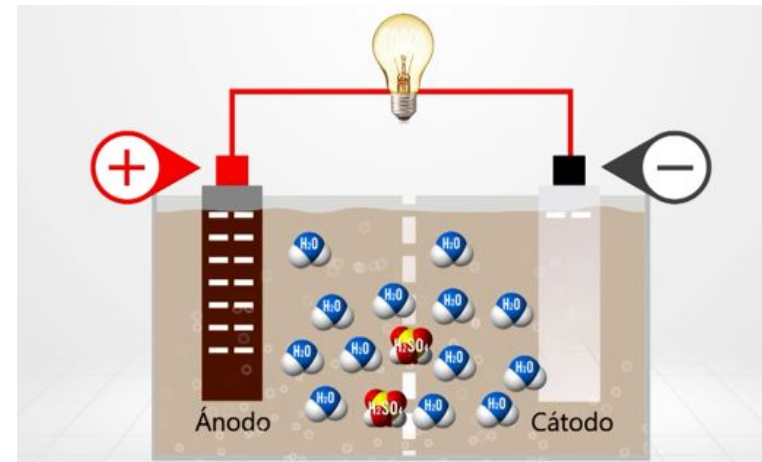
Lead acid batteries

Elektrolyte: Water + Sulphuric acid

Charging



Discharging

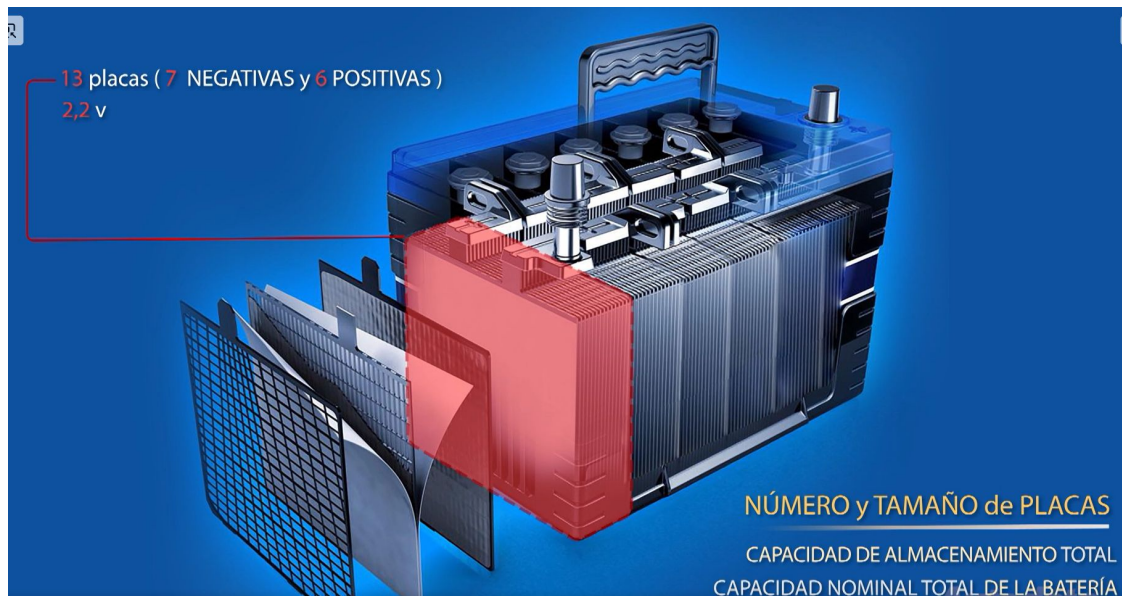


ALE
ARETXABALETA
Lanbide Eskola

Lanbide Heziketako
Ikastetxe Integratua

Lead acid batteries

Each cell contains 13 plates



12V batteries contain 5 cells

Plates are separated by a polyethylene mesh in order to avoid shortcircuits.

Lead acid batteries

Safety:

- They contain sulphuric acid. They are corrosive and can harm both health and environment.
- Hydrogen is created during charging process. If not properly ventilated, it could explode.
- A shortcircuit could harm tools and/or electronic components




Lead acid batteries

Work conditions



Lead acid batteries

★ **CALCIO SUMERGIDO**



CALCIO

**MENOR RESISTENCIA INTERNA
MAYOR FLUJO DE CORRIENTE**

**MENOR VELOCIDAD DE DESCARGA
GASEADO MÍNIMO DURANTE LA RECARGA
RESISTENCIA A LA CORROSIÓN**

Autodata TRAINING

A special charging device is required

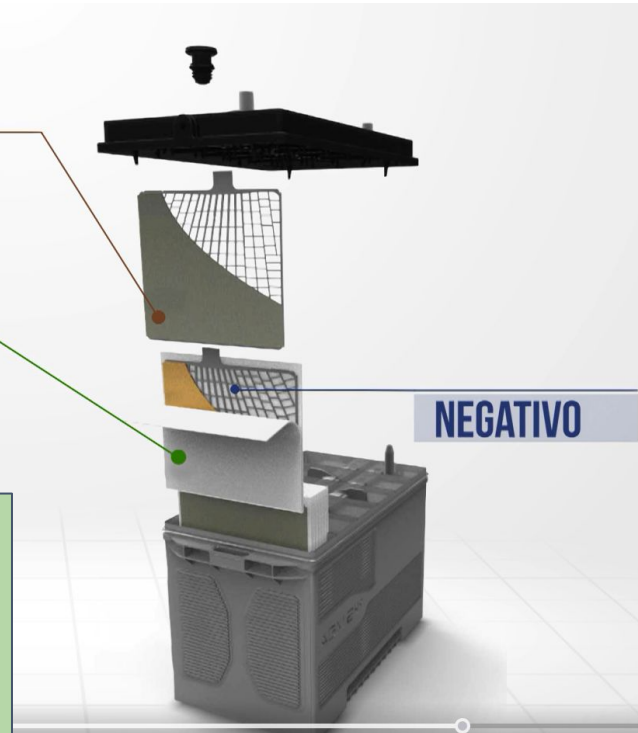
Lead acid batteries



POSITIVO

MALLA TEJIDA DE FIBRA DE VIDRIO

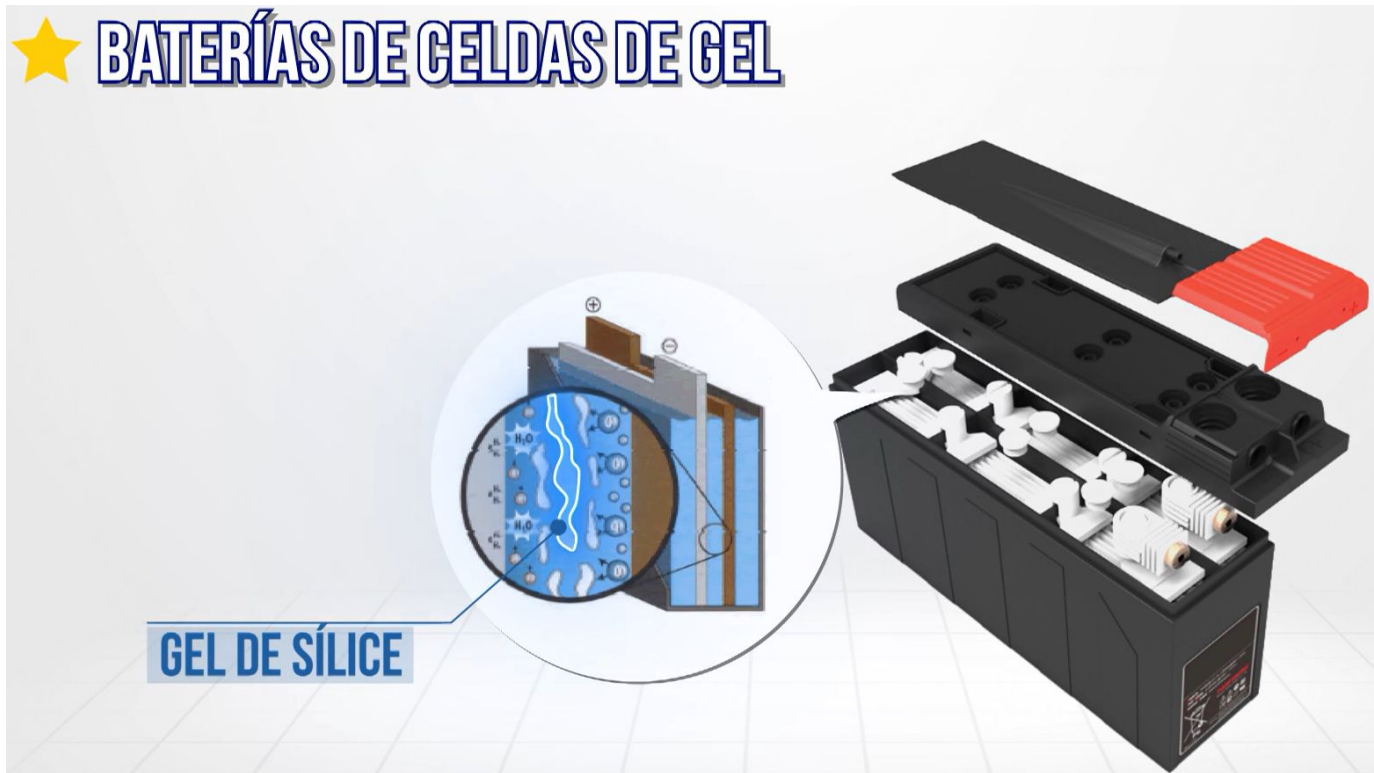
NEGATIVO



- Smaller inner resistance
- Can create higher intensities
- Will resist vibration
- Longer useful life
- Less gas is created during charging process
- Can be mounted sideways

Lead acid batteries

★ BATERÍAS DE CELDAS DE GEL



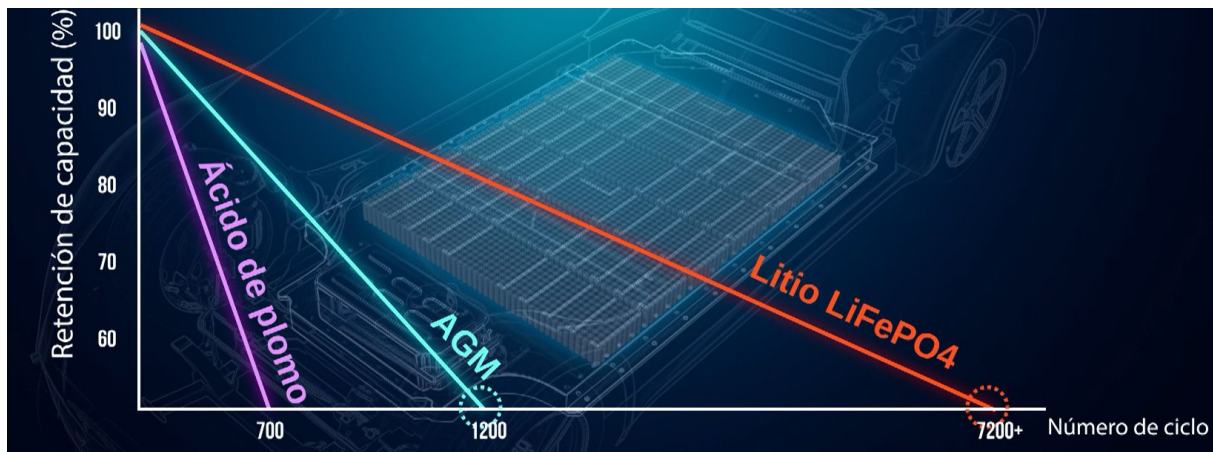
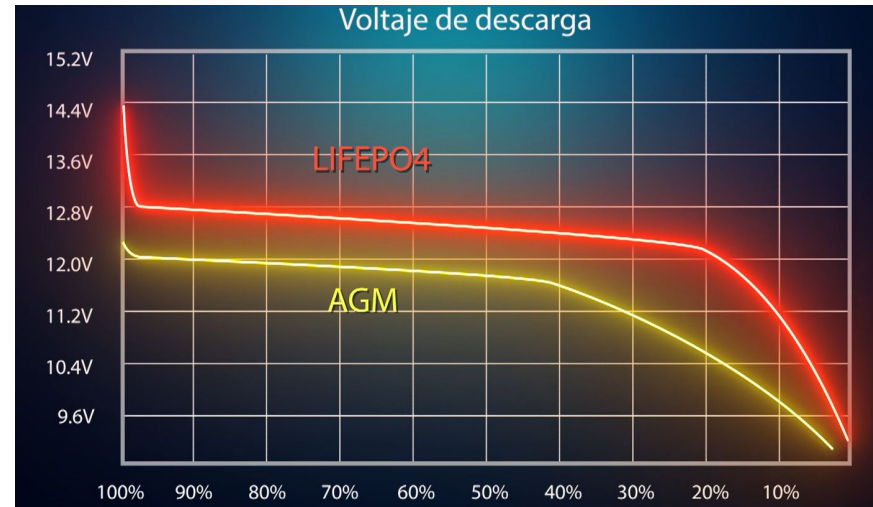
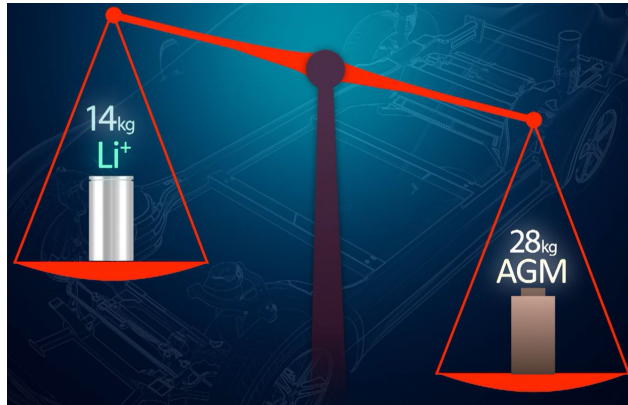
Electrolyte is wrapped in gel so it won't leak if the battery case is broken

ALE
ARETXABALETA
Lanbide Eskola

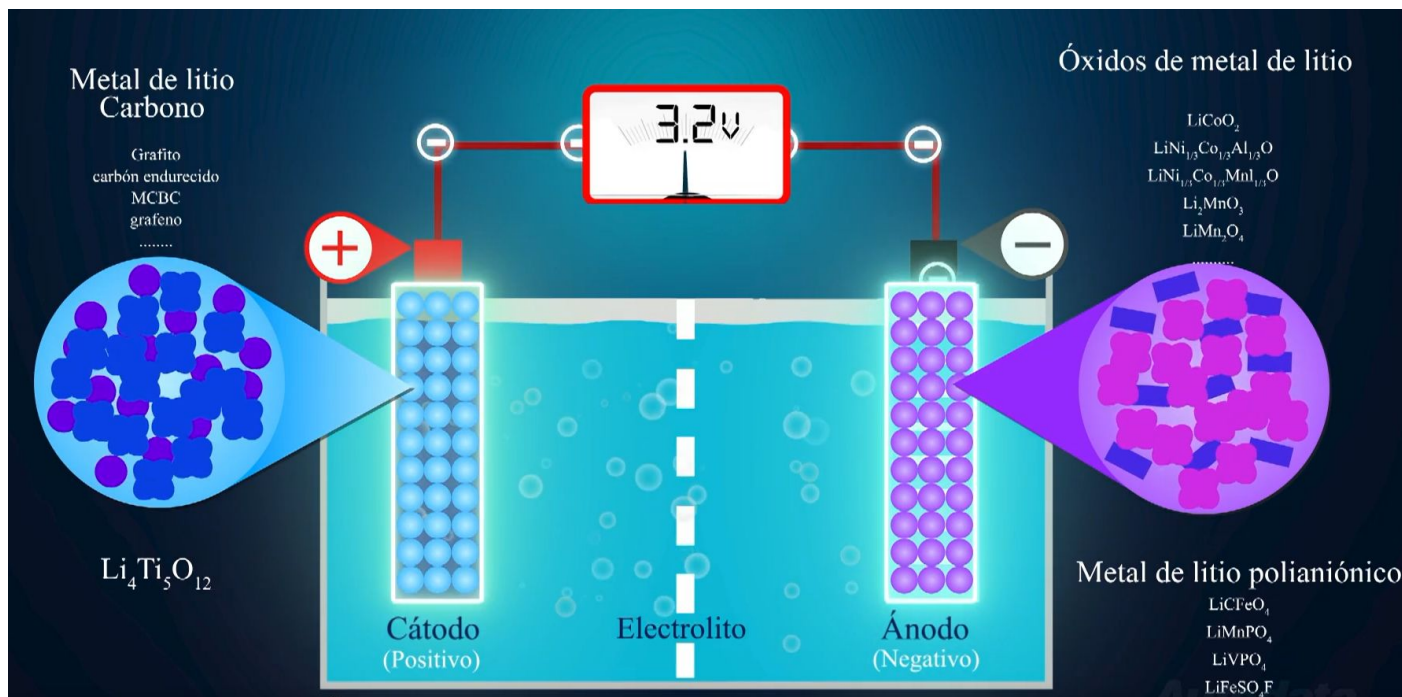
Lanbide Heziketako
Ikastetxe Integratua

Lithium-based batteries

In the case of a 100Ah battery

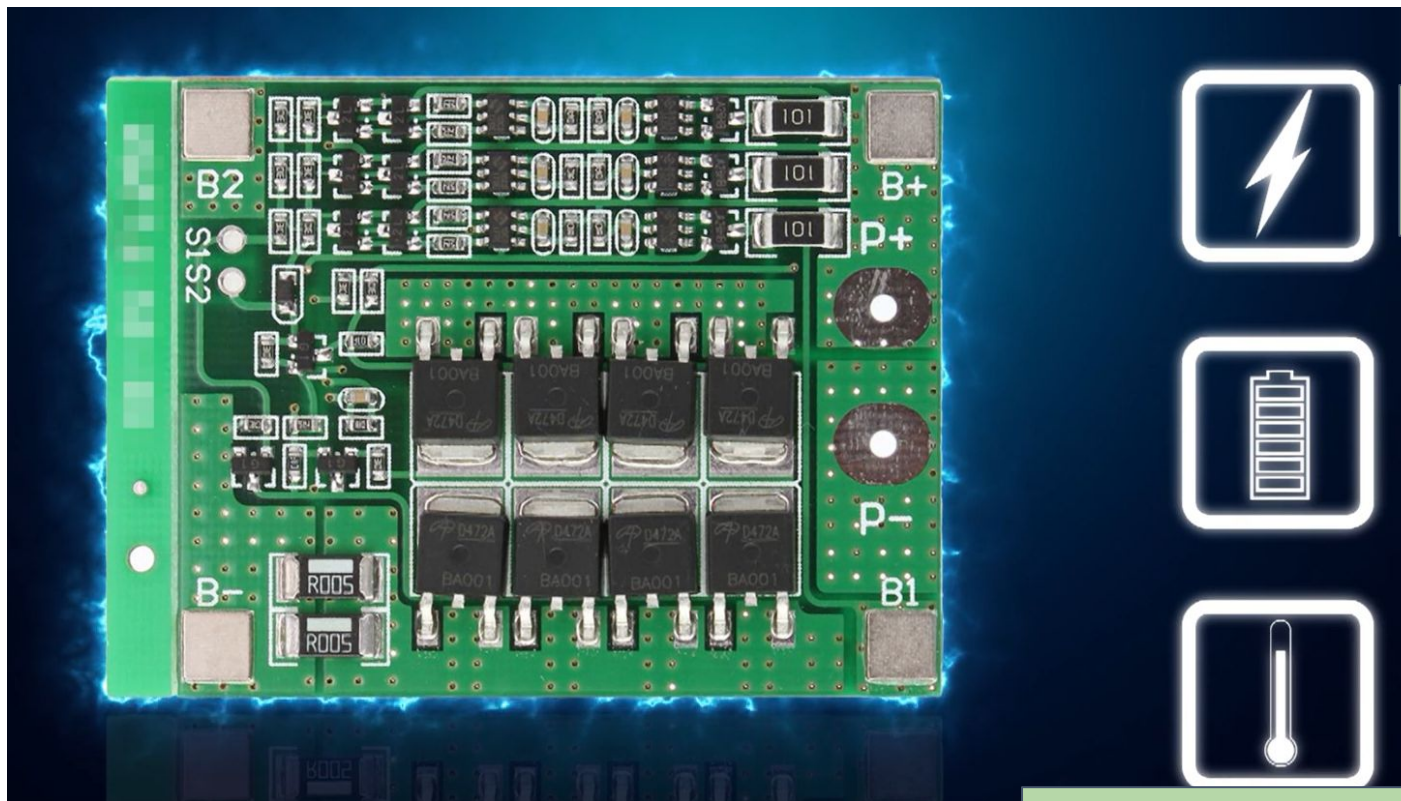


Lithium-based batteries



Lithium-based batteries

BMS → Battery management system



Charge
Discharge



Voltage



Temperature

ALE
ARETXABALETA
Lanbide Eskola

Lanbide Heziketako
Ikastetxe Integratua