

# The Lithium Metal Polymer battery and its applications

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Building on its industrial expertise, over twenty years of research and development, and two billion euros of investment, the Bolloré Group developed LMP batteries. These batteries stand out in terms of power, high energy density and safety of use.

Metallic lithium is used as negative electrode. Lithium iron phosphate is the active material of the positive electrode. Between these two electrodes a polymeric film based on polyether served as separator and electrolyte. All these very thin films are dry which lead to a “solid-state” batteries, conferring numerous advantages, notably in safety terms. Another common point of all these films is that they are created using extrusion techniques. Compared to coating, extrusion is a process that uses no organic solvent which confers advantages in term of price and/or at ecological level.

## History

Started in the early nineties, R & D program at outlet on a first plant in 2001. The Bolloré Group launched manufacturing with the construction of this plant at its Pen-Carn site, located in Ergué-Gabéric, near Quimper. In 2009, with the viability of the technology proven, two production lines were deployed this site.

## Applications

### Mobility

The Bolloré Group develops, manufactures and markets a series of electric vehicles using LMP batteries: a range of electric cars – Bluecars – a bus and even a boat currently at the prototype stage.

The bluecars are used in Autolib’ which is the first public service plan with electric vehicles to be developed in a large European metropolis. Since 2011 and the launch of the service, autolib’ it’s more than 12 millions of rentals and more than 120 million of kilometers.

### Stationary

The LMP batteries are used in different stationary application: Blue Zone, Bluehouse and Bluestorage.

Bluestorage is developing a series of energy storage solutions, ranging from several kWh to multiple MWh of stored energy and aimed at different end customers: electricity consumers (individuals, companies, etc.) and stakeholders in electricity networks. Bluestorage allows consumption cut-off but also to make long-lasting the energy produced by the renewable energy.