■ IBUvolt battery materials GmbH a company of IBU-tec advanced materials AG

EUROPE'S LEADING LFP CATHODE MATERIAL SUPPLIER





IBUvolt – EUROPEAN PIONEER IN LFP PRODUCTION

2014	2014 2021		2026	
		>		
Development and up-scaling of the LFP	Only LFP producer in Europe	Production of up to 10,000 tons of LFP	Capacity increase to 25,000 tons of	
production process		per year	LFP per year	

At IBU-tec's headquarters in Weimar, Germany, we have been working with LFP long before the launch of IBUvolt® in 2021. In fact, the first research and development activities date back almost ten years.

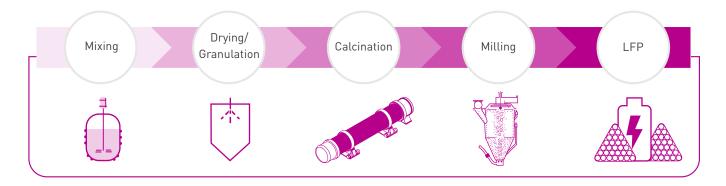
At that time, IBU-tec successfully conducted trials with LFP on behalf of a customer and was subsequently commissioned to produce up to 4,000 tons of cathode active material. Since then, the material produced in our rotary kilns has proven its qualities in numerous applications globally.

Today, we are the only producer of LFP battery material in Europe currently supplying its customers.



■ Aerial photo of IBU-tec HQ

PRODUCTION PROCESS



We monitor these process steps using a combination of chemical, physical, and electrochemical analysis techniques to ensure that the material meets the specifications required by our customers. IBUvolt® LFP embodies our values of quality and decades of experience in chemical processing in the heart of Europe.

IBUvolt® LFP - POWER WITH STABILITY

	IBUvolt [®] LFP400 Power-grade CAM	IBUvolt [®] LFP200 High-energy additive	
Particle size d50 (µm)	9-13	5-8	
Particle size d _% (µm)	20-28	11-15	
Tapped density (g/cm³)	1.0-1.4	0.9-1.3	
Specific surface area (m²/g)	19-25	19-25	
Use case	Standard grade for all applications	Blended with LFP400 for higher electrode density after calendering	

OPTIMIZED FOR DURABILITY AND HEAVY USE





LFP is a cornerstone of the global transition to electric vehicles. Smaller, everyday vehicles benefit from the durability and safety of LFP at a significant price advantage.

TRUCKS

The combination of safety, longevity, temperature tolerance and environmental friendliness, along with adequate energy density, makes LFP cathodes an excellent choice for truck batteries.



ENERGY STORAGE



Residential and commercial energy storage solutions must function for decades. LFP400 is the cathode material of choice for this application. The exceptionally long cycle life enables the design of durable battery storage systems.

CONSUMER ELECTRONICS

IBUvolt® LFP can be processed with all common electrode coating techniques. This enables the custom design of specialty batteries for small electronics such as headphones or medical devices.





THE APPLICATION SPECIFIC ENGINEERED PARTICLE SHAPE RESULTS IN:

LOWER VISCOSITY OF ELECTRODE SLURRIES:

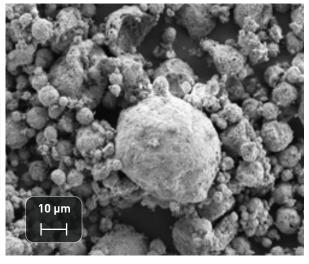
Coating cathodes is easier and can even be done in a 3D printing process.

■ BETTER CONDUCTIVITY:

The primary particles are connected in a spongy network which improves electric conductivity and acessability for lithium.

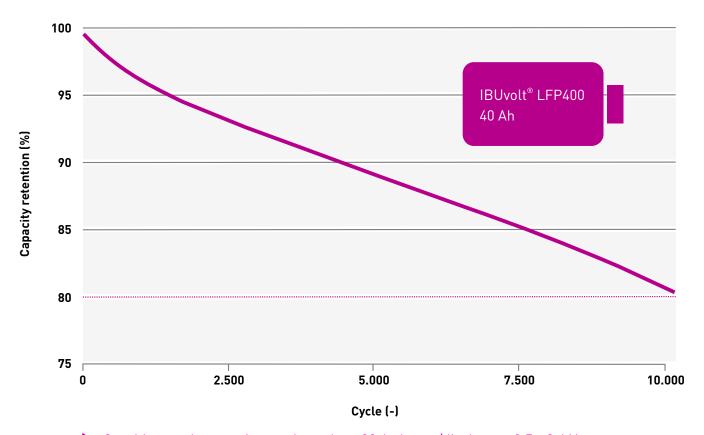
HIGH CYCLE LIFE:

The defined structure results in less chemical and physical degradation during battery cycling.



■SEM of IBUvolt® LFP400

CYCLE LIFE OF 40 Ah CYLINDRICAL CELL



► Graphite anode, proprietary electrolyte, 80 A charge/discharge, 2.5 - 3.6 V.

ELECTRODE COATING WITH IBUvolt® LFP RECOMMENDED BY IBU-TEC:

NMP COATING

is a commonly used technique for coating cathodes. The use of NMP (N-methyl-2-pyrrolidone) solvent allows uniform deposition of electrode slurry on the substrate. IBUvolt® forms easily mixable NMP slurries with relatively low viscosity, allowing for better mixing of the components and a more uniform coating thickness.



► Recommendations for NMP based coatings

Cell format	Solid composition by wt%			Solids in slurry	Loading	Density after calendering
	LFP	Carbon	PVDF	(wt%)	(mAh/cm²)	(g/cm³)
Coin	90-93	2-5	5	50-55	3-5	2.0-2.3
Pouch	95	2	3	60	3	1.9-2.1

AQUEOUS COATING

has emerged as a safer and more sustainable alternative to NMP coating. In this process, water-soluble binders and dispersants are used to create a homogeneous slurry of LFP particles. IBUvolt® LFP is more resistant to surface degradation from water contact, making it an excellent choice for waterbased electrode coating.



► Recommendations for water based coatings

Cell format	Solid composition by wt%			Solids in slurry	Loading	Density after calendering
	LFP	Carbon	CMC/SBR	(wt%)	(mAh/cm²)	(g/cm³)
Coin	90-93	3-6	4	40-45	3-5	2.0-2.3
Pouch	90-92	3-5	5	50-55	5-6	1.8-1.9

CONTACT



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