IBU | Volt
Power Solutions

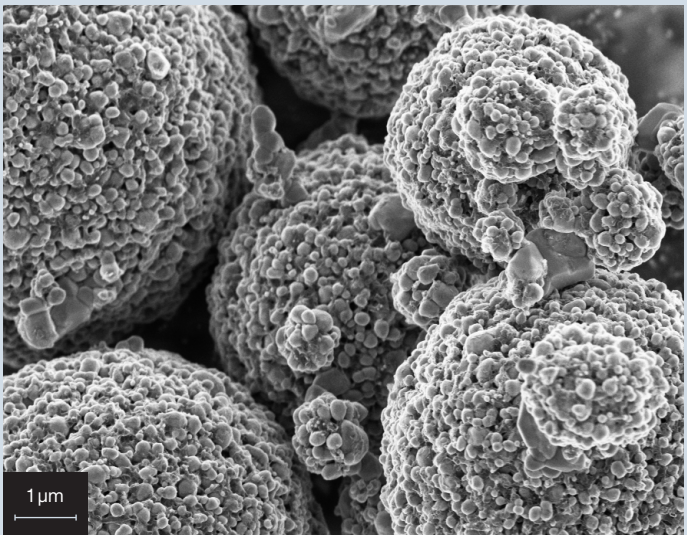
IBUvolt® LMFP

We Produce LMFP in Germany to the Highest Standards.

Tailor Made LMFP Development.

10 YEARS
OF EXPERIENCE IN
BATTERY MATERIALS

Dr. Stefan Schwarz & Dr. Karl Wegner, Sales & R&D



LMFP

Specific energy density
+5-10% vs. LFP

Sustainability
Raw materials from european sources

Innovative production process
Scalable, continuous production process based on LFP

Future-oriented application
Dry coating, solid-state, NMC-blends

CHEMICAL & PHYSICAL PROPERTIES

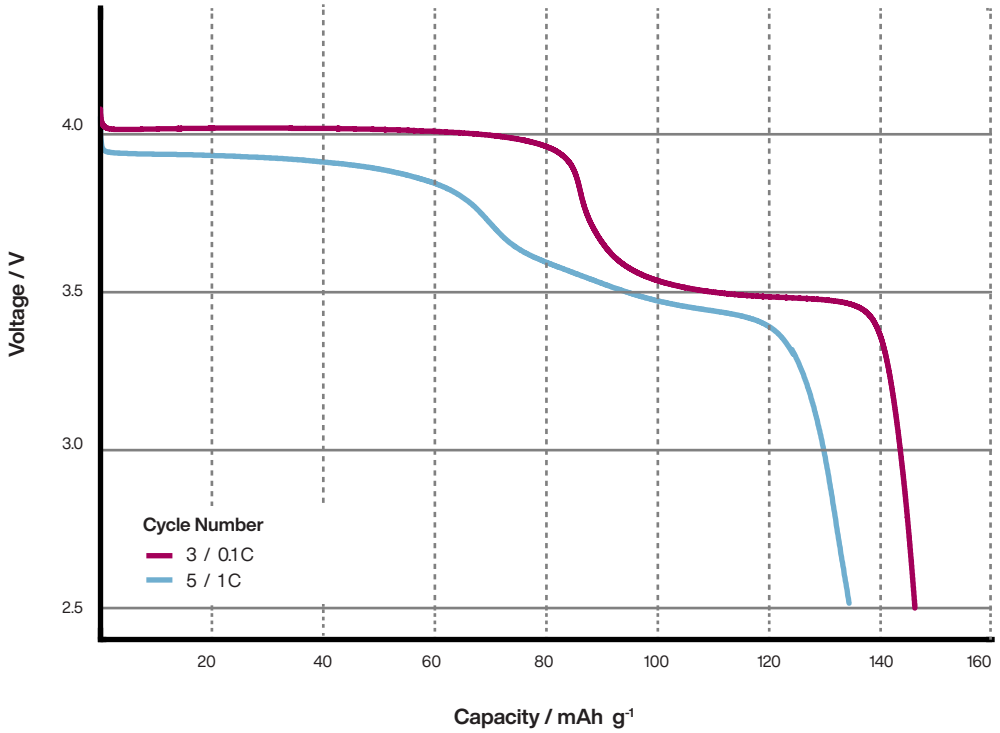
Item	Unit	Specification	Method
Li	wt.-%	4.5 ± 0.2	ICP-OES
Mn		20.3 ± 0.5	ICP-OES
Fe		13.1 ± 0.3	ICP-OES
P		19.5 ± 0.3	ICP-OES
C		1.9 ± 0.2	CHS-Combustion
PSD, d_{10}	µm	4.0 ± 1.0	Laser, in water
PSD, d_{50}		14.0 ± 2.0	Laser, in water
PSD, d_{90}		25.0 ± 4.0	Laser, in water
Na	ppm	≤ 250	ICP-OES
K		≤ 100	ICP-OES
Cr		≤ 50	ICP-OES
Cu		≤ 150	ICP-OES
Zn		≤ 150	ICP-OES
S		≤ 250	ICP-OES
Moisture H_2O	ppm	≤ 400	Coulometric, 200 °C
Magnetic material	ppb	≤ 250	Magnetic balance
Specific surface area	m^2/g	19.0 ± 2.0	N_2 Physisorption

ELECTROCHEMICAL TESTS

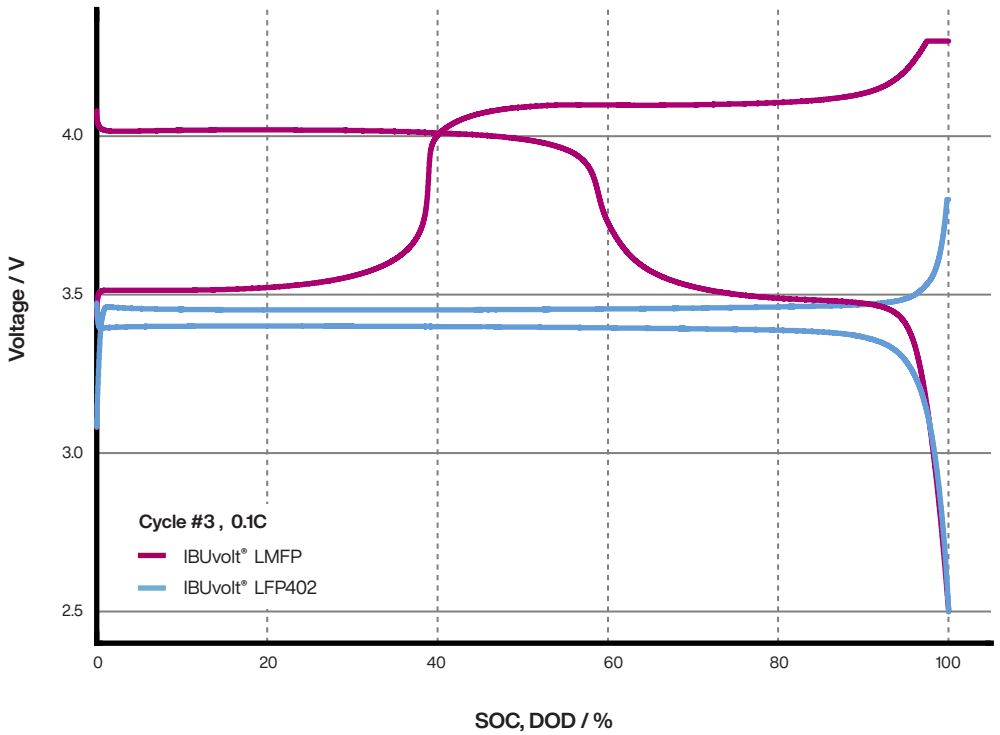
Item	Unit	Specification	Method
Specific 1st charge capacity*	mAh/g	≥ 155	Coin cells
Specific 3rd discharge capacity (C/10)*	mAh/g	≥ 145	Coin cells
Coulomb efficiency 1st cycle*	%	≥ 92	Coin cells

*Half cells, 8 mg/cm^2, 1.7 g/cm^3, 90% CAM

ELECTROCHEMICAL CHARACTERIZATION (COIN CELLS)



C/10 and 1C discharge voltage profiles and specific capacity for an IBUvolt® LMFP half cell, 8 mg/cm^2, 1.7 g/cm^3 with 90% CAM.



Charge- & discharge voltage profile comparison of an IBUvolt® LMFP half cell (8 mg/cm^2, 1.7 g/cm^3, 90% CAM) with a IBUvolt® LFP402 half cell (23 mg/cm^2, 2.3 g/cm^3, 95% CAM) at 0 to 100% SOC.

IBUvolt battery materials GmbH

Hainweg 9-11
99425 Weimar
Germany

www.ibu-volt.com