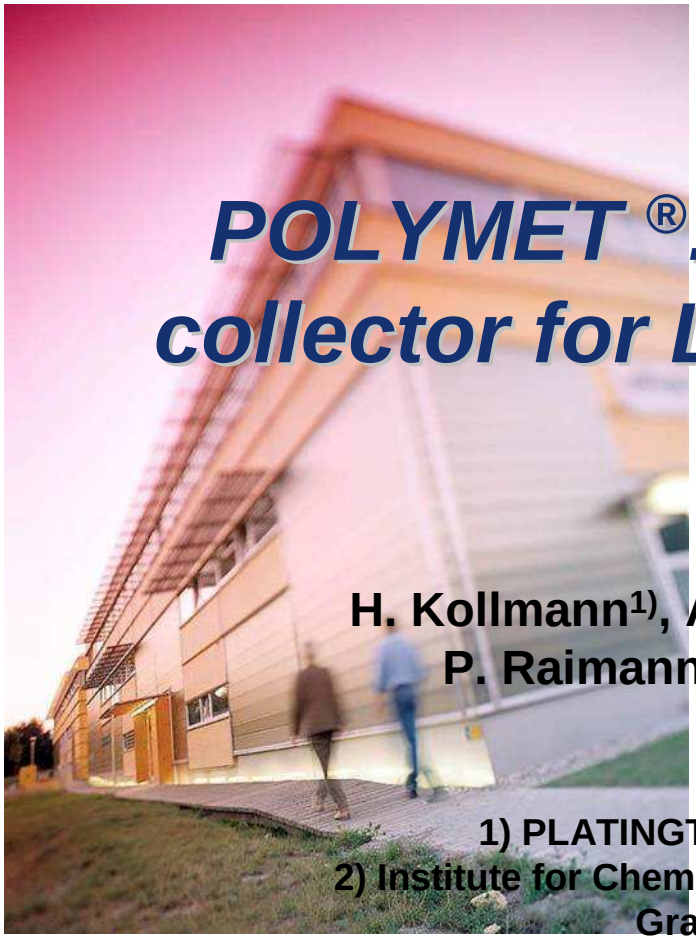
PLATINGTECH



POLYMET ®: An innovative current collector for Li-Ion Battery electrodes

H. Kollmann[1)], A. Ermantraut[1)], N. Hochgatterer[2)], P. Raimann[2)], M. Schweiger[2)], M. Winter[2)]

1) PLATINGTECH Beschichtung GmbH & Co KG
2) Institute for Chemistry and Technology of Inorganic Materials, Graz University of Technology

hkollmann@platingtech.at

The company

PLATINGTECH Beschichtung GmbH & Co KG

Parkring 2, A-8712 Niklasdorf, Austria

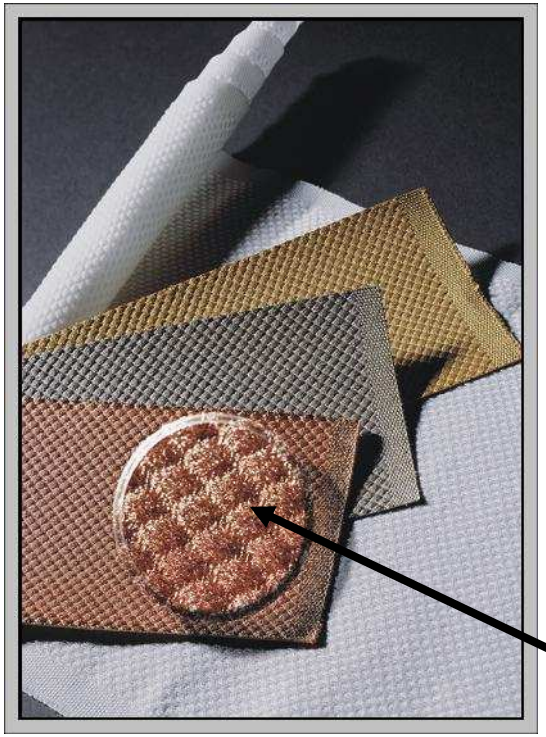
www.platingtech.at

office@platingtech.at

Among others, manufacturer of alternative current collectors for Lithium-Ion und Lithium Polymer Batteries

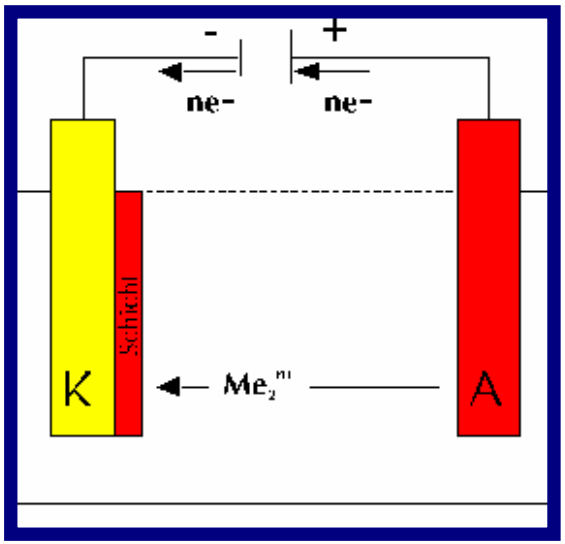
Contents

POLYMET® - Manufacturing process



Base Material

Metalized Polymer



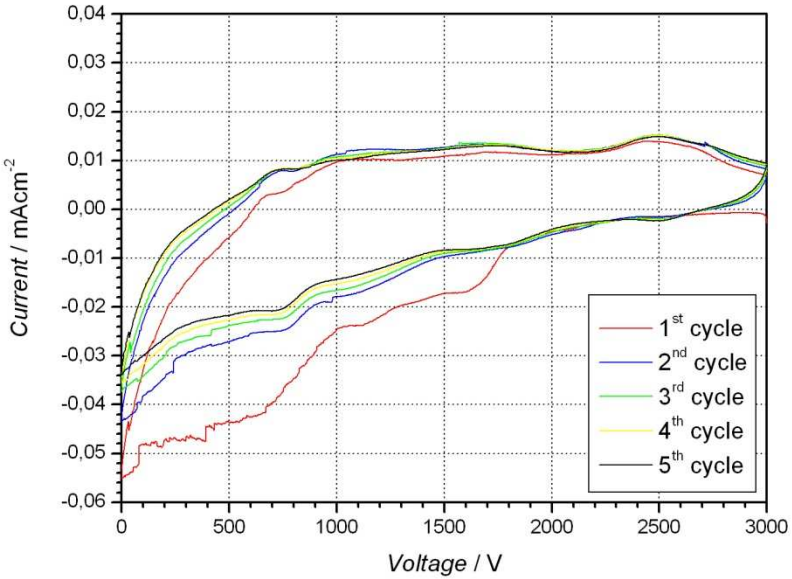
Scheme of the fabrication process

Applicable as current collector for **Anode** and **Cathode** !

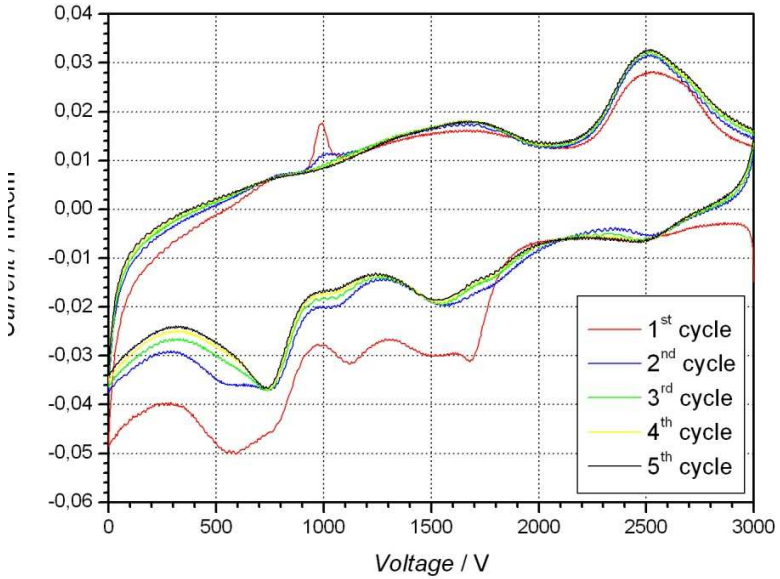
Cyclovoltammetric Characterization

Current collectors for the anode:

Cu-foil vs. POLYMET®



Copper foil (Schlenk)

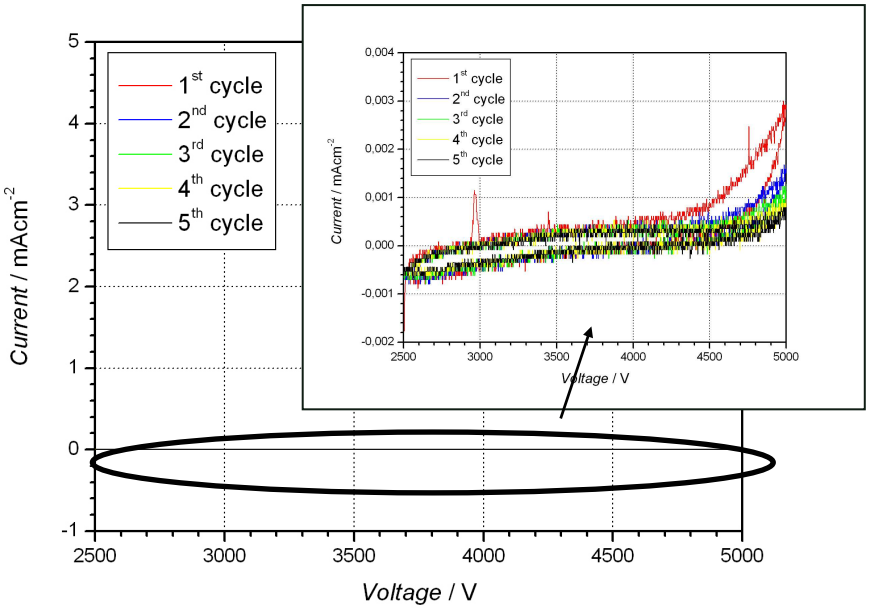


POLYMET® XII-2 copper

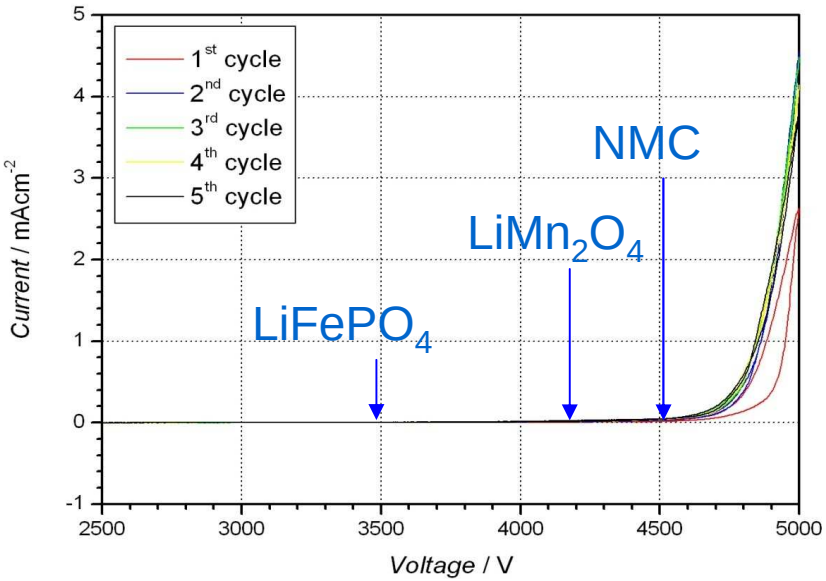
CE and RE: Li, Electrolyte: 1M $LiPF_6$ in EC/DEC 3:7 (v/v), Voltage vs. Li/Li^+, Scanrate: 0.5 mVs^{-1}

Cyclovoltammetric Characterization

Current collectors for the cathode: Al foil vs. Ni/X alloy (Superplate). Materials characterized as foil.



Al foil (ROTH 2596.1)



Ni/X alloy (Superplate)

CE and RE: Li, Electrolyte: 1M $LiPF_6$ in EC/DEC 3:7 (v/v), Voltage vs. Li/Li^+, Scanrate: 0.5 mVs^{-1}

Conclusion

- ✓ POLYMET® is applicable as a current collector for anodes (copper plating) and cathodes (alloy plating) in Lithium-Ion Batteries
- ✓ Good contact of active material to the current collector; high contact area
- ✓ Flexible and robust
- ✓ Good spacious conductivity
- ✓ High variability in material design