

# PLATINGTECH



## ***POLYMET<sup>®</sup>: An innovative current collector for Li-Ion Battery electrodes***

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# The company



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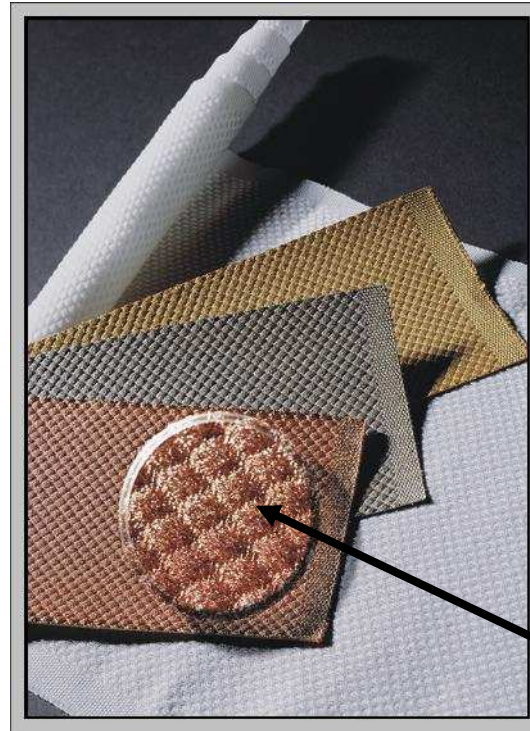
office@platingtech.at

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

# Contents

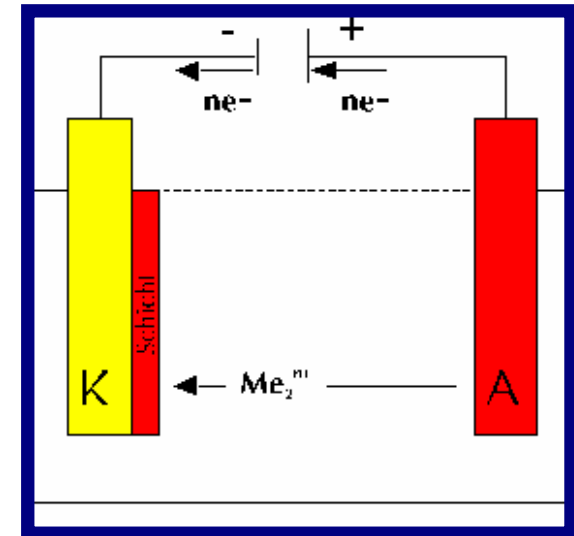
- POLYMET<sup>®</sup>
  - Basic material information
  - Fabrication of Polymet<sup>®</sup> current collectors
  - Set screws for tuning materials characteristics
  
- POLYMET<sup>®</sup> as current collector for the negative electrode
  - Adhesion of the active material on POLYMET<sup>®</sup>
  - Cyclovoltammetric characterization
  - Conductivity
  - Electrode preparation
  - Comparison: Polymet<sup>®</sup> based anodes vs. Cu-foil based anodes
  
- POLYMET<sup>®</sup> as current collector for the positive electrode
  - Cyclovoltammetric characterization
  
- Manufacturing capability of Polymet<sup>®</sup>
  
- Conclusion

# POLYMET<sup>®</sup> - Manufacturing process



Base Material

Metalized Polymer



Scheme of the fabrication process

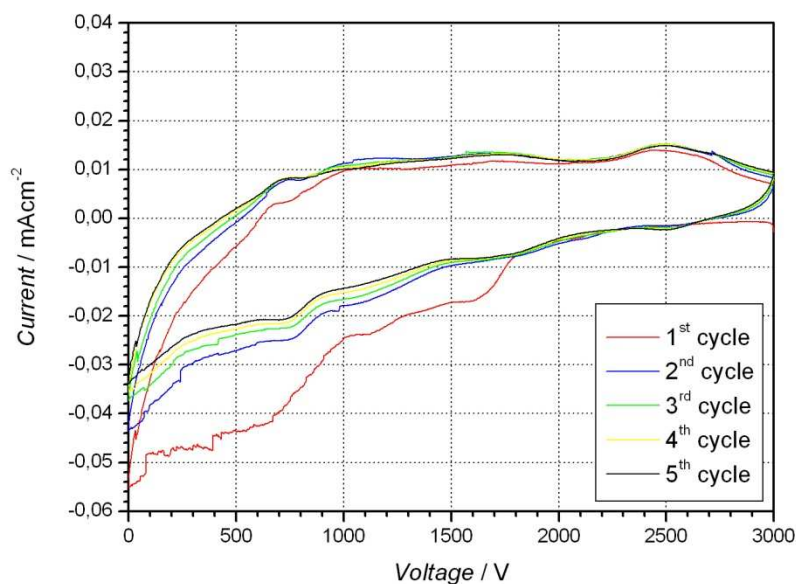
Applicable as current collector for Anode and Cathode !

# Cyclovoltammetric Characterization

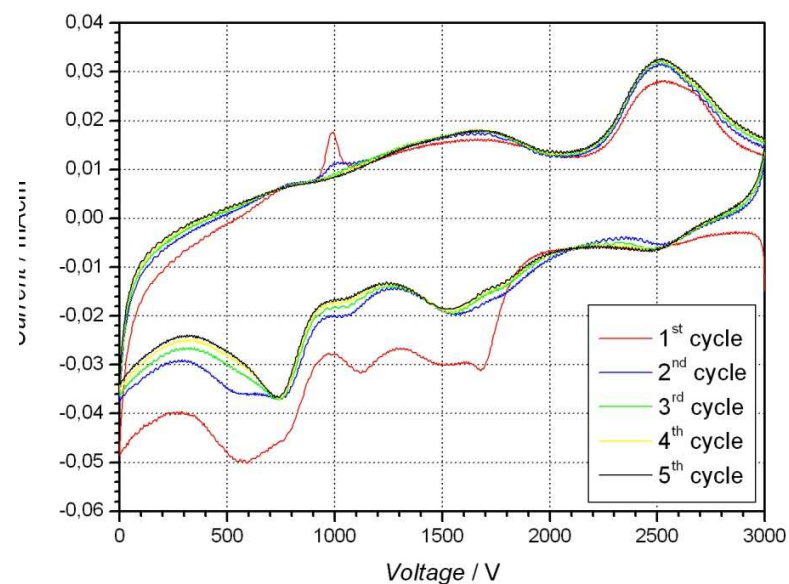


Current collectors for the anode:

Cu-foil vs. POLYMET®



**Copper foil (Schlenk)**



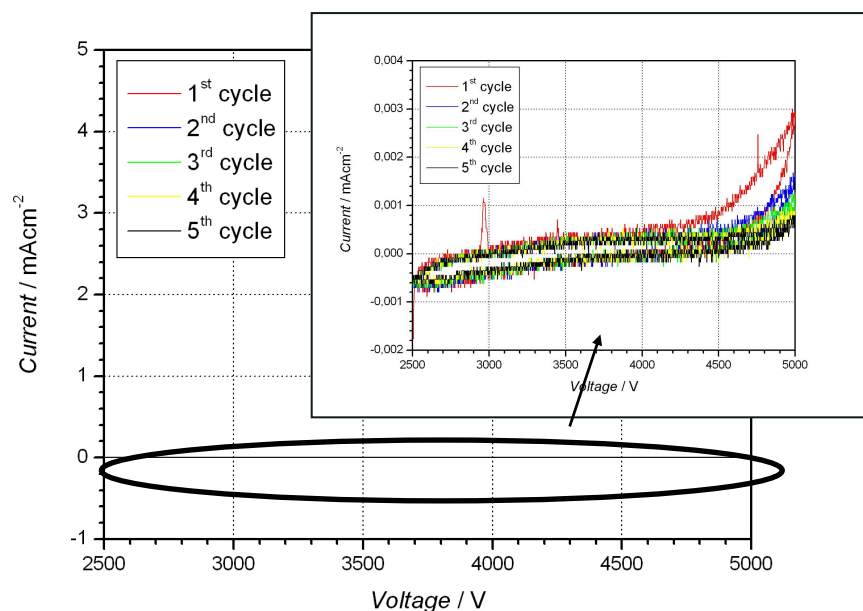
**POLYMET® XII-2 copper**

CE and RE: Li, Electrolyte: 1M LiPF<sub>6</sub> in EC/DEC 3:7 (v/v), Voltage vs. Li/Li<sup>+</sup>, Scanrate: 0.5 mVs<sup>-1</sup>

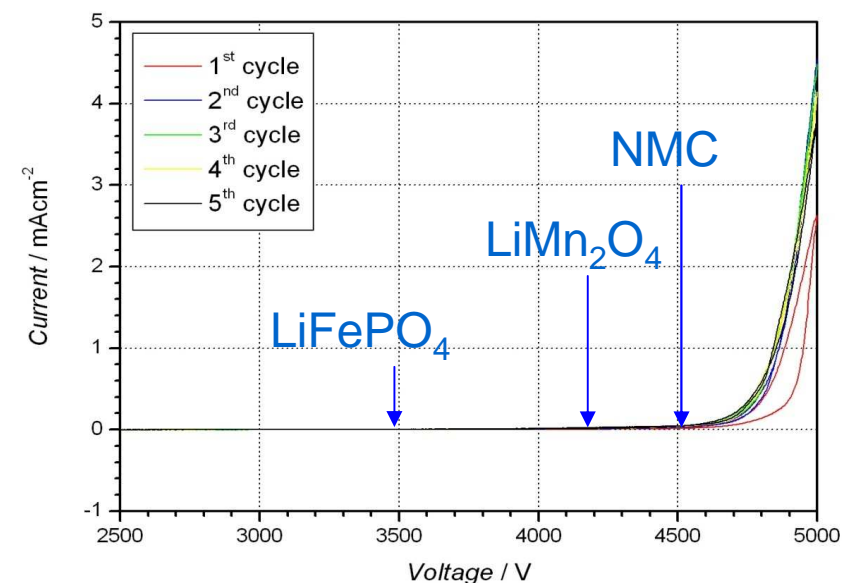
# Cyclovoltammetric Characterization



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<sub>6</sub> in EC/DEC 3:7 (v/v), Voltage vs. Li/Li<sup>+</sup>, Scanrate: 0.5 mVs<sup>-1</sup>

# Conclusion

- ✓ POLYMET<sup>®</sup> 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