Rolled Foils
in Batteries

Product information

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HIGH ADHESION FOILS

SCHLENK developed a specialized treatment for rough surfaces on copper and copper alloy foils. In an electrolytical treatment process fine copper nodules with a height of about 1 μm (.04 mil) are deposited on the foil, achieving an increased roughness. The enhanced surface allows binders build more bonds with the copper substrate. The resulting adhesion is stronger in comparison to smooth battery foils.*

*depending on the specific combination of alloys and adhesive

For many years SCHLENK has specialized in the production of the thinnest metal foils with a wide variety of possible surface treatments and supply formats. SCHLENK has supplied copper and nickel foils to battery manufacturers for over 20 years and, since 1998, has used special coating processes and families of electrolytes that have been under continuous development to produce metal foils with functional layers.

Using Foils in Batteries

... As current collector
- Very thin copper foils
- Plain surface or treated for better adhesion
- Silver and Nickel foils for special batteries

... For tabbing
- Slit to narrow width
- Precise thickness tolerances
- Plain Nickel or Copper foils
- Plated or clad foils

Tests with external laboratories show excellent adhesive characteristics measured in peel strength values. In contrast to previous knowledge, which suggested a direct relationship between the size of the structures and the increase in adhesion, this innovative treatment significantly improves the adhesive properties of the foil surface with respect to a wide variety of substrates. Further research on optimized surface roughnesses indicate the option of an Ultra Low Profile Treatment (ULPT) with an even better adhesion behavior.

Consideration for using rolled foils:

Rolled Foils by SCHLENK offer a variety of unique characteristics compared to Electrodeposited Foils (ED) and are ideal for use in advanced battery applications.

- Many different alloys available
- Excellent mechanical stability at elevated temperatures
- High flexibility, even under extreme conditions
- High conductivity for high power applications
- Special coatings and treatments with superb adhesion characteristics available (from very smooth to very rough)
- Clean surfaces without oxides and oil
- Wide variety of thicknesses

SCHLENK is highly experienced in rolling processes and optimizes continuously the features of rolled battery foils.