

## HTA<sup>®</sup>-520 High Tensile Alloy Copper Foil - for Batteries

Excellent performance alloy in terms of tensile to conductivity relation.  
 Magnesium has been alloyed to increase the strength of the material. At the same time it shows very good conductivity (86% IACS).

Other properties that are improved by alloying magnesium are wear resistance and temperature stability.

**Copper content (%):  $\geq 99,75$ , rest: Mg, P and Ag**

This alloy is in accordance with RoHS

### PHYSICAL PROPERTIES – information only

· Density	8,91 g/cm <sup>3</sup>
· Melting range	1082°C
· Electrical conductivity	min. 50 m/( $\Omega \cdot \text{mm}^2$ ) (at 20 °C R235)
· Electrical resistivity	max. 0,02 $\Omega \cdot \text{mm}^2/\text{m}$ (at 20 °C R235)
· Thermal conductivity	346 W/(m·K) (at 20 °C)
· Temperature coefficient of electrical resistance	2,5·10 <sup>-3</sup> /K (at 20 °C)
· Coefficient of thermal expansion (linear)	17,8·10 <sup>-6</sup> /K (at 20 to 300 °C)
· Modulus of elasticity	115 GPa (at 20 °C R235)

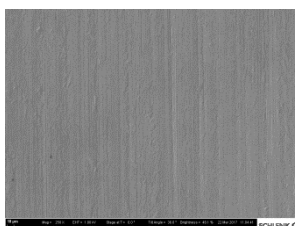
TEMPER	TYPICAL VALUES (information only)					
	Tensile strength Rm in MPa		Yield strength Rp <sub>0,2</sub> in MPa		Elongation in % L <sub>0</sub> = 100 mm	
	Typical value	sample value	Typical value	sample value	Typical value	sample value
R470	$\geq 470$	555-565	$\geq 435$	535-545	< 5	0-1

Data in this publication is based on careful investigations and is intended for information only. All information shall not be binding, shall carry no warranty as to certain ingredients, as to the fitting for a special purpose, as to the merchantability, or as to the industrial property rights of third parties. Any and all users are obliged to carry out tests on their own authority as well as to check the suitability and the danger of the respective product for a particular application. SCHLENK assumes no liability in this regard; neither to the exactness nor to the completeness of the data. We apply our General Sales Conditions to be found on [www.schlenk.com](http://www.schlenk.com)

**SAMPLE MATERIAL**

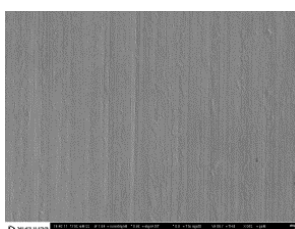
<b>D) plain – degreased – lamination Quality</b> 0.010 x 250 mm	Material no. 148050
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<b>surface roughness (Ra)</b>	actual value Ra 0.20 – 0.40 µm
<b>carbon residue</b>	solvent degreased / residue < 15 mg/m <sup>2</sup>
<b>Passivation</b>	organic tolyltriazole derivative
<b>Topography</b>	rolled surface



<b>E) plain – electrolytically degreased</b> 0.010 x 250 mm	Material no. 148051
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<b>surface roughness (Ra)</b>	actual value Ra 0.20 – 0.40 µm
<b>carbon residue</b>	electrolytically degreased / residue ≤ 4 mg/m <sup>2</sup>
<b>Passivation</b>	chromate passivation
<b>Topography</b>	rolled surface



## SHELF LIFE

- Shelf Life ≤ 6 month
- Storage condition: (15-35°C storage temperature) and air humidity (environmental conditions), <85% rel. humidity at original closed package

MANUFACTURING PROGRAM Rolls, spools, sheets	THICKNESS	WIDTH
D) Plain – degreased – lamination quality	0.008* – 0.100 mm	0.6 – 640 mm
E) Plain – electrolytically degreased	0.008* – 0.100 mm	0.6 – 300 mm *
<i>not all combinations of thickness and width are available</i>	* thickness below on demand	* Width up to 650 mm after modification of our manufacturing equipment

## FUTURE DEVELOPMENTS

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

Please contact us for future developments e.g. for LiSi Anode (silicon containing) material or others.

We offer other copper alloys for Li ION application in terms of high tensile strength with reasonable conductivity:

- **High Tensile Alloy Copper Foil – HTA®-750 – with increased tensile strength**
- **High Tensile Alloy Copper Foil – HTA®-600 – with excellent temperature stability**

## RELATED PRODUCTS

Please consider also our attached information regarding:

- **Cu-PHC copper** for Batteries used for anode material
- **Aluminium Copper-Clad material** used for tab ribbon and bipolar electrode application and
- **Tab Ribbon** made from Copper, Silver, Nickel and their alloys

For further information please visit our website: [www.schlenk.com](http://www.schlenk.com) or contact our Area Sales Manager or your local representative. E-Mail contact: [battery@schlenk.com](mailto:battery@schlenk.com).