



**KOHPA®**

Electrically  
conductive paper





# **KOHPA<sup>®</sup> CONDUCTIVE PAPER**

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A paper made from recycled carbon and paper fibers with multiple applications offering sustainable solutions for the environment and technology.

# PAPER WITH VARIOUS FUNCTIONS

KOHPA® is the world's first paper with electrically conductive functions based on the integration of **carbon fibers** into the cellulose matrix. The carbon fibers are extracted from composite materials by pyrolytic processing. The resin is removed by sublimation under high temperature and exclusion of oxygen. After the process, the carbon fiber is residue-free for further processing.

## Radiation Protection

In the course of investigations, one example showed that the electromagnetic radiation (EM radiation) was clearly reduced by the paper structure. It follows that the paper is suitable for **electrical shielding** or to protect man and beast against electrical, magnetic and EM radiation.

## Possible Uses

There are unlimited possibilities in heat emission ranges. Floors and walls are as easily heated as difficult to access areas and complex forms. The maximum advantage is achieved by the low space consumption and the good formability. It is the **thinnest and lightest panel heating** in the world. The economic efficiency is shown in comparison to conventional heating systems primarily by the radiant heat achieved. This goes hand in hand with **energy savings**, which lowers heating costs. The carbon paper can also be made **waterproof**. Wet deformation, different degrees of absorbency and targeted air permeability values can be set according to the corresponding requirements.



Indication	Unit	Value
Grammage	g/m <sup>2</sup>	75 – 80
Material thickness	µm	200 – 250
Air permeability	l/m <sup>2</sup> s	95
<b>Application panel heating</b>		
Temperature increase up to	°C	30 – 70
Required electrical power	W/m <sup>2</sup>	130 – 200
<b>Application Shielding</b>		
Shielding degree	%	99 – 99,999
Shielding effectiveness	db	20 – 50



***The electrical conductivity of KOHPA® can be used to generate light or as surface heating.***

*Walter Reichel, RESO Oberflächentechnik*

### **Le Pli – KOHPA® wireless lamp**

Sascha dos Santos and Tilmann Studinsky have used KOHPA® conductive paper to design a **LED lamp** that is wireless. Cleverly constructed almost entirely of **folded paper**, its angular body consists of just 3 paper layers – 2 of which are electrically conductive. The power supply works with a simple wood stand that the paper lamp can be plugged into. This way, apart from the cord providing the stand with power, **no cable is needed** for Le Pli to function! Installation of the LEDs directly on the paper also keeps the design light and free of non-essential components.

## **WANT TO LEARN MORE?**

### **Producer**

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**UNFOLD ME**



**Materials impact the environment, society and economy. Under Horizon 2020, the EU's research and innovation programme, about €2 billion in EU funding, has supported research in advanced materials.**

**More information on EU funding:**  
<https://europa.eu/MJ49rK>



### **European Commission**

[www.ec.europa.eu/info/research-and-innovation\\_en](http://www.ec.europa.eu/info/research-and-innovation_en)

### **Concept & Design**

[www.lekkerwerken.design](http://www.lekkerwerken.design)

[www.haute-innovation.com](http://www.haute-innovation.com)

### **Realisation**

[www.triplea.be](http://www.triplea.be)



# KOHPA®

Electrically conductive paper

Can reach  
**SURFACE  
TEMPERATURES**  
of up to

**PROTECTION**  
against electro-  
magnetic fields



# 100%

Recycled carbon and  
paper fibers

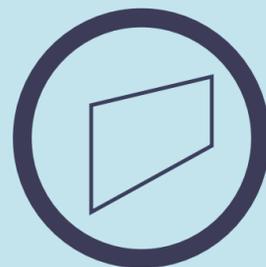


# 120°C

## ADVANTAGES OVER CONVENTIONAL HEATING SYSTEMS



easy formability



low space  
requirement



low costs



reduced house  
dust circulation

## TURN ON LIGHT WITH KOHPA®



**Step 1:**  
Cut the KOHPA® into two strips of  
equal size and a sheet of normal  
paper to about 6x18 cm.



**Step 2:**  
Put the paper in between the KOHPA®  
strips as insulation. Make sure the  
paper sticks out slightly at the top and  
the sides. Fold the uninsulated parts  
of the KOHPA® outwards, so they don't  
touch each other.



**Step 3:**  
Attach the enclosed LED to the  
KOHPA® strips with the wires on one  
side each. Insert a button cell battery  
(3V) between the KOHPA® strips.



**Step 4:**  
Press the two KOHPA® strips onto the  
battery and the lamp will light up.  
If the LED doesn't light up, turn the  
battery around – the current only flows  
in one direction with LED.

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#InvestEURResearch  
#EUGreenDeal

