

MAGMENT

CERV 2023

**Dense Packed Magnetizable Cement and
Asphalt Concrete for Wireless Charging**

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MAGMENT IS DISRUPTING HOW CHARGING IS DONE

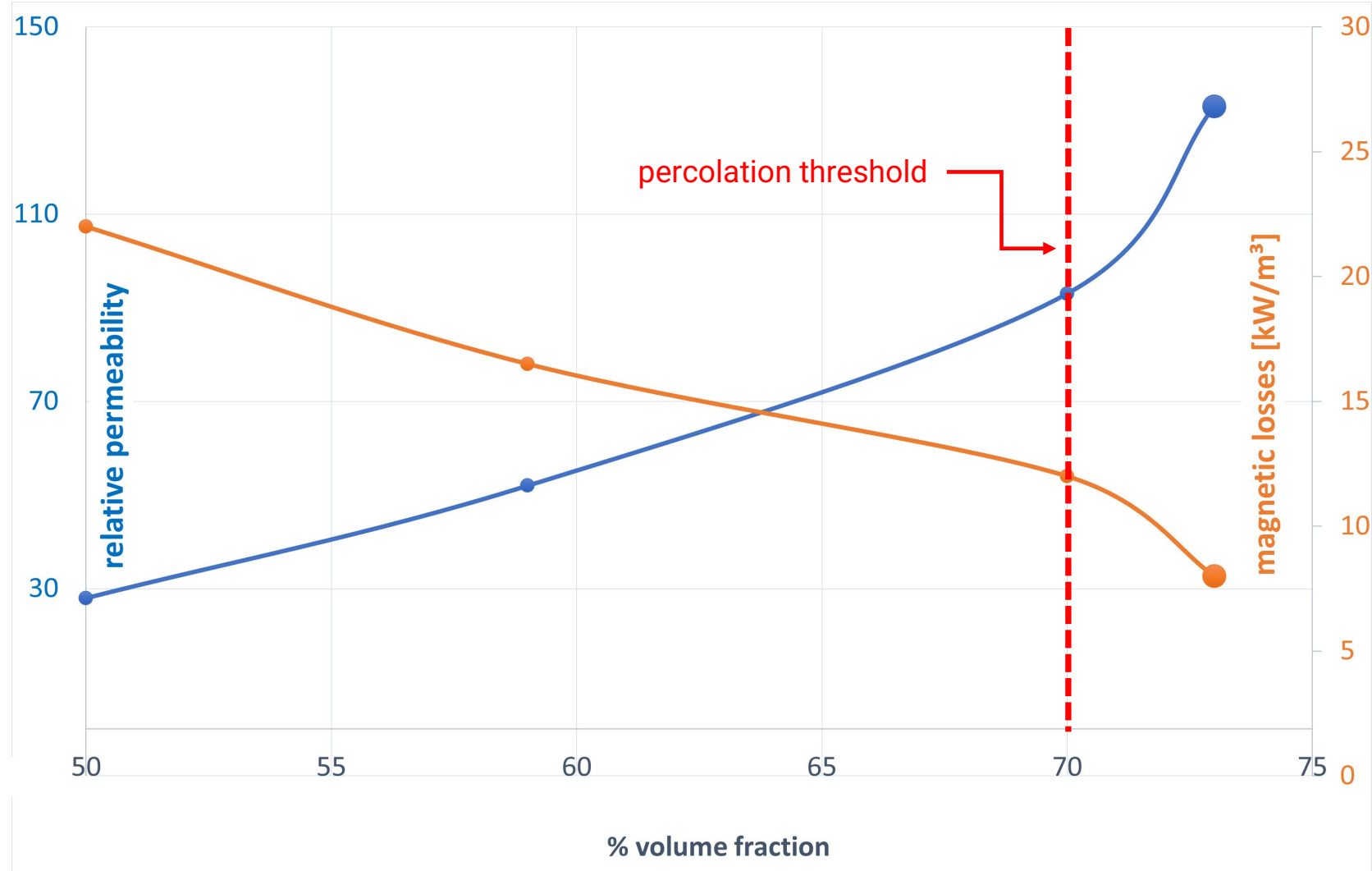
What is magnetizable concrete?

- ❖ **Ultra-high performance magnetizable concrete** consisting of cement or asphalt and aggregates from **recycled** magnetic ferrites.
 - **Young's modulus:** **80 GPa**
 - **Compressive strength:** **125 MPa**
 - **Tensile strength by flexion:** **10 MPa**
- ❖ It **can be shaped into almost every form** and thus enables optimized magnetic designs that are specially tailored to each specific application and **not restricted by obtainable standard cores**.
- ❖ The **cost** of magnetizable concrete is **lower by a factor of 4-5** when compared to the cost of conventional magnetic materials (ferrites, powder cores).



MAGNETIC CONSTRUCTION MATERIALS ROAD MAP

Continuous improvement for high performance/low cost



1

Dense packed magnetizable concrete with highest **magnetic permeability** to minimize module size.

2

Lowest magnetic **losses** to maximize wireless charging **transmission efficiency**

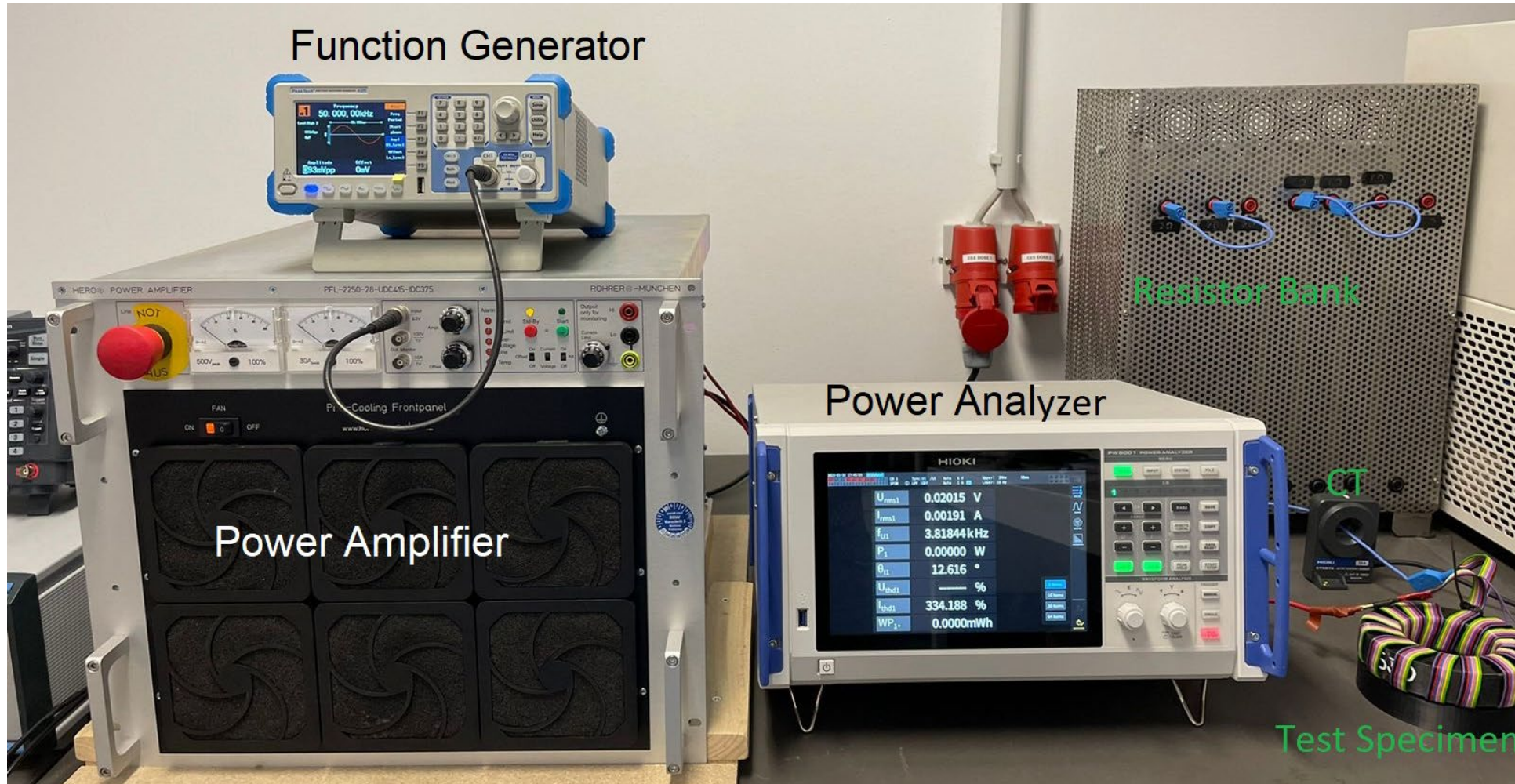
3

High thermal conductivity **> 5 W/m·K** for effective removal of **hot spots** for **long-term durability**



Core Loss Test Setup

High precision testing for magnetizable construction materials



Dynamic wireless charging on roadways

- Increased up-time, no stop
- Reduction of battery capacity and thus costs, weight and footprint (-50%)
- Increased battery lifetime
- Seamless automated charging while driving
- Potentially "unlimited" range by only partly equipping the road
- No waiting time: Charge where you go not go where you can charge
- Fully interoperable



PARTNERING WITH THE LEADERS IN ROAD CONSTRUCTION

Ensuring constructability and long durability



Global No.1 in Cement



The Heritage Group

USA No.1 in Asphalt





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