



# HYDROGEN SYSTEMS

CIN Symposium – Pitch, 05.10.2021, Dr. C. Gebauer

## HERAEUS BUSINESS PORTFOLIO – LEADING IN GLOBAL MARKETS

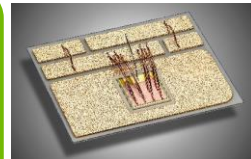


**1660**  
Founding of the  
Heraeus family business

**2021**  
Globally leading  
portfolio company



**Heraeus  
Precious  
Metals**



**Heraeus  
Electronics**



**Heraeus  
Nexensos**



**Heraeus  
Epurio**



**Heraeus  
Medical**



**Heraeus  
Medical  
Components**



**Heraeus  
Conamic**



**Heraeus  
Comvance**



**Heraeus  
Noblelight**

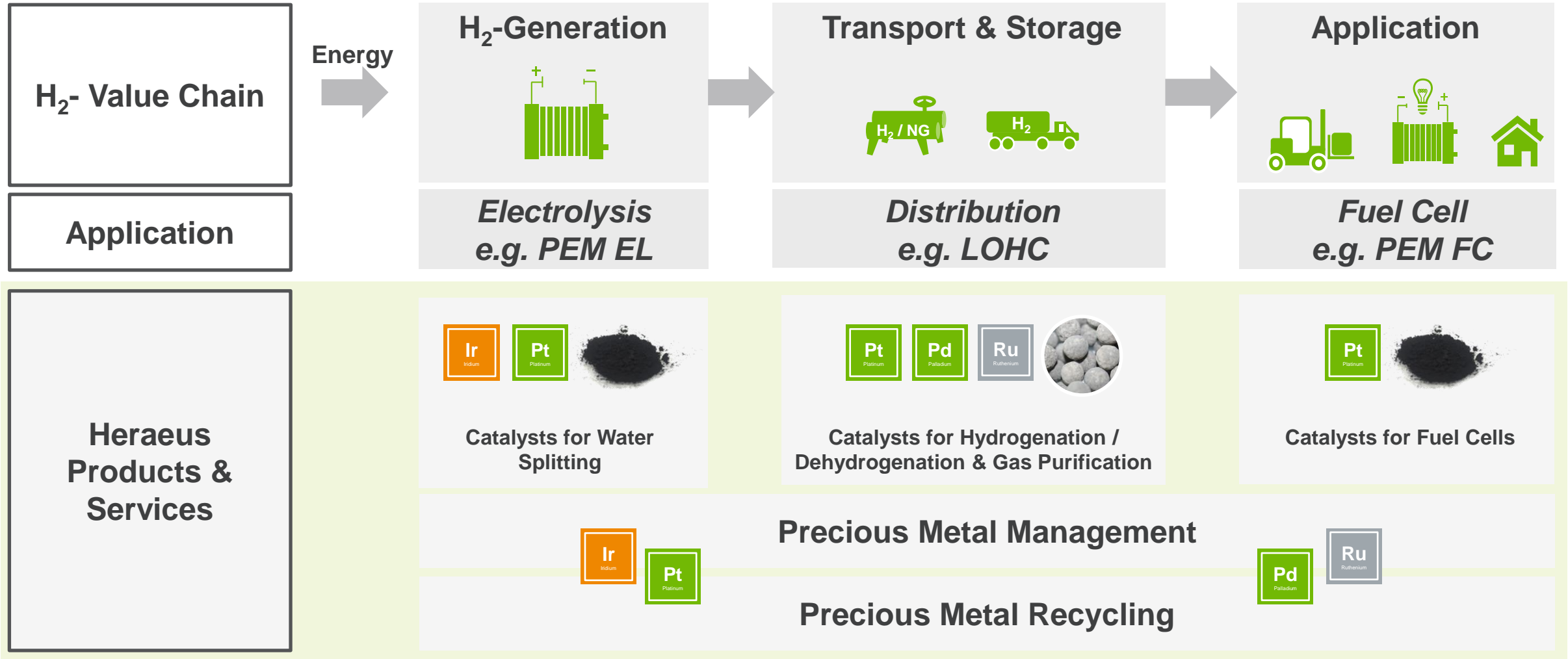


**Heraeus  
Electro-Nite**



**Heraeus  
Photovoltaics**

## PRECIOUS METALS AND THE HYDROGEN ECONOMY



## OUR PRODUCTS AND SERVICES FOR THE H<sub>2</sub> ECONOMY



### Catalysts

for efficient use of Ir and Pt in PEM electrolyzer & fuel cells

- Variety of catalysts with different Pt loadings and carbon supports
- Special catalyst for long life performance
- Innovative Ir-catalysts for electrolysis with significantly reduced Ir content



### Metal Management

of price volatility and financing of precious metals.

- Precious metal trading and PM-containing material in one hand
- Supply security for metals
- Risk management & mitigation of price volatilities



### Recycling

of precious metals from production scrap and end-of-life

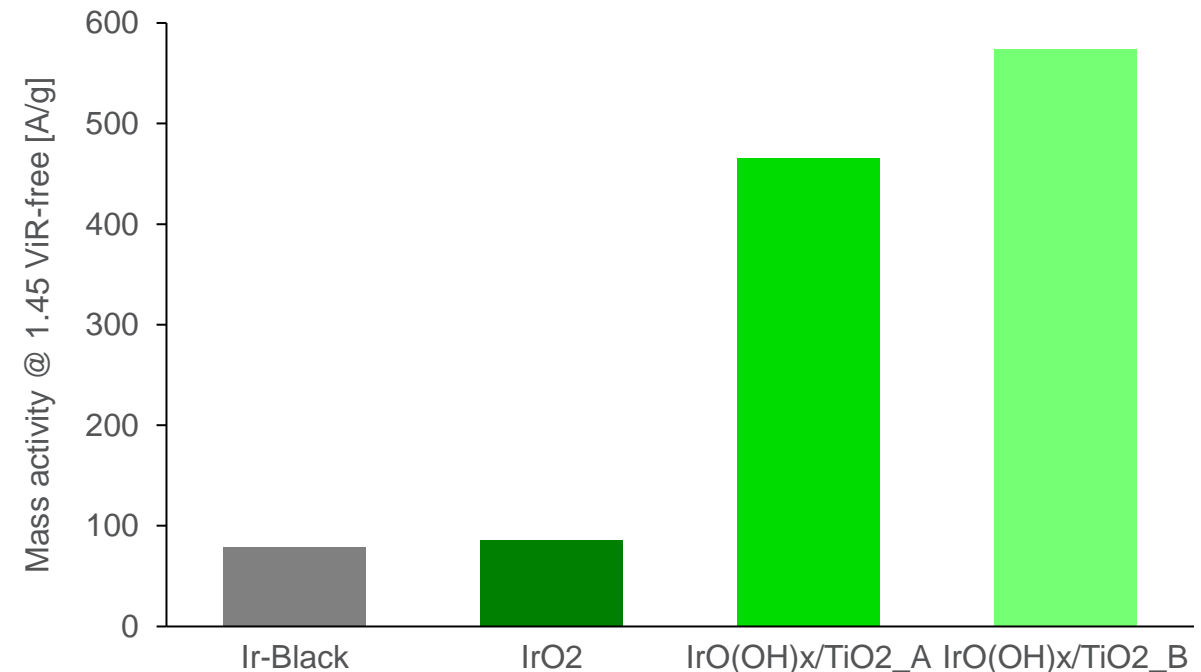
- High return rates for sustainable use of Ir & Pt
- Global capabilities
- Broad range of recycling technologies to fit the requirements of the waste stream

**Our products and services cover every aspect of precious metals business in your H<sub>2</sub> application**

## NEXT GEN IR CATALYST FOR PEM ELECTROLYZERS

IrO(OH)<sub>x</sub>/TiO<sub>2</sub> for reduced Ir content and high performance

- Enabling electrolysis at **~0.3 mg<sub>Ir</sub>/cm<sup>2</sup> at same performance** as for established Ir-black at ~1.0 mg/cm<sup>2</sup> (and competitor materials<sup>[1]</sup>).
- Mass activity increase of about **factor 5 to 7 (A/g)**
- **Long-term stability & performance validated** in electrolysis short-stacks in funded project **Kopernikus P2X<sup>[2]</sup>** (Greenerity – MEAs, H-TEC – hardware, ZAE – measurement)



## CONTACT US

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