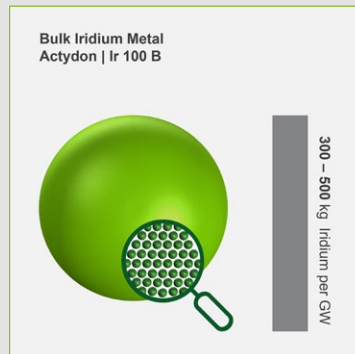


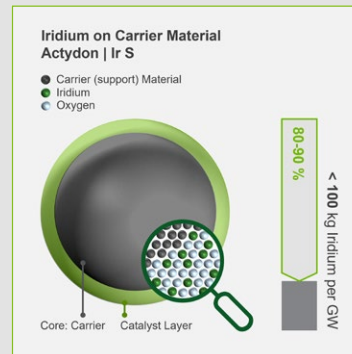
Actydon I Ir S

Low Iridium Electrocatalyst for PEM Electrolyzers

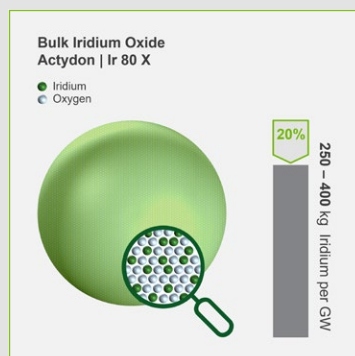
Catalyst solutions exist to enable the PEM ramp-up



Iridium black:
good activity,
good stability,
but bad ratio
surface / mass



- **Iridium Oxide** on Carrier (80-90% savings)
- Most of the **bulk replaced**
- **Oxidic Iridium species** with higher mass activity on surface



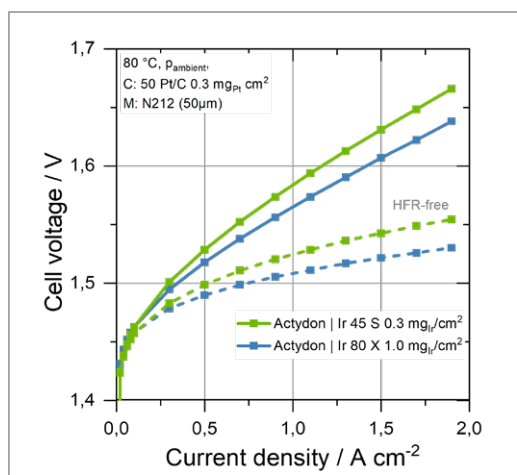
Iridium Oxide:
Iridium is diluted
by oxygen: saves
20% with good
activity / stability



- Pure Ruthenium oxide is highly active but lacks stability
- **Mixed Oxide Concept** to overcome stability issue
- **Broadened toolbox for thrifting** of Iridium in PEM Electrolyzers

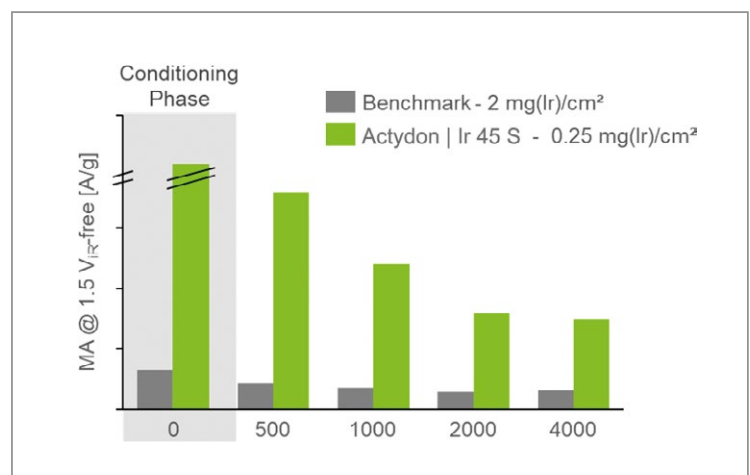
Supported Iridium Oxide - Actydon | Ir S

Performance



- Matching performance with established Ir Oxide with 1/3 of loading
- Strong increase in mass activity by a factor of 5 to 7
- Adjustable Ir loading by design of support material and Ir Oxide content possible

Stability



- Long-term stability & performance validated in electrolysis short-stacks in funded project Kopernikus P2X
- Internal accelerated degradation tests validates findings