



Accelerating the Green Hydrogen Economy
HeraPur[®] Catalysts for H₂ & O₂ Purification

Hydrogen and Oxygen Purification

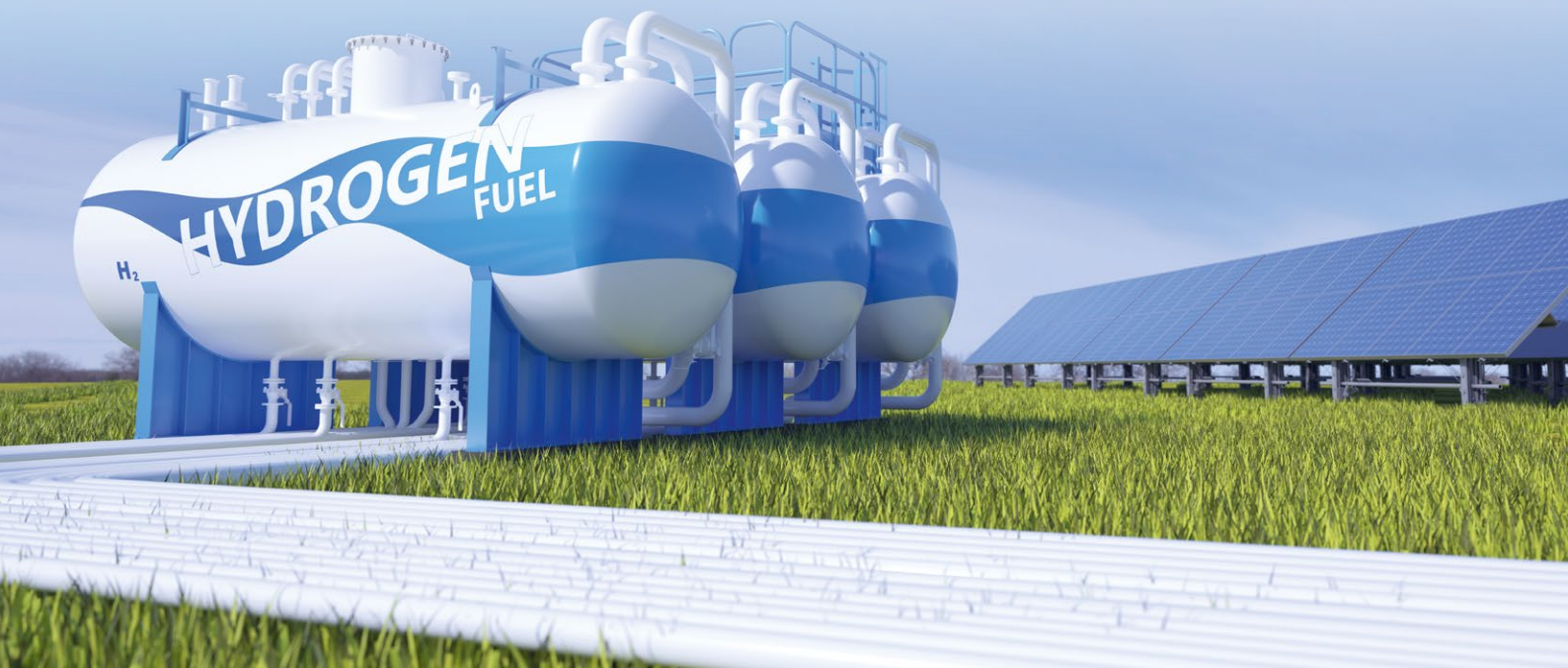
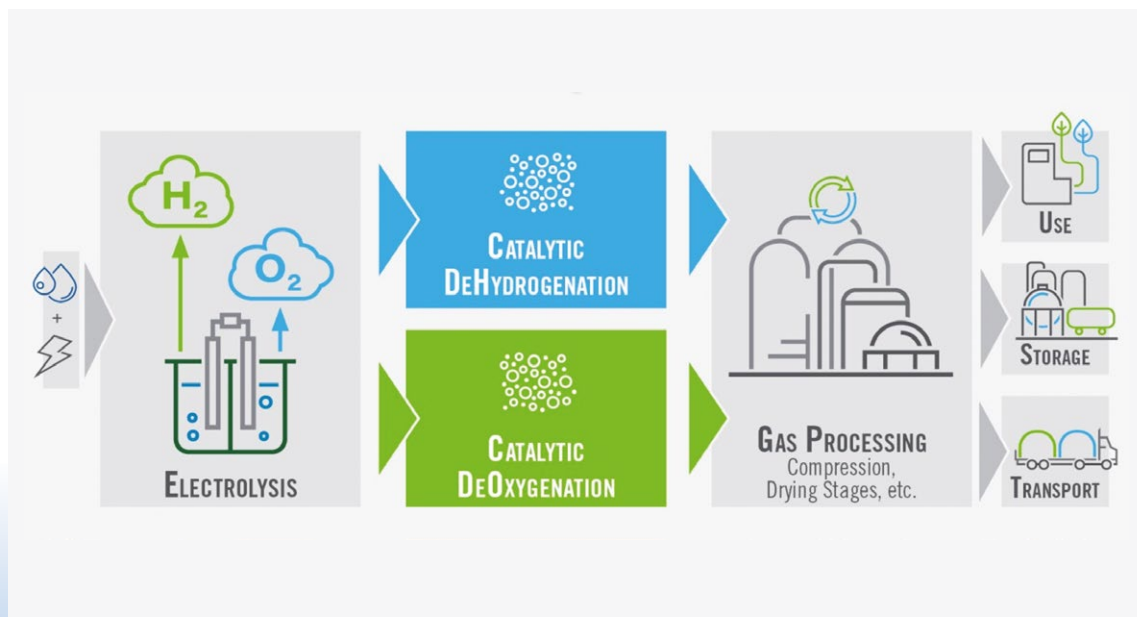
The splitting of water by electrolysis is an efficient technology to produce green hydrogen and oxygen. However, the separation of the gases is not perfect. Depending on the

electrolysis technology, a certain amount of one gas may slip into the other. To safely process, transport or utilize the gases, these impurities need to be removed.

CATALYSTS FOR H₂ & O₂ PURIFICATION

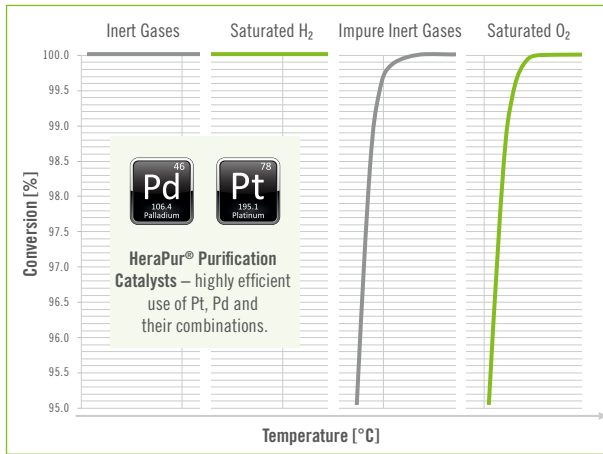
Since decades, Heraeus' gas purification catalysts have reliably fulfilled the task of removing O₂ from H₂ streams by converting it to H₂O – operating at low temperatures and with an efficient use of the applied Platinum Group Metals (PGM).

With the emergence of new electrolysis technologies and applications, a new generation of deoxygenation and high-performance dehydrogenation catalysts has been developed.



HeraPur® Catalysts for the Purification of Green H₂ & O₂ Feeds

Heraeus Precious Metals provides catalytic solutions for efficient H₂ and O₂ removal from different gas mixtures, as is exemplarily shown in the figure below.



Exemplary activity profiles in different gases

HeraPur® catalysts are characterized by:

- ✓ Low temperature removal of O₂ or H₂ from hydrogen or oxygen respectively
- ✓ Different compositions based on Pt, Pd or Pt/Pd alloys
- ✓ Low PGM-loadings – especially for electrolysis feeds with low impurity profiles

HERAPUR® PORTFOLIO FOR H₂ & O₂ PURIFICATION – EXAMPLES

Benefit from the large catalyst portfolio of Heraeus. The experts at Heraeus can provide you with the most efficient solution to meet your purification requirements.

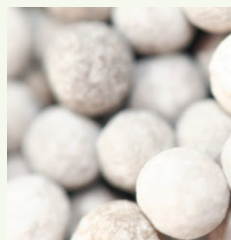


HeraPur® K-0288

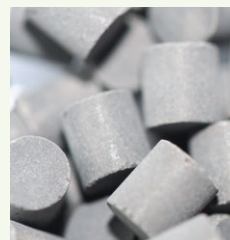
Catalyst	› Pd / Pt / Al ₂ O ₃
Standard Load	› 0.2 wt% Pd / 0.1 wt% Pt
Shape	› Spherical
Standard Size	› 2 – 4 mm
Bulk Density	› 650 – 800 kg/m ³
BET	› > 200 m ² /g



HeraPur® K-0264
Pd Catalyst



HeraPur® K-0152
Pt Catalyst

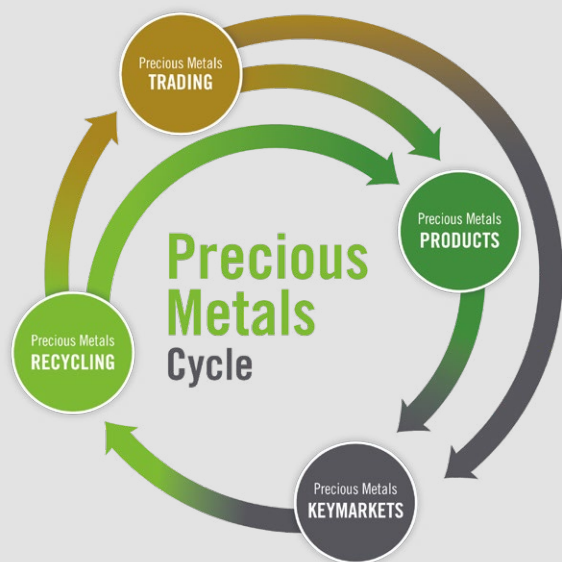


HeraPur® K-0240
Pd Catalyst



HeraPur® K-0140
Pt Catalyst

Beyond the HeraPur® catalyst portfolio, Heraeus also manufactures catalysts on a commercial scale according to customers' specifications. Save time and money with Heraeus as a qualified partner and accelerate your process.



CLOSING THE LOOP WITH PRECIOUS METALS RECYCLING

As specialists in the handling of spent precious metal catalysts, Heraeus offers the fastest possible precious metal recovery and the highest yield. The reclaimed precious metal can be used again for the manufacture of new catalysts. Catalyst recycling is not only cost competitive, but also ecological. The recycled secondary precious metal can reduce the carbon footprint by up to 98% in comparison to primary precious metal from mining.

ABOUT HERAEUS PRECIOUS METALS

Heraeus Precious Metals is globally leading in the precious metals industry. The company is part of the Heraeus Group and covers the value chain from trading to precious metals products to recycling. It has extensive expertise in all platinum group metals as well as gold and silver.

With about 3,000 employees at 15 sites worldwide, Heraeus Precious Metals offers a broad portfolio of products that are essential for many industries such as the automotive, chemicals, semiconductor, pharmaceutical, hydrogen and jewelry industry.

By 2025 Heraeus Precious Metals will be the first company in the industry that operates carbon neutral.

Heraeus Precious Metals

Heraeus Deutschland GmbH & Co. KG
 Heraeusstr. 12 – 14
 63450 Hanau, Germany
 chemicals@heraeus.com