BASF
We create chemistry

Product Data Sheet

0.3% Pd/AS R4578

DeOxo DS3

R4578 / DeOxo DS3 is used for the removal of hydrogen by reaction with oxygen (De-Oxo reaction).

General

R4578 / DeOxo DS3 is a catalyst in the form of spheres with a nominal diameter of 2.4 – 4 mm and with Palladium as active component. The lower surface alumina carrier has been carefully chosen for providing optimum activity and high selectivity. The material is delivered dry and pre-reduced.

Product Application

R4578 / DeOxo DS3 is used for the conversion of hydrogen in the presence of oxygen to form water (De-Oxo reaction) according to the following chemical formula:

$H_2 + ½\ O_2 \rightarrow H_2O$ (v) $\quad \Delta_R H = -242$ kJ/mol (1)

This reaction can be applied in the production of pure hydrogen (e.g. as green hydrogen) or in the production of inert gases like N_2 or He, when adding hydrogen to remove oxygen. An alternative material for this application can be

0.5% Pd/AS R4577 (DeOxo DS).

Typical reaction temperatures are in the range of 50 – 100°C / 120 – 210°F. The maximum allowable temperature is 500°C / 930°F.

Special Operations

R4578 / DeOxo DS3 might gain maximum activity via a short activation procedure. Before unloading the material should be oxidized.

Poisons

As every Pd containing catalyst R4578 / DeOxo DS3 is sensitive against Sulfur and its components. Heavy metal containing compounds like AsH_3 can also have a determinantal effect on its performance. CO will have an impact on activity but might be compensated via higher temperature.

Storage

R4578 / DeOxo DS3 does not deteriorate or constitute any hazard when stored in sealed containers. The containers should not be allowed to become damp or wet and should not be stored in contact with organic or easily oxidizing vapors.

Target Properties*	
Chemical Composition (dry basis)	0.3% wt./wt. Pd on special Alumina
Typical Physical Properties	
Packed Bulk Density, g/ml	Approx. 0.7
Total Surface Area (BET), m^2/g	Approx. 90

*These indicative properties do not represent process capabilities nor specifications

Packaging

- 210 l steel drum with nominal up to 140 kg net
- 30 l fiber drum with nominal up to 30 kg net

Point of Shipment

- Rome, Italy

About Us

BASF is a leading global manufacturer of catalysts for the chemical industry, with solutions across the chemical value chain. The business comprises chemical catalysts and adsorbents, refinery catalysts and custom catalysts. In the process catalysts business, priority is given to developing new and improved products that enable the chemical industry transformation to net-zero emissions.

The division's portfolio also includes battery materials and recycling solutions, as well as environmental catalysts and metal solutions. Customers from a variety of industries including Automotive & Transportation, Chemicals, Plastics or Energy & Resources benefit from our innovative solutions. Further information on BASF's Catalysts division is available on the Internet at www.catalysts.basf.com.

BASF - We create chemistry

Americas
BASF Corporation
Phone: +1-732-205-5000
Email: catalysts-americas@basf.com

Asia Pacific
BASF (China) Company Limited
Phone: +86-21-2039 2549
Email: catalysts-asia@basf.com

Europe, Middle East, Africa
BASF Services Europe GmbH
Phone: +49-30-20055000
Email: catalysts-europe@basf.com

www.catalysts.basf.com/adsorbents

BASF-10621 01/24