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Product Data Sheet

0.5% Pd/AS R Dedux 12792

Dedux 12792 is used for the removal of hydrogen by reaction with oxygen (De-oxo reaction).

General

Dedux 12792 is a catalyst in the form of spheres with a nominal diameter of 4 – 8 mm and with Palladium as active component. The high surface area carrier allows for high activity. At the same time, the material shows low pressure drop due to its large size.

Product Application

Dedux 12792 is used for the conversion of hydrogen in the presence of oxygen (e.g. from air) to form water (De-oxo reaction) according to the following chemical formula

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

This reaction can be applied in the removal of hydrogen or in the production of inert gases like N_2 or He, when adding hydrogen to remove oxygen.

Alternatively, the material can also be used for the conversion of CO with oxygen according to the following chemical formula.

$CO + ½\ O_2 \rightarrow CO_2$ $(\Delta_R H) = -283$ kJ/mol (2)

Due to the high exotherm of these reactions, proper instrumentation and safety measures always need to be put in place to assure full control of the reaction.

Typical reaction temperatures are in the range of 50 – 100°C / 120 – 210°F for reaction (1). The maximum allowable temperature is 500°C / 930°F. Other applications for this material, like certain hydrogenations are possible.

Special Operations

Dedux 12792 might gain maximum activity via a short activation procedure. Before unloading, the material should be oxidized.

Poisons

As every Pd containing catalyst, Dedux 12792 is sensitive against Sulfur and its components. Heavy metals containing components like AsH_3 can also have a detrimental effect on its performance. CO will have an impact on activity but might be compensated e.g. via higher temperature.

Storage

Dedux 12792 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)	0.5 % wt./wt. Pd on high surface Alumina
Typical Physical Properties	
Packed Bulk Density, g/ml	0.75
Total Surface Area (BET), m^2/g	300

Packaging

– 210 l steel drum with up to 190 kg net

Point of Shipment

– Rome, Italy

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BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

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