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Product Data Sheet

0.5% Pd/AT R4586

DeOxo D

DeOxo D / R4586 is used for the removal of hydrogen by reaction with oxygen (De-oxo reaction).

General

R4586 is a catalyst in the form of tablets with a nominal diameter of 3 x 3 mm and with Palladium as active component. The alumina carrier has been carefully chosen for providing optimum activity and high selectivity.

Product Application

R4586 is typically 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 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)

Alternatively, the material can be used for the conversion of CO or hydrocarbons with oxygen. This is also referred to as Catalytic Oxidation (CatOx).

Due to the high exotherm of reaction (1), 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. The maximum allowable temperature is 500°C / 930°F.

Special Operations

R4586 might gain maximum activity via a short activation procedure when used in reduced state. Before unloading, the material should be oxidized.

Poisons

Pd containing catalyst R4586 is sensitive against Sulfur and its components. Heavy metal containing compound like AsH_3 can also have a detrimental effect on its performance. CO will have an impact on activity but can be compensated via temperature.

Storage

R4586 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 special Alumina
Typical Physical Properties	
Packed Bulk Density, g/ml	1.0
Total Surface Area (BET), m^2/g	95

Packaging

- 210 l steel drum with up to 180 kg net (R)
- 26 gallon fiber drum with up to 25 kg net (S)

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Points of Shipment

- Rome (R), Italy; Seneca (S), S.C., U.S.A.

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, adsorbents and custom catalysts. Priority is given to developing new and improved products that enable the chemical industry transformation to net-zero emissions.

BASF's chemical catalysts and adsorbents business is part of the company's Performance Chemicals division. The division's portfolio also includes refinery catalysts, fuel and lubricant solutions, as well as oilfield chemicals and mining solutions. Customers from a variety of industries including Chemicals, Plastics, Consumer Goods, Energy & Resources and Automotive & Transportation benefit from our innovative solutions.

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BASF-10663 07/25