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Product Data Sheet

0.4% Pt 0.1% Rh/AT R4924

DeOxo MF

BASF DeOxo MF / R4924 is a bi-metallic catalyst in tablet form to remove H_2 and CO, but also hydrocarbons from different industrial gases like CO_2 and O_2 streams.

General

R4924 / DeOxo MF is a catalyst in the form of cylindrical tablets with nominal 3 x 3 mm size (approx. 1/8" x 1/8") and with Platinum and Rhodium as active components. The carefully selected surface area carrier allows for high activity and high temperature stability.

When delivered from Seneca, SC, USA, the material is referred to as MF.

The material is delivered reduced and dried.

Product Application

R4924 is used to promote the catalytic conversion of hydrogen and carbon monoxide according to the following chemical equations

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

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

This can be achieved by adding oxygen in over-stoichiometric amount.

The catalyst shows also very good activity for the conversion of hydrocarbons like methane. The reaction can be described as follows:

$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$ (v)

$\Delta_R H = -201$ kJ/mol (3)

The purification of O_2 streams in front of Kr/Xe recovery units is an example of this application.

Due to the high exotherm of reactions (1) - (3), proper instrumentation and safety measures always need to be put in place to assure full control of the reaction.

Typical reaction temperatures for reactions (1) and (2) are in the range of 50 – 300°C / 265 – 570°F. For reaction (3) temperatures of 450 – 550°C / 840 – 1022°F are usual. The maximum allowable temperature towards end of life is 600°C / 1110°F.

Special Operations

R4924 might gain maximum activity via a short activation procedure if used in a reduced state. Before unloading, the material should be oxidized if not used in an oxidizing atmosphere at higher temperatures.

Poisons

R4924 will last for long times if it is not subjected to poisoning by certain impurities. The principal poisons are sulfur and chlorine components as well as oil. These materials will deactivate and may eventually poison the catalyst permanently.

Storage

R4924 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.

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Target Properties	
Chemical Composition (dry basis)	0.4 % wt./wt. Pt and 0.1 % wt./wt. Rh on Alumina (Al_2O_3)
Typical Physical Properties	
Packed Bulk Density, g/ml	1.0
Total Surface Area (BET), m^2/g	90

Packaging

- Typically, 32 l fiber drum with up to 30 kg net (Rome)
- Also possible: 213 l steel drum with up to 200 kg net (Rome)
- Fiber drum with up to 25 kg (55 lbs) net (Seneca)

Point of Shipment

- Rome, Italy
- Seneca, SC, USA (material is referred to as MF)

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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