BASF DeOxo R45084 is used for the purification of CO₂ or N₂ in polyethylene terephthalate (PET) solid state polycondensation units.

**General**

DeOxo R 45084 is a catalyst in the form of spheres with a nominal diameter of 2.36 – 4 mm and with Palladium and Platinum as active components. The lower surface alumina carrier has been carefully chosen for providing optimum activity and high temperature stability.

**Product Application**

DeOxo R45084 is typically used for the combustion of ethylene glycol, acetaldehyde, dimer and light olefins coming from the solid-state polymerization of polyethylene terephthalate (PET).

Low levels of H₂ will also be removed. The combustion products are CO₂ and water vapor.

The different combustion reactions might be described as follows:

\[
\begin{align*}
\text{C}_x\text{H}_y\text{O}_z + (x + y/4 - z/2) \text{O}_2 & \rightarrow x \text{ CO}_2 + y/2 \text{ H}_2\text{O} (v) \quad (1) \\
\text{H}_2 + \frac{1}{2} \text{O}_2 & \rightarrow \text{H}_2\text{O} (v) \quad (\Delta\text{H}) = -242 \text{ kJ/mol} \quad (2)
\end{align*}
\]

Due to the high exotherm of the indicated 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 150 – 550°C / 300 – 1 000°F. The maximum allowable temperature is 700°C / 1 300°F.

**Special Operations**

Before unloading, the material should be oxidized.

**Poisons**

As every Pd and Pt containing catalyst DeOxo R45084 is sensitive against Sulfur and its components. Heavy metals like As and Sb (as well as the compounds containing them), silicon compounds and oil mist from compressors can also have a detrimental effect on its performance.

**Storage**

DeOxo R45084 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**

<table>
<thead>
<tr>
<th>Chemical Composition (dry basis)</th>
<th>0.15 % wt./wt. Pd and 0.15% Pt on special Alumina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Physical Properties</td>
<td></td>
</tr>
<tr>
<td>Packed Bulk Density, g/ml</td>
<td>0.66</td>
</tr>
<tr>
<td>Total Surface Area (BET), m²/g</td>
<td>90</td>
</tr>
</tbody>
</table>

* These indicative properties do not represent process capabilities nor specifications.

**Packaging**

- 210 l steel drum with up to 100 kg net

**Points of Shipment**

- Rome, Italy
About Us

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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