Experience Unmatched Performance with the PDH Alumina Carrier for Petrochemical Dehydrogenation

Our Product Introduction

Basic Information

- Place of Origin: CHINA

Product Specification

- Color: White
- Crushing Strength: ≥80N
- Cao Content: ≤0.05%
- Chemical Composition: Al2O3 ≥ 97%
- Size: 1-5mm
- Chemical Stability: Acid And Alkali Resistant
- Pore Size: 0.4-0.6nm
- Moisture Content: ≤1%
- Chemical Formula: Al2O3
- Packing Density: 0.7-0.9g/cm3
- Particle Size: 1.6-1.8mm
- Application: Catalyst Carrier

Our Product Introduction

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Product Description

Description:

The PDH alumina carrier is a high-performance material characterized by its distinctive appearance and essential role in catalytic processes. Typically, this carrier exhibits a fine, white powdery texture, highlighting its purity and quality. Its uniform particle size and high surface area are crucial attributes that enhance its effectiveness as a catalyst support.
Primarily used in the petrochemical industry, the PDH alumina carrier is integral to the dehydrogenation of propane. This process converts propane into propylene, a vital building block for producing various plastics and chemicals. The alumina carrier's structural properties provide an optimal environment for catalytic reactions, allowing for maximum interaction between the catalyst and the reactants. This leads to improved reaction efficiency and selectivity, which are critical for achieving high yields in industrial applications.
Beyond its visual appeal and mechanical properties, the PDH alumina carrier is designed for durability and stability. It can withstand the harsh conditions often found in petrochemical processes, including high temperatures and pressures. This resilience ensures that the carrier maintains its performance over time, making it a reliable choice for continuous operations in industrial settings.
Moreover, the versatility of the PDH alumina carrier allows it to be employed in various reactor configurations, such as fixed bed and moving bed reactors. This adaptability makes it suitable for different operational needs, enhancing its utility across diverse applications.
In summary, the PDH alumina carrier is not just a visually appealing material; it is a key component in enhancing the efficiency of catalytic processes in the petrochemical industry. Its unique physical characteristics and robust performance make it indispensable for the production of propylene and other chemical intermediates, driving innovation and efficiency in modern manufacturing.

Specifications:

Specification	Details
Chemical Composition	Al2O3
MgO Content	≤ 0.05%
CaO Content	≤ 0.05%
SiO2 Content	≤ 0.05%
Bulk Density	0.6 - 0.65 g/cm³
Applications	MOVING BED reactors, Drip ball reactors

Applications:

The PDH alumina carrier plays a critical role in the dehydrogenation of propane, a process essential for producing propylene in the petrochemical industry. This application typically takes place in large-scale industrial reactors designed to optimize the conversion of propane into propylene, a key raw material for various plastics and chemicals.
In a typical application scenario, propane is fed into a moving bed reactor containing the PDH alumina carrier. The reactor environment is carefully controlled, maintaining high temperatures and specific pressure conditions to facilitate the dehydrogenation reaction. The alumina carrier's high surface area enhances the dispersion of active catalyst sites, allowing for efficient interaction with propane molecules. This interaction promotes the removal of hydrogen from propane, resulting in the formation of propylene.
The use of the PDH alumina carrier not only increases the reaction rate but also improves selectivity, ensuring that a higher proportion of propane is converted into the desired propylene rather than byproducts. This selectivity is crucial for maximizing yield and minimizing waste, which are vital considerations in industrial operations.
Furthermore, the chemical stability of the alumina carrier ensures that it can endure the demanding conditions of the dehydrogenation process without significant degradation. This durability translates to longer catalyst life and reduced frequency of replacements, contributing to cost-effectiveness in production.
After the reaction, the spent catalyst can often be regenerated or replaced efficiently, allowing for continuous operation of the reactor. This operational efficiency is a hallmark of modern petrochemical plants, where maintaining high throughput and low operational costs is paramount.
In summary, the application of the PDH alumina carrier in propane dehydrogenation showcases its importance in the petrochemical industry. By enhancing efficiency and selectivity, it plays a vital role in the sustainable production of propylene, driving advancements in chemical manufacturing processes.

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