

Catalyst for Dehydrogenation of Isobutane

APPLICATION

Isobutane Dehydrogenation using a moving bed reactor is an efficient method for producing isobutene from isobutane. The same type of unit can be used to convert a mixer of isobutane /propane feedstock to the corresponding olefins. Isobutane dehydrogenation is a key industrial process used to produce isobutylene (C₄H₈), an important intermediate in the production of valuable petrochemicals such as methyl tert-butyl ether (MTBE), butyl rubber, and other derivatives. The moving bed process ensures continuous operation and efficient catalyst regeneration.

DELION's dehydrogenation catalyst is well-suited for application in moving bed dehydrogenation units. Its performance has been proven in numerous industrial units worldwide, offering exceptional features that enhance efficiency, reduce costs, and ensure long-term reliability.

DESCRIPTION

With its low platinum content, this catalyst offers an economically competitive option, delivering significant cost savings without compromising performance. Manufactured using proprietary high-purity alumina, it provides superior selectivity for isobutene. The catalyst incorporates innovative technology that enhances resistance to high-temperature hydrothermal conditions, slowing the decline of its specific surface area and ensuring a longer operational life with consistent performance.

The catalyst's excellent attrition resistance minimizes catalyst consumption per ton of product, ensuring smoother operations. Additionally, it reduces the generation of fines and dust during circulation, further improving process efficiency. Its optimized activity minimizes coke formation, leading to lower carbon dioxide emissions during regeneration. This not only enhances process sustainability but also reduces environmental impact. This combination of cost efficiency, operational stability, and environmental benefits makes Delion's catalyst a reliable and sustainable solution for industrial applications.

PHYSICAL & CHEMICAL PROPERTIES

Parameter	Unit	Specification
Form	-	sphere
Color	-	light grey
Mean diameter	mm	1.7
Bulk Density	g/ml	0.63 ±0.02
Crushing Strength	N/cm	>40
Al ₂ O ₃	%	>99.5
Active component		Pt

PROCESS CONDITIONS & PERFORMANCE

Element	Unit	Specification
Temperature	°C	500–550
WHSV	kg _{feed} /kg _{catalyst} ×h	2–4
H ₂ /HC	mol/mol	0.3-0.8
Catalyst life	years	≥4.0
Dust content	%/day	0.005-0.01
Isobutane conversion	%	42-48
Isobutene selectivity	%	89-93