

Catalyst for phenylacetylene Removal in Styrene

APPLICATION

The removal of phenylacetylene from the styrene stream is crucial in the recovery of styrene from cracked gasoline. Due to the similarity in physical and chemical properties between phenylacetylene (PhA) and styrene, efficiently separating them through conventional extractive distillation is challenging. As a result, selective hydrogenation is widely used to convert phenylacetylene into styrene while minimizing excessive hydrogenation to ethylbenzene.

Although phenylacetylene is present in very low concentrations, it significantly contributes to the color of the styrene. This catalyst plays a vital role in styrene production and C8 fraction refining processes, providing high selectivity, efficiency, and durability under mild operating conditions.

DESCRIPTION

The catalyst is based on high-purity alumina as the carrier, palladium as the active component, and structural additives, processed using specialized preparation technology. Proprietary high-dispersion control technology for the active ingredient, palladium, is utilized during manufacturing. The catalyst exhibits high thermal stability, a long service life, and reliable operational stability. The support's weak acidity provides excellent anti-coking performance and high selectivity. The highly dispersed reactive components ensure good low-temperature hydrogenation activity and enable rapid achievement of steady-state operation.

PHYSICAL & CHEMICAL PROPERTIES

Parameter	Unit	Specification
Form	-	sphere
Color	-	gray-black
Mean diameter	mm	2.2
Bulk Density	g/ml	0.65±0.05
Crushing Strength	N/cm	>40
Al ₂ O ₃	%	>99
Active component		Pd

PROCESS CONDITIONS & PERFORMANCE

Element	Unit	Specification
Pressure	MPa	0.1-0.5
Temperature	°C	40-80
WHSV	kg _{feed} /kg _{catalyst} ×h	0.5-2.0
Catalyst life	years	>3
PHA conversion	%	>90
Residual concentration of PhA	ppm	<100