FOCUSED ON YOUR NEEDS

Vanguard Catalyst will supply a replacement-in-kind that's delivered on time, within budget, with no surprises. Our standard products were designed to be a drop-in replacement for over 80% of the installed market. The physical and chemical characteristics were chosen to match the most common liquid phase hydrogenation and hydrocarbon oxidation catalysts in use today.

At your request, we will look beyond replacement-in-kind for an improved catalyst formulation. Vanguard Catalyst helps you address opportunities and issues - by providing not just catalysts, but solutions to problems.

CUSTOM PRODUCT

No two liquid phase hydrogenation reactors are the same. There is an extraordinary range of feed stocks, product specifications, and reactor configurations in today's hydrocarbon processing industry. No single catalyst is ideal for all applications and configurations. A limited product slate requires the operator to conform to the limitations of the supplier. Vanguard's catalysts are available in an extraordinary variation of shape, size, physical and chemical properties.

Catalyst size and shape affects catalyst performance because reactor hydraulics matter. Reactor performance can be improved by switching to other sizes or shapes. Vanguard stocks carrier in a variety of shapes and sizes. Many other shapes and sizes are available at your request.

With custom manufacturing, the metal concentration can be selected and controlled from one order to the next, no matter how large or small. Catalyst performance is influenced by carrier properties, metal content, and the method of metals deposition. The method of metal deposition for your catalyst is selected based on the performance requirements for your application for your reactor.

VANGUARD CATALYST	Versatile Palladium Catalyst	LP Selective Hydrogenation Catalyst	High Activity LP Hydrogenation Catalyst	Low ΔP Hydrogenation Catalyst	Promoted Selective Hydrogenation Catalyst	Aromatic Saturation Catalyst	Catalytic Oxidation Catalyst	Deoxo Catalyst	VP Selective Hydrogenation Catalyst
CATALYST NAME	**S-01**	**S-02**	**S-03**	**S-04**	**S-05**	**S-06**	**S-07**	**S-08**	**S-09**
Shape	Sphere	Sphere	Sphere	Sphere	Tablet	Tablet	Sphere	Sphere	Sphere
Size (mm)	2 - 4	2 - 4	1 - 3	3 - 5	5	5	3 - 5	2 - 4	3 - 5
CHEMICAL COMPOSITION									
Active Metal	Palladium	Palladium	Palladium	Palladium	Palladium	Platinum	Platinum	Palladium	Palladium
Percentage	0.30 %	0.40 %	0.40 %	0.30 %	0.20 %	0.50 %	0.30 %	0.50 %	0.05 %
Promoter	None	None	None	None	Silver	None	None	None	None
PHYSICAL PROPERTIES									
Bullk Density (g/L)	720	770	720	770	1150	720	770	770	660
BET Surface Area (m^2/g)	110	30	110	30	7	250	340	340	135
Pore Volume (mL/g)	0.5	0.6	0.5	0.6	0.2	0.3	0.4	0.4	0.5
Crush Strength (N)	90	45	45	45	170	35	160	160	60
APPLICATIONS									
MAPD Selective Hydrogenation	X	X		X	X				X
BD Selective Hydrogenation	X	X	X	X	X				
C4Ac Selective Hydrogenation					X				
Pyrolysis Gasoline 1st stg	X		X						
Olefin Saturation	X		X			X			
Aromatic Saturation						X	X		
Hydrocarbon Removal	X						X	X	
Hydrogen Oxidation	X						X	X	X
Oxygen Removal	X						X	X	X
Trace Acetylene Removal									X