

## HETEROGENEOUS PRECIOUS METAL CATALYSTS

### Characteristics of Support Material

Type	Activity	Surface Area
Activated Carbon	High	High (800 to 1000 m <sup>2</sup> /g)
Activated Alumina	Medium	Medium (200 to 1000 m <sup>2</sup> /g)
Calcium Carbonate (CaCO <sub>3</sub> )	Low	Low (Less than 10 m <sup>2</sup> /g)
Barium Sulphate (BaSO <sub>4</sub> )	Low	Low (Less than 10 m <sup>2</sup> /g)

### PRODUCT USP

- Catalyst are manufactured with different precious metals - Palladium, Platinum, Ruthenium & Rhodium and having different Metal Loading ranging from 1% to 20%.
- Unique characteristics
  - Supports like Activated Carbon, Alumina, Calcium Carbonate, Barium Sulphate
  - Surface Area, Pore size, Pore volume
  - Activity & Selectivity
- Every grade is designed based on its applications.
- Specifically designed for better selectivity towards different functional groups.

## HETEROGENEOUS PALLADIUM CATALYSTS

Grades	Description	Applications
NCAT 1110-2	2%Pd/C	+Hydrogenation of Aliphatic and Aromatic Nitro to amine
NCAT 1110-5	5%Pd/C	+Hydrogenation of CC triple bond to Alkyls
NCAT 1110-10	10%Pd/C	+Hydrogenation of Imines to amine
NCAT 1110-20 Pearlman's catalyst	20%Pd/C	+Debenzylation +e.g. Sertraline HCl, INPA, Valacyclovir
NCAT 1121-1	1%Pd/C	+Hydrogenation of Aromatic and Heteroaromatic Ring
NCAT 1121-2	2%Pd/C	+Hydrodehalogenation
NCAT 1121-5	5%Pd/C	+Debenzylation
NCAT 1121-10	10%Pd/C	+e.g. Nebivolol
NCAT 1171-5	5%Pd/C	+Debenzylation
NCAT 1172-5	5%Pd/C	+Cbz deprotection
NCAT 1130-5	5%Pd/C	+Nitrile to amine +Hydrogenation Heteroaromatic ring
NCAT 1134-5	5%Pd/C	+Hydrogenation of Aliphatic Ketone to alcohol
NCAT 1230-2.5	2.5%Pd/C	+Ketone to Alkyls (Hydrogenolysis)
NCAT 1230	5%Pd/C	+e.g. Lisinopril, Tamsulosin
NCAT 1140-5	5%Pd/C	+N, O- debenzylation
NCAT 1142-5	5%Pd/C	+Cbz deprotection
NCAT 1143-5	5%Pd/C	+Hydrodehalogenations
NCAT 1834-5	5%Pd/CaCO <sub>3</sub>	+Acid Chloride to Aldehydes +Isomerization
NCAT 1834L-5 Lindlar Catalyst	5%Pd/CaCO <sub>3</sub>	+Hydrogenation of C-C Triple bond to C-C double bond
NCAT 1611-0.3	0.3%Pd/Al	+Hydrogenation of CC Double bond
NCAT 1611-0.5	0.5%Pd/Al	+Hydrogenation of Aliphatic aldehydes/ketones to Alcohols
NCAT 1611-1	1%Pd/Al	+Dipentene to 3-p-Menthene
NCAT 1611-3	3%Pd/Al	+Isomerization

## HETEROGENEOUS PLATINUM CATALYSTS

Grades	Description	Applications
NCAT 2423-1	1%Pt/C	+Hydrogenation of Aliphatic and Aromatic Nitro to amine
NCAT 2231-3	3%Pt/C	+Hydrogenation of Aromatic Nitro to amine without dehalogenation
NCAT 2323-3	3%Pt/C	+Hydrogenation of CC double bonds
NCAT 2241-5	5%Pt/C	+Hydrogenation of Ketone to Alcohol
NCAT 2312-5	5%Pt/C	+Reductive Alkylation (Imine hydrogenation)
NCAT 7541	Pd+Pt	+Selective hydrogenation of Nitro to amine
NCAT 8120-1	1%Pt/C	+Selective hydrogenation of halogenated nitro compounds +Aromatic Nitro Phenol to corresponding Aminophenol
NCAT 2622-1	1%Pt/Alumina	+Aldehyde to Alcohol +CC double bond hydrogenation

## HETEROGENEOUS RUTHENIUM CATALYSTS

Grades	Description	Applications
NCAT 3111-3	3%Ru/C	+Aromatic ring hydrogenation +e.g. Ring Hydrogenation of Aniline to MCHA & DCHA
NCAT 3111-5	5%Ru/C	+PTBP to TBCH, OTBT to OBCH
NCAT 3611-3	3%Ru/Al	+Hydrogenation of fused aromatic ring
NCAT 3611-5	5%Ru/Al	+α-Pinene to cis-Pinane

## HETEROGENEOUS RHODIUM CATALYSTS

Grades	Description	Applications
NCAT 4111-5	5%Rh/C	Heteroaromatic Ring Hydrogenation

## FUEL CELL CATALYSTS

Grades	Description	Applications
NCAT FCb0P-Pl20	20%Pt/C/Black	Fuel Cell
NCAT FCb0P-Pl40	40%Pt/C/Black	