

Chimet Catalyst Kit



Chimet catalyst kit is made by supported Platinum Group Metals (PGMs) catalysts in the form of powder with use in slurry phase catalytic processes and in particular in hydrogenation of different functionalities in organic substrates.

Chimet catalyst kit constitutes an indispensable tool for the development of synthetic processes. All the samples in the Chimet catalyst kit are commercially available on a production scale.



H1306

Rhodium, 5% on activated carbon, reduced, 50% water wet [7440-16-6]

Recommended for a broad range of reactions commonly catalyzed by rhodium on carbon, such as hydrogenation of aromatic rings, pyridine rings, alkenes.



U0706

Ruthenium, 5% on activated carbon, reduced, 50% water wet [7440-18-8]

Recommended for a broad range of reactions commonly catalyzed by ruthenium on carbon, such as hydrogenation of aliphatic carbonyls, aromatic rings, sugars.



T0737

Platinum, 5% on activated carbon, reduced, 50% water wet [7440-06-4]

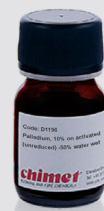
Recommended for a broad range of reactions commonly catalyzed by platinum on carbon, such as hydrogenation of alkenes, aliphatic carbonyls, nitro groups, halonitroaromatics, aromatic rings, pyridine rings, as well as reductive alkylation.



T0735

Platinum, 5% on activated carbon, reduced, dry [7440-06-4]

Recommended for a broad range of reactions commonly catalyzed by platinum on carbon, such as hydrogenation of alkenes, aliphatic carbonyls, nitro groups, halonitroaromatics, aromatic rings, pyridine rings, as well as reductive alkylation. To be used when water is detrimental to the reaction.



D1196

Palladium, 10% on activated carbon, unreduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, in particular for debenzylation and hydrogenolysis in general with molecular hydrogen.



D1124

Palladium, 10% on activated carbon, reduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, such as hydrogenation of alkenes, alkynes, aromatic carbonyls, aromatic nitro groups, aromatic rings, nitriles, as well as reductive alkylation and hydrodehalogenation.



D9230

Palladium, 5% on Barium Sulfate, reduced, dry [7440-05-3]

Recommended for a range of reactions commonly catalyzed by modified palladium catalysts, such as selective alkyne to alkene hydrogenations, Rosenmund reduction.



D9178

Palladium, 5% on Calcium Carbonate, reduced, dry [7440-05-3]

Recommended for a range of reactions commonly catalyzed by modified palladium catalysts, such as selective alkyne to alkene hydrogenations.



D1190

Palladium, 5% on activated carbon, reduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, such as hydrogenation of alkenes, alkynes, aromatic carbonyls, aromatic nitro groups, aromatic rings, nitriles, as well as reductive alkylation and hydrodehalogenation.



D1191

Palladium, 5% on activated carbon, unreduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, in particular for debenzylation and hydrogenolysis in general with molecular hydrogen.



D1295

Palladium, 5% on activated carbon, unreduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, in particular for debenzylation and hydrogenolysis in general.



D1102

Palladium, 5% on activated carbon, reduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, such as hydrogenation of alkenes, alkynes, aromatic carbonyls, aromatic nitro groups, aromatic rings, nitriles, as well as reductive alkylation and hydrodehalogenation.



D0279

Palladium, 5% on activated peat carbon, unreduced, 50% water wet [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, in particular for debenzylation and hydrogenolysis in general with an hydrogen transfer agent.



D1101

Palladium, 5% on activated carbon, reduced, dry [7440-05-3]

Recommended for a broad range of reactions commonly catalyzed by palladium on carbon, such as hydrogenation of alkenes, alkynes, aromatic carbonyls, aromatic nitro groups, aromatic rings, nitriles, as well as reductive alkylation and hydrodehalogenation. To be used when water is detrimental to the reaction.



Platinum Group Metals (PGMs) catalysts

For each type of reaction/functional group, each metal exhibits a characteristic catalytic behaviour. A metal is chosen for its ability to promote the desired reaction, but also its inability to promote the unwanted reaction(s).

Palladium is the most versatile of the PGMs. Usually, it is the preferred metal for the hydrogenation of alkynes, alkenes, carbonyls in aromatic aldehydes and ketones, nitro compounds, as well as reductive alkylation, hydrogenolysis and hydrodehalogenation reactions. Palladium catalysts can be supplied in either reduced or unreduced state. Unreduced form is often suggested because more active, unless for acidic reaction media.

Platinum is usually preferred for the hydrogenation of alkenes, aliphatic carbonyls, nitro groups, aromatic rings, pyridine rings, as well as reductive alkylation and selective hydrogenation of halonitroaromatics.

Rhodium is used for the hydrogenation of carbocyclic and heterocyclic aromatic rings and alkenes.

Ruthenium is used for the higher pressure hydrogenation of aromatic rings and aliphatic carbonyls.

Mixed PGMs catalysts, available upon request, may provide additional benefits to both activity and selectivity. Catalyst samples of the Chimet Catalyst Kit are made by any of the above mentioned PGM dispersed in the form of nanoparticles on proper porous supports.

For slurry phase catalytic processes, powdered catalysts must exhibit good suspension, high attrition resistance to reduce catalyst losses by fines generation, and a fast filtration to minimize work up time. Thus, Chimet catalyst supports are selected to

incorporate all these properties besides high activity and selectivity.

The main support is activated carbon powder due to the high chemical resistance and adsorption capacity (typical surface area ranges between 500 and 1500 m²/g). The combination of raw materials (e.g.: wood or peat) together with activation processes produces **activated carbons** with large variety of physical and chemical properties (pore volume, pore size distribution, surface area, presence of surface oxidic groups, etc.) that can be appropriately selected to obtain best compromise between activity and selectivity. Compared to other oxidic supports, activated carbon allows also an easy recovery of the precious metal by simple burning.

Calcium carbonate, characterized by low adsorption capacity and basic nature, is particularly suitable as a support for palladium, especially when a selectively poisoned catalyst is required.

Barium sulfate, characterized by low adsorption capacity is particularly suitable as a support for palladium, together with an in situ partial poison to improve the selectivity. The high density of this support requires powerful agitation of the reaction system to ensure uniform dispersal of the catalyst.

Alumina and other oxides can be used as support for PGMs in particular applications and are available upon request.

Carbon supported catalysts are more conveniently used in wet form as a *paste* that contains about 50–60% by weight of water which is held within the pores of the carbon. The *dry* form is used in reaction where the presence of water is not tolerated.

Chimet Catalyst Kit

5g × 6 10g × 8



For each type of reaction/functional group, each metal exhibits a characteristic catalytic behaviour. A metal is chosen for its ability to promote the desired reaction, but also its inability to promote the unwanted reaction(s).

Mixed PGMs catalysts, available upon request, may provide additional benefits to both activity and selectivity.



Chimet s.p.a.

52041 VICIOMAGGIO (AR) – ITALY
Via di Pesciola, 74

Tel. : +39 0575 441565
Fax : +39 0575 441424
Email: catalyst@chimet.com

14 Samples Kit for research and development

Speed up your R&D projects
with Chimet catalyst kit!

www.chimet.com