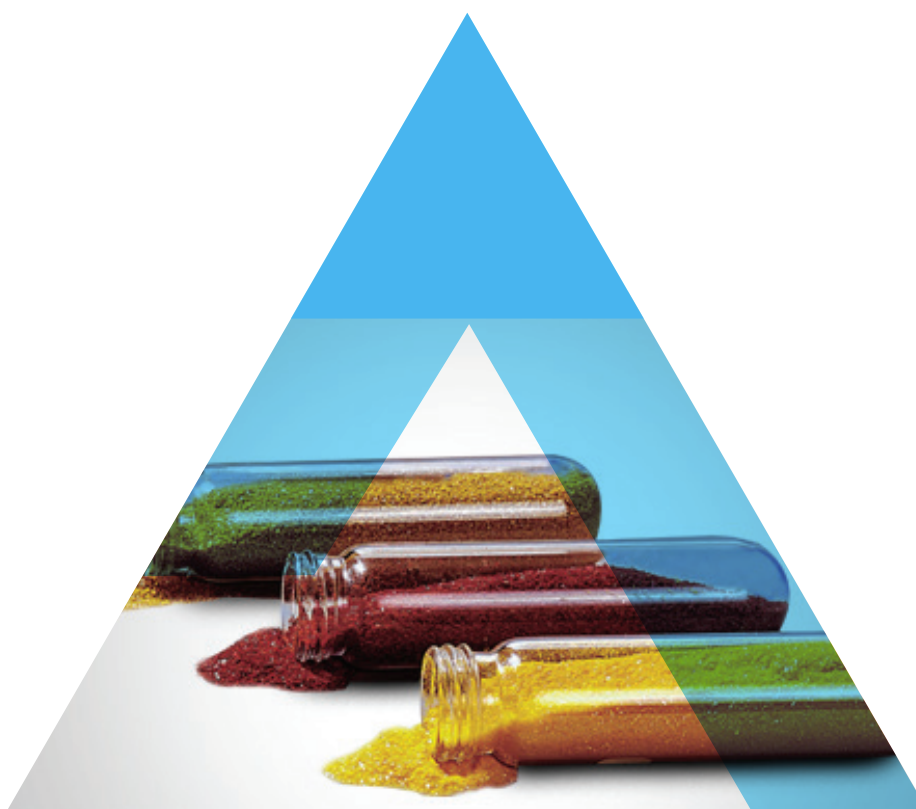




Hindustan Platinum

Precious Metal Homogeneous Catalyst





Hindustan Platinum



REFINING SERVICES | CATALYST & CHEMICALS | ELECTRICAL CONTACTS | NITRO TECHNOLOGIES | ENGINEERED PRODUCTS





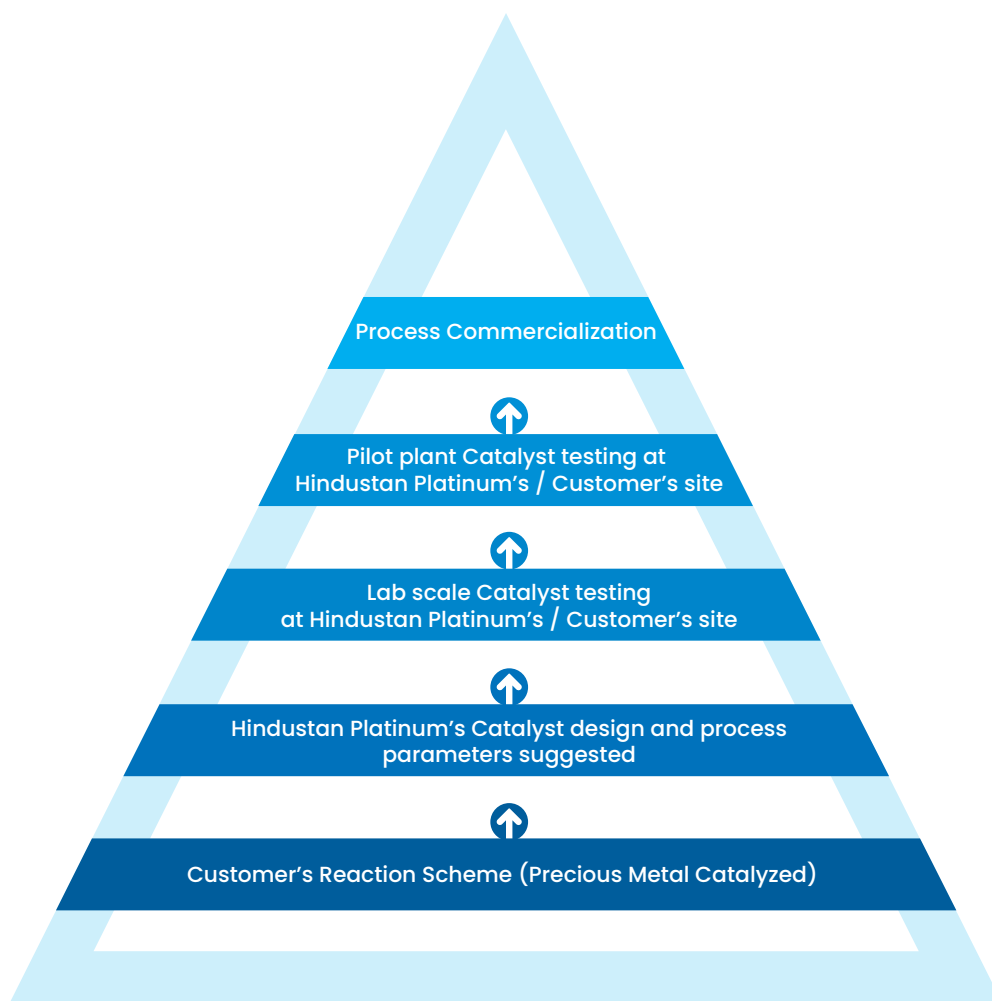
Hindustan Platinum

Founded in 1961, Hindustan Platinum has emerged as a premier manufacturer and refiner of precious metal products that find versatile industrial applications. Over six decades, Hindustan Platinum has cultivated a substantial customer base spanning across India, the USA, Europe, the UK, and Asia. With a global reach, the company has established itself as a key player in the precious metal products, processes, and services industry, offering a comprehensive spectrum from catalyst manufacturing to PGM refinery.

Hindustan Platinum oversees the retrieval of precious metals, starting from the moment we receive used catalysts until we deliver the recovered metals. We conduct a monthly inventory assessment for our clients, enabling them to stay informed about their stock levels. This approach also grants our clients the flexibility to utilize the provided metal for various applications, subsequently reducing the stock they need to maintain on their premises.

Catalyst Development Process

Hindustan Platinum collaborates closely with customers while maintaining strict confidentiality to create products that align with market demands. The catalyst development process is outlined below.



Recovery Cycle of Precious Metals

Hindustan Platinum monitors recovery of precious metals, from the time we receive used catalysts to the time we supply back recovered metals. A monthly check-up of the client's inventory allows customers to be up to date with their stock. This also gives clients, the flexibility to use the given metal for multiple products thereby reducing stock held at their end.





Platinum Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
1	Tetrakis (triphenyl phosphine) platinum (0)	14221-02-4	C ₇₂ H ₆₀ P ₄ Pt	1244.21	15.68%	Air, light, heat & moisture sensitive
2	Tris (dibenzylideneacetone) platinum (0)	11072-92-7	C ₅₁ H ₄₂ O ₃ Pt	897.96	21.70%	Air sensitive
3	Platinum (II) Acetyl Acetonate	15170-51-7	C ₁₀ H ₁₄ O ₄ Pt	393.3	49.60%	
4	Hydrogen hexahydroxyplatinate (IV)	51850-20-5	H ₃ O ₆ Pt	299.14	65.21%	Heat sensitive
5	Dichloro(1,5-cyclooctadiene) platinum (II)	12080-32-9	C ₈ H ₁₂ Cl ₂ Pt	374.16	52.13%	

Palladium Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
1	Dichloro Bis (Acetonitrile) palladium (II)	14592-56-4	C ₄ H ₆ Cl ₂ N ₂ Pd	259.43	41.01%	Heat sensitive
2	1,1'-Bis (Diphenylphosphino) Ferrocene-palladium(II)	72287-26-4	C ₃₄ H ₂₈ Cl ₂ FeP ₂ Pd	731.7	14.54%	Heat sensitive
3	1,1'-Bis (Diphenylphosphino) Ferrocene-palladium(II) Dichloromethane complex	95464-05-4	C ₃₅ H ₃₀ Cl ₄ FeP ₂ Pd	816.64	13.02%	Heat sensitive
4	Bis (Dibenzylideneacetone) palladium (0)	32005-36-0	C ₃₄ H ₂₈ O ₂ Pd	575.02	18.50%	Air, heat & moisture sensitive
5	Tris (Dibenzylideneacetone) -Dipalladium-chloroform adduct	52522-40-4	C ₅₂ H ₄₃ Cl ₃ O ₃ Pd ₂	1035.1	20.55%	
6	Tris(DiBenzylideneacetone) Dipalladium (0)	51364-51-3 52409-22-0	C ₅₁ H ₄₂ O ₃ Pd ₂	915.72	23.23%	Air and moisture sensitive
7	Dichloro Bis(Triphenyl phosphine) Palladium(II) dichloride	13965-03-2	C ₃₆ H ₃₀ Cl ₂ P ₂ Pd	701.9	15.15%	
8	Tetrakis(triphenyl phosphine) Palladium(0)	14221-01-3	C ₇₂ H ₆₀ P ₄ Pd	1155.56	9.20%	Air, light and heat sensitive
9	Bis(Benzonitrile) palladium(II) Chloride	14220-64-5	C ₁₄ H ₁₀ Cl ₂ N ₂ Pd	383.57	27.73%	Heat sensitive
10	Palladium (II) acetyl acetonate	14024-61-4	C ₁₀ H ₁₄ O ₄ Pd	304.64	34.92%	Heat sensitive
11	Palladium Acetate	3375-31-3	C ₄ H ₆ O ₄ Pd	224.51	47.40%	Heat sensitive
12	Dichloro Bis (Ditertbutyl phenyl phopsphine) palladium (II)	34409-44-4	C ₂₈ H ₄₆ Cl ₂ P ₂ Pd	621.94	17.10%	Air, light and heat sensitive
13	Dichloro [9,9-dimethyl-4,5-bis (diphenylphosphino) xanthene] palladium	205319-10-4	C ₃₉ H ₃₂ Cl ₂ OP ₂ Pd	755.94	14.07%	Air, light and heat sensitive
14	Dichloro [1,1-Bis (Ditertbutyl phopsphinoferrocene) palladium (II)	95408-45-0	C ₂₆ H ₄₄ Cl ₂ P ₂ FePd	651.75	16.32%	Air, light and heat sensitive
15	Allyl Palladium (II) Chloride Dimer	12012-95-2	C ₆ H ₁₀ Cl ₂ Pd ₂	365.85	58.15%	Heat sensitive
16	Bis Tri tertbutyl Phosphine Pd (0)	53199-31-8	C ₂₄ H ₅₄ P ₂ Pd	511.05	20.81%	Air, light and heat sensitive
17	Dichloro (1,5-Cyclooctadine) Palladium (II)	12107-56-1	C ₈ H ₁₂ Cl ₂ Pd	285.51	37.26%	Hygroscopic
18	Dibromo (1,5-Cyclooctadine) Palladium (II)	12145-47-0	C ₈ H ₁₂ Br ₂ Pd	374.41	28.40%	Air, light and heat sensitive
19	[1,2-Bis (diphenylphosphino) ethane] dichloropalladium (II)	19978-61-1	C ₂₆ H ₂₄ Cl ₂ P ₂ Pd	575.74	18.40%	Hygroscopic
20	trans -Benzyl(chloro) bis (triphenylphosphine) palladium(II)	22784-59-4	C ₄₃ H ₃₇ ClP ₂ Pd	757.58	14.04%	Heat Sensitive



Palladium Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
21	Bis [1,2- bis (diphenylphosphino) ethane] palladium(0)	31277-98-2	$C_{52}H_{48}P_4Pd$	903.25	11.77%	Air, light and heat sensitive
22	(1,3 -Bis (diphenylphosphino) propane) palladium(II) chloride	59831-02-6	$C_{27}H_{26}Cl_2P_2Pd$	589.77	18.04%	Air sensitive
23	1,4 -Bis(diphenylphosphino) butane-palladium(II) chloride	29964-62-3	$C_{28}H_{28}Cl_2P_2Pd$	603.8	17.60%	Air, and moisture sensitive
24	2,5-Norbornadiene Palladium(II) Dichloride	12317-46-3	$C_7H_8Cl_2Pd$	269.4	39.40%	Air sensitive
25	Palladium(II) trifluoroacetate	42196-31-6	$(CF_3COO)_2Pd$	332.45	32.01%	Heat and moisture sensitive
26	[(R) - (+) - 2,2' - Bis(diphenylphosphino) - 1,1' - binaphthyl]palladium(II) chloride	115826-95-4	$C_{44}H_{32}Cl_2P_2Pd$	800	13.30%	Air sensitive
27	Dichlorobis(tricyclohexylphosphine) palladium(II)	29934-17-6	$C_{36}H_{66}Cl_2P_2Pd$	738.18	14.40%	Air and moisture sensitive
28	Dichlorobis(tri - o - tolylphosphine) palladium(II)	40691-33-6	$C_{42}H_{42}Cl_2P_2Pd$	786.06	13.53%	Air, heat and moisture sensitive
29	Dichloro[1,1' - bis(diphenylphosphino) ferrocene] palladium(II), complex with acetone	851232-71-8	$C_{34}H_{28}Cl_2FeP_2Pd \cdot (CH_3)_2CO$	787.81	13.50%	Heat sensitive
30	$Pd(Amphos)_2Cl_2$	887919-35-9	$C_{32}H_{36}Cl_2NP_2Pd$	708.07	15.02%	Heat sensitive
31	Palladium(π - cinnamyl) chloride dimer	12131-44-1	$C_{18}H_{18}Cl_2Pd_2$	518.08	41.00%	Air & heat sensitive
32	Dichloro[Bis(2 - (Diphenyl phosphino) ether) Palladium (II)]	205319-06-8	$C_{36}H_{28}Cl_2OPd_2$	715.88	14.86%	Air and moisture sensitive
33	Chloro (Tri Tert Butylphosphin)(2 - Amino - 1, 1- biphenyl - 2- l)Palladium(II)	1375325-71-5	$C_{24}H_{37}ClNPd$	512.4	20.76%	Air sensitive
34	Bis(triphenylphosphine)palladium(II) acetate	14588-08-0	$C_{40}H_{36}OP_2Pd$	749.09	14.20%	Heat sensitive
35	Dichloro[(R)-(-)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl] palladium(II)	115826-95-4	$C_{44}H_{32}Cl_2P_2Pd$	800	13.30%	Air & heat sensitive
36	Dichloro[(S)-(-)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl] palladium(II)	127593-28-6	$C_{44}H_{32}Cl_2P_2Pd$	800	13.30%	Air & heat sensitive

Rhodium Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
1	Rhodium (II) Octanate	73482-96-9	$C_{32}H_{60}ORh_2$	778.63	26.43%	
2	Rhodium (II) Acetate	15956-28-2	$C_8H_{12}ORh_2$	441.99	46.56%	
3	Chlorotris(triphenylphosphine) rhodium (I) (Wilkinson Catalyst)	14694-95-2	$C_{54}H_{45}ClP_3Rh$	925.23	11.12%	Air & heat sensitive
4	1,5 - Cyclooctadiene Rhodium(I) Chloride dimer (98%)	12092-47-6	$C_{16}H_{24}Cl_2Rh_2$	493.08	40.99%	
5	Rhodium Norbornadiene Dichloride	12257-42-0	$C_{14}H_{16}Cl_2Rh_2$	460.99	44.64%	Air and moisture sensitive
6	Rhodium Norbornadiene Trifluoroborate	36620-11-8	$C_{14}H_{16}RhBF_4$	373.99	27.51%	Air and moisture sensitive
7	Hydridotetrakis(triphenylphosphine) Rhodium	18284-36-1	$C_{72}H_{61}P_4Rh$	1153.12	8.90%	
8	Bis(1,5 - cyclooctadiene)rhodium(I) tetrafluoroborate	35138-22-8	$C_{16}H_{24}BF_4Rh$	406.07	25.33%	Air and moisture sensitive
9	Dichloro(pentamethylcyclopentadienyl) rhodium(III) dimer	12354-85-7	$C_{20}H_{30}Cl_4Rh_2$	618.08	33.30%	
10	Carbonylchlorobis(triphenylphosphine) rhodium(I)	13938-94-8	$C_{37}H_{30}ClOPRh$	690.94	14.90%	Heat sensitive



Rhodium Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
11	Bis (cyclooctadiene) dihydroxo dirhodium	73468- 85- 6	$C_{16}H_{26}O_2Rh_2$	456.19	45.11%	Air and moisture sensitive
12	Tris triphenylphosphine rhodium carbonyl hydride(RODRIDO)	17185- 29- 4	$C_{55}H_{46}OPRh$	918.8	11.20%	Air and moisture sensitive
13	Acetylacetonato dicarbonyl rhodium (I) (CARAC)	14874- 82- 9	$C_7H_7O_4Rh$	258.04	39.90%	Air sensitive
14	Carbonyl - 2,4 - pentandionato triphenylphosphine Rhodium(I) (ROPAC)	25470- 96- 6	$C_{24}H_{22}O_3PRh$	493.32	20.85%	Heat sensitive
15	Pentamethylatedcyclopentdiene Rhodium chloride (SS)TsDPEN	219944- 99- 7	$C_{31}H_{36}N_2ClO_2SRh$	639.06	16.10%	Heat sensitive
16	Pentamethylatedcyclopentdiene Rhodium chloride (RR)TsDPEN	223392- 99- 2	$C_{31}H_{36}N_2ClO_2SRh$	639.06	16.10%	Heat sensitive
17	Rhodium(III) acetylacetonate	14284- 92- 5	$C_{15}H_{21}O_6Rh$	400.23	25.71%	

Ruthenium Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
1	Ruthenium- p- Cymene Dimer	52462- 29- 0	$C_{20}H_{28}Cl_4Ru_2$	612.39	33.00%	
2	Rhuthenium Acetyl acetate	14284- 93- 6	$C_{15}H_{21}O_6Ru$	398.39	25.36%	Heat sensitive
3	Ruthenium- p- Cymene- s- Binap	130004- 33- 0	$C_{54}H_{46}Cl_2P_2RuP$	928.87	10.88%	Air and moisture sensitive
4	RuCl(p- cymene)[(S,S) - Ts- DPEN]	192139- 90- 5	$C_{31}H_{35}ClN_2O_2RuS$	636.21	15.88%	Air and moisture sensitive
5	RuCl(p- cymene)[(R,R) - Ts- DPEN]	192139- 92- 7	$C_{31}H_{35}ClN_2O_2RuS$	636.21	15.88%	Air and moisture sensitive
6	Ruthenium(II) - tris(triphenylphosphine) dichloride	15529- 49- 4	$C_{54}H_{45}Cl_2P_3Ru$	958.83	10.50%	Air and moisture sensitive
7	Dichloro(1,5 - cyclooctadiene) ruthenium(II), Polymer	50982- 12- 2	$C_8H_{12}Cl_2Ru$	280.16	36.06%	Hygroscopic
8	Diacetato[(S) - (-) - 2,2 bis(diphenylphosphino)- 1,1'- binaphthyl] ruthenium(II)	261948- 85- 0	$C_{48}H_{38}O_4P_2Ru$	841.83	12.00%	Air, light, heat and moisture sensitive

Iridium Homogeneous Catalyst

Sr. No	Product Name	CAS	Mol.Form	Mol. Wt.	% Metal Content	Properties
1	Iridium Methoxy cyclooctadiene dimer	12148- 71- 9	$C_{18}H_{30}Ir_2O_2$	662.87	58.01%	Heat sensitive
2	Iridium cyclooctadiene dichloride dimer	12112- 67- 3	$C_{72}H_{60}Cl_2Ir_2$	671.7	57.10%	Heat sensitive



Hindustan Platinum

Hindustan Platinum Private Limited

R & D Lab: C 122, TTC Industrial Area, Pawane, Navi Mumbai 400703, India.

Corp. Office: VIOS Tower, 22nd Floor, New Cuffe Parade, Mumbai 400 037, India.

Tel: +91 22 6922 5000 | E-mail: cc.sales@hp.co.in

www.hindustanplatinum.com