Name	MW	bp °C/mm (mp)	D_4^{20}	n_D^{20}

RHODIUM

Rh

Atomic number
45

Atomic weight
102.90550

CAS number
7440-16-6

Boiling point
3,727˚C

Melting point
1,966˚C

Specific gravity (25˚C)
12.41

Crystal form
Face-centered cubic

Electrical resistivity (20˚C)
4.33 μΩ·cm

Enthalpy of melting
21.6 kJ/mol

Enthalpy of vaporization
494 kJ/mol

Ionization potential
(spectral) 7.88 eV (I)
18.08 eV (II)
(aqueous) -0.76 V (+3)

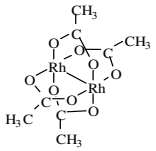
Oxidation states
0, 1, 2, 3, 4, 5, 6

Electronegativity, Pauling
2.2

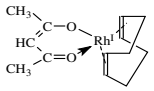
Specific heat (25˚C)
0.058 cal/g K

Thermal conductivity (25˚)
150 W/(m K)

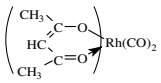
COMPOUNDS



CXRH010
RHODIUM(II) ACETATE, dimer — 441.99
$C_8H_{12}O_8Rh_2$
Soluble: water — Green-black crystals
Homogeneous catalyst for the cyclopropanation of olefins.[1]
1. Rokach, J. et al. *Tetrahedron Lett*. **1983**, *24*, 5185.
F&F: Vol. 5, p 571; Vol. 8, p 434; Vol. 13, p 266; Vol. 15, p 278.
HYDROLYTIC SENSITIVITY: 0: forms stable aqueous solutions
[15956-28-2] EC 240-084-8 HMIS: 2-1-0-X 0.5g ¥33,500 2.5g ¥121,000



AKR662
RHODIUM (1,5-CYCLOOCTADIENE)-2,4-PENTANE-DIONATE — 310.19 (138-9)
$C_{13}H_{19}O_2Rh$ — Color: orange
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents
[12245-39-5] HMIS: 2-2-1-X store <5°C 1.0g ¥77,000



AKR663
RHODIUM(I) DICARBONYL 2,4-PENTANEDIONATE — 258.04 (144-7)
$C_7H_7O_4Rh$
Soluble: hexane — Color: green
Employed in preparation of rhodium films by PECVD.[1]
1. Etspuler, A. et al. *Appl. Phys. A* **1989**, *48*, 373.
[14874-82-9] EC 238-947-9 HMIS: 3-1-1-X 0.5g ¥32,000 2.5g ¥115,000

$[(C_6H_5)_3P]RhH{\cdot}CO$

INRH065
RHODIUM(I) HYDRIDOCARBONYLTRIS-(TRIPHENYLPHOSPHINE) — 918.79 (138 dec)
$C_{55}H_{46}OP_3Rh$
Hydroformylation catalyst — Color: light yellow
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[17185-29-4] EC 241-230-3 HMIS: 3-2-1-X 1.0g ¥36,000 5g ¥125,000

$\mathbf{[(C_4H_9)_2S]_3RhCl_3}$

INRH078
TRIS(DIBUTYLSULFIDE)RHODIUM TRICHLORIDE, 20-22% in toluene — 648.16 — 0.91
$C_{24}H_{54}Cl_3RhS_3$
Inhibition resistant hydrosilylation catalyst for silicone coatings.[1]
Catalyst for preparation of silyl ketene acetals.[2]
1. Armstrong, S. Eur. Patent 510,847, 1992.
2. Bajzer, W. et al. Eur. Patent 219,949, 1986.
[55425-73-5] TSCA EC 259-633-8 HMIS: 3-4-0-X 5g ¥28,500 25g ¥101,000

$[(C_6H_5)_3P]_3RhCl$

INRH082
TRIS(TRIPHENYLPHOSPHINE)RHODIUM(I) CHLORIDE — 925.23 >170 dec
WILKINSON'S CATALYST
$C_{54}H_{45}ClP_3Rh$ — Soluble: chloroform, warm acetone, ethanol
Hydroboration, hydrosilylation catalyst
Catalyst for dehydrogenative coupling of silanes with olefins
Forms alkyl chlorides by decarbonylation of acid halides
Forms alkanes by decarbonylation of aldehydes
HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions
[14694-95-2] TSCA EC 238-744-5 HMIS: 3-1-0-X 1.0g ¥21,800 5g ¥73,500

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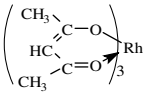
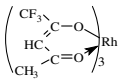
Name	MW	bp °C/mm (mp)	D_4^{20}	n_D^{20}
AKR665				
 RHODIUM(III) 2,4-PENTANEDIONATE	400.24	(263-4)		
$C_{15}H_{21}O_6Rh$		(240 / 1 sub)		
Soluble: chloroform, acetone, ether, pentane	Color: yellow			
Decomposes >280° to rhodium metal				
Catalyst with hydroxypyridine for formation of ethylene glycol from CO/H_2.[1]				
Oxidizes alkanes to trifluoroacetyl esters with H_2O_2/CF_3CO_2H.[2]				
1. Duranleau, L. U.S. Patent 4,421,863, 1983.				
2. Nomura, K. et al. *J. Chem. Soc., Chem. Commun*. **1994**, 129.				
[14284-92-5] TSCA EC 238-192-5 HMIS: 2-1-0-X		0.5g ¥27,000	2.5g ¥94,500	
AKR667				
 RHODIUM 1,1,1-TRIFLUORO-2,4-PENTANEDIONATE	562.14	(185-6 dec)		
$C_{15}H_{12}F_9O_6Rh$				
Soluble: methanol, chloroform	Color: yellow crystals			
[67145-51-1] HMIS: 3-1-0-X		0.5g ¥36,500		

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