Molecular mass: 192.217

Atomic number: 77

Melting point: 2410° C

Iridium

Compound	Formula	Product Code	Metal Contained	CAS
Ammonium hexachloroiridate(IV)	$(NH_4)_2[IrCl_6]$	89.720.010	appr. 43 %	16940-92-4
Di-μ-chloro-bis[(cycloocta-1,5-diene)iridium(I)]	$[\{Ir(cod)\}_2(\mu\text{-}Cl)_2]$	89.720.018	appr. 57 %	12112-67-3
Dihydrogen hexachloroiridate(IV) hydrate"; "Chloroiridic Acid"; "CIA"	$H_2[IrCl_6] \cdot n\ H_2O$	89.720.005	appr. 43 %	16941-92-7
Dihydrogen hexachloroiridate(IV) *solution;* "Chloroiridic Acid"; "CIA"	$H_2[IrCl_6]$	89.720.012	up to appr. 25 %	16941-92-7
Iridium acetate	"$Ir(OAc)_x$"	89.730.014	appr. 48 %	
Iridium(III) chloride	$IrCl_3$	89.720.003	appr. 64 %	10025-83-9
Iridium(III) chloride hydrate	$IrCl_3 \cdot n\ H_2O$	89.720.015	appr. 54 %	14996-61-3
Iridium(III) chloride *solution*	$IrCl_3$	89.880.093	appr. 10 %	10025-83-9
Iridium(IV) chloride hydrate	$IrCl_4 \cdot n\ H_2O$	89.720.004	appr. 53 %	10025-97-5
Iridium(IV) oxide	IrO_2	89.720.006	appr. 86 %	12030-49-8
Iridium(IV) oxide hydrate	$IrO_2 \cdot n\ H_2O$	89.720.007	appr. 80 %	30980-84-4
Potassium hexachloroiridate(IV)	$K_2[IrCl_6]$	89.720.009	appr. 39 %	16920-56-2
Sodium hexachloroiridate(IV) hydrate	$Na_2[IrCl_6] \cdot n\ H_2O$	89.720.008	appr. 34 %	19567-78-3
Tris(acetylacetonato)iridium(III) "Iridium Acetylacetonate"	$[Ir(acac)_3]$	89.720.019	appr. 37 %	15635-87-7

Iridium – Anodes for the Production of Chlorine and Sodium Hydroxide Solution

Molecular Mass	Color
441.00	black
671.71	orange-red
406.93 a.c.	black
	brown
	green
298.56	green
298.56 a.c.	green
	dark brown
334.01 a.c.	black
224.20	black
224.20 a.c.	black
483.12	black
450.90 a.c.	black
489.55	yellowish green

Iridium compounds are used widely in electrochemistry: In a standard process called "Chlor-Alkali Electrolysis", so-called Dimensionally Stable Anodes ("DSA") mediate the combined production of chlorine and sodium hydroxide solution (caustic soda). These electrodes are normally made of expanded titanium metal showing a lattice structure and are coated with resistant iridium(IV) oxide (and ruthenium(IV) oxide).

For electrochemical applications iridium chlorides as well as dihydrogen hexachloroiridate(IV) solution ("CIA") are commercially available iridium sources.

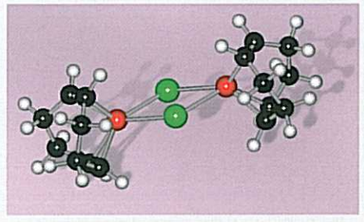
"CIA" is also applied to the impregnation of catalyst supports in the chemical industries (e.g. for hydrogenations or – as co-catalyst – for petrochemical reforming). Iridium can also be found in some automotive catalytic converters.

The "Cativa Process", which is based on homogeneous Ir catalysis, is a recent large-scale process for the production of acetic acid by carbonylating methanol (cf. rhodium).

The asymmetric hydrogenation mainly of C=N bonds is another field for homogeneous iridium catalysts. Heraeus has considerable experience in the manufacture of the suitable precursor – di-μ-chloro-bis[(cycloocta-1.5-diene)iridium(I)] – on a commercial scale and in highest quality.

Market demand for low-halide iridium compounds for catalysis, which were previously not available on a commercial scale, is increasing. Heraeus can offer tris(acetylacetonato)iridium(III).

Doping with iridium can also sensitize photographic film emulsions. A typical iridium source for that application is sodium hexachloroiridate(IV) hydrate.



Molecular structure of di-μ-chloro-bis[(cycloocta-1.5-diene)iridium(I)]

Manufacture of anodes for industrial electrolysis