Iridium Catalysts
for Hydrogen Isotope Exchange & Catalytic Hydrogenation Processes

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77-1845  Chloro(1,5-cyclooctadiene)[4,5-dimethyl-1,3-bis(2,4,6-trimethylphenyl)imidazol-2-ylidene] iridium(I), min. 98% (1118917-09-1)
C₃₁H₄₀ClIrN₂; FW: 668.33; yellow pwdr.; m.p. >200°C (dec)

Technical Note:
1. Catalyst used for C-H Activation and Deuteration of Primary Sulfonamides.

References:

77-1850  Dimethylphenylphosphine(1,5-cyclooctadiene)[1,3-bis(2,4,6-trimethylphenyl)imidazol-2-ylidene] iridium(I) tetrakis(3,5-bis(trifluoromethyl)phenylborate, min. 98% (1884137-92-1)
C₃₇H₄₇IrN₂P(Ph)Me₂; FW: 1606.18; red solid; m.p. 146-149°C

Technical Note:
1. Catalyst for the chemoselective hydrogenation of olefins.

References:
77-1830  (Dimethylphenylphosphine)(1,5-cyclooctadiene)[1,3-bis(2,4,6-trimethylphenyl)imidazol-2-ylidene] iridium(I) hexafluorophosphate, min. 98%  (1019853-03-2) 
[Ir(C₈H₁₁)(C₂₃H₂₄N₂)(C₈H₁₁,P)]PF₆; FW: 887.93; red xtl.

Technical Notes:
1. Highly active iridium(I) complex used for catalytic hydrogen isotope exchange.
2. Highly active iridium(I) complex used for catalytic hydrogenation processes.

References:

77-1810  Tribenzylphosphine(1,5-cyclooctadiene)[1,3-bis(2,4,6-trimethylphenyl)imidazol-2-ylidene]iridium(I) hexafluorophosphate, min. 98%  (1019853-01-0) 
[Ir(C₈H₁₁)(C₂₃H₂₄N₂)(C₂₁H₂₁P)]PF₆; FW: 1054.15; red xtl.

Technical Notes:
1. Catalyst used for hydrogen isotope exchange processes.
2. Catalyst for selective hydrogenation of carbon-carbon multiple bonds.

References:

77-1840  Triphenylphosphine(1,5-cyclooctadiene)[1,3-bis(2,4,6-trimethylphenyl)imidazol-2-ylidene] iridium(I) tetrakis(3,5-bis(trifluoromethyl)phenylborate, min. 98%  (1628471‑64‑6) 
[C₄7H₅IrN₂P(C₃₂H₁₂BF₂₄)₄]; FW: 1730.32; red solid; m.p. > 156°C (dec)

Technical Notes:
1. Catalyst used for hydrogen isotope exchange processes (Ref. 1, 5).
2. Catalysis of selective ortho-directed C-H activation with unprotected 2-aryltetrazoles are described (Ref. 2).
3. Catalyst for the chemoselective hydrogenation of olefins (Ref. 3).
4. Catalyst for the ortho-directed deuterium labelling of aromatic esters (Ref. 4).

References:
2. Chemical Communications, 2016, 52(40), 6669-6672.

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77-1825 Triphenylphosphine(1,5-cyclooctadiene)[1,3-bis(2,4,6-trimethylphenyl)imidazol-2-ylidene]iridium(I) hexafluorophosphate, min. 98% (1019853-00-9) [Ir(C\(_8\)H\(_{12}\))(C\(_{21}\)H\(_{24}\)N\(_2\))(C\(_{18}\)H\(_{15}\)P)]PF\(_6\)^{+}; FW: 1012.08; red xtl.

Technical Notes:
1. Catalyst used for hydrogen isotope exchange processes.
2. Catalyst for selective hydrogenation of carbon-carbon multiple bonds.

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\begin{align*}
\text{Ir} & \quad \text{H}^+ & \quad \text{Ir} \\
\text{X} & \quad \text{Y} & \quad \text{X}
\end{align*}
\]

Iridium-catalysed ortho-hydrogen isotope exchange

\[
\begin{align*}
\text{Br} & \quad \text{77-1825, 0.5 mol\%, H}_2, \text{DCM 1h} & \quad \text{Br}
\end{align*}
\]

100% yield

References: