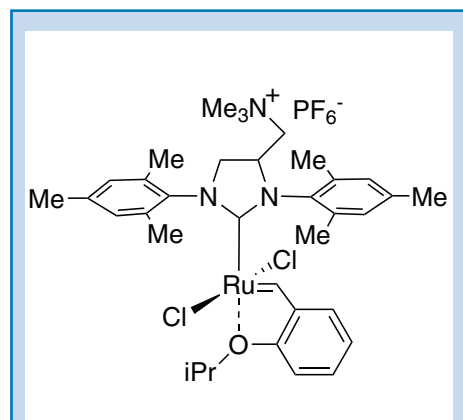


Sold in collaboration with Apeiron Synthesis, Inc.

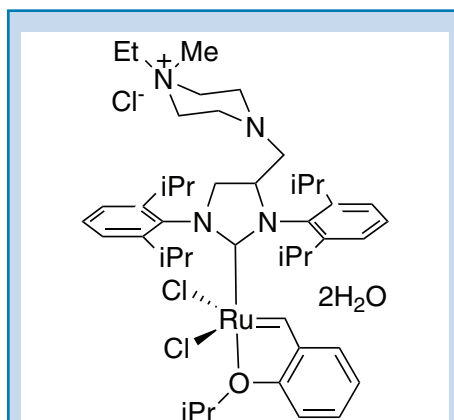
96-0440 Apeiron Ammonium Catalysts Kit

Complexes from our Ammonium Catalysts Kit can be applied to metathesis in neat water [44-0768 (AquaMet), 44-0765 (StickyCat Cl), 44-0795 (nitro-StickyCatCl)], ethyl acetate/dimethyl carbonate [44-0755 (StickyCat PF6), 44-0797 (FixCat PF6)] or heterogeneously after catalyst deposition on solid support [44-0768 (AquaMet), 44-0759 (FixCat)]. These catalysts are especially recommended for applications in which low levels of residual ruthenium is desired.

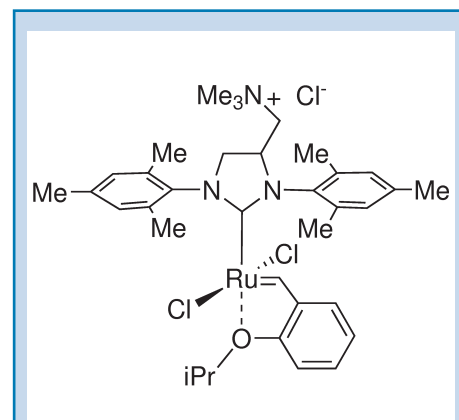
Components also available for individual sale. Contains the following:



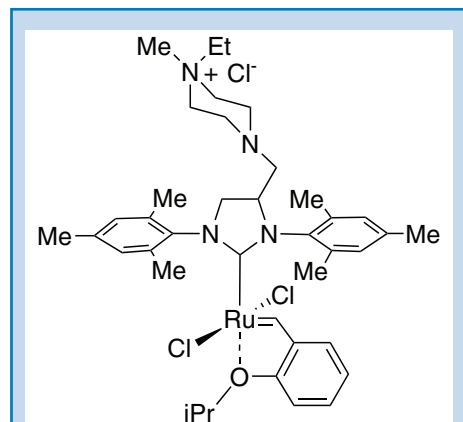
44-0755 **StickyCat PF6** **100mg**



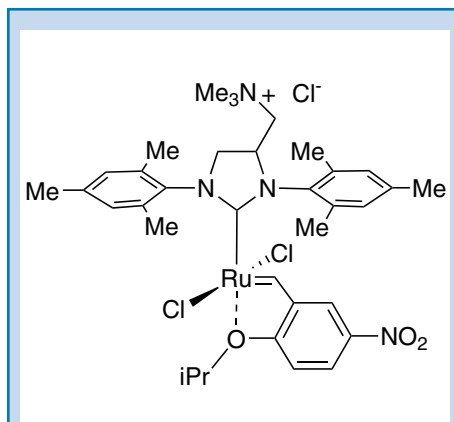
44-0759 **FixCat** **100mg**



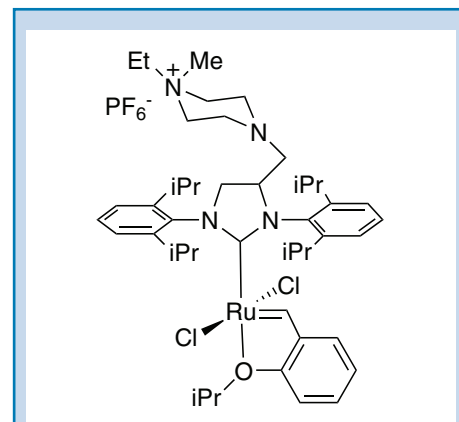
44-0765 **StickyCat Cl** **100mg**



44-0768 **AquaMet** **100mg**



44-0795 **nitro-StickyCat Cl** **100mg**



44-0797 **FixCat PF6** **100mg**

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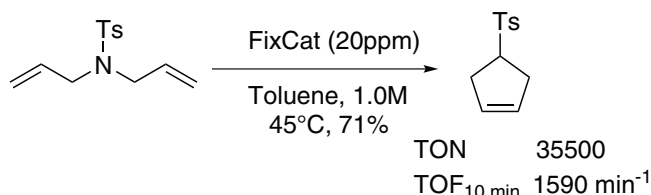
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44-0759 (1,3-Bis(2,6-diisopropylphenyl)-4-((4-ethyl-4-methylpiperzain-1-ium-1-yl)methyl)imidazolidin-2-ylidene) (2-isopropoxybenzylidene)ruthenium(II)dichloride chloride dihydrate FixCat (179947-97-9) 100mg
500mg
C₄₅H₆₇Cl₂N₄ORuCl 2(H₂O); FW: 887.47 (923.50); green powdr.
(store cold)
Note: U.S. Patent 61/603,790; PCT/EP2013/053967

Technical Note:

1. Fixcat is a stable olefin metathesis initiator with very good solubility in neat water. The product efficiently promotes ring-closing, cross, and enyne metathesis reactions of water soluble substrates. Suitable for homogeneous and heterogeneous in batch or flow setup.

The Fixcat structure was also optimized to serve as a versatile and very stable catalyst, easily immobilized on solid supports. In its SCA-15 supported version, it showed exceptional efficiency in promoting ring-closing and cross-metathesis reactions, in both batch and continuous flow setups. Fix Cat is also applicable as a homogeneous catalyst, where compatible solvents include alcohols and halogenated solvents.



Tech. Note (1)
Ref. (1)

References:

1. *ChemSus Chem.*, **2015**, *8*, 4139.

44-0755 1,3-Bis(2,4,6-trimethylphenyl)-4-[(trimethylammonio)methyl]imidazolidin-2-ylidene)-(2-i-propoxybenzylidene)dichlororuthenium(II) hexafluorophosphate StickyCat PF6 100mg
500mg
C₃₅H₄₈Cl₂F₆N₃OPRu; FW: 843.72; green powdr.
air sensitive, (store cold)
Note: U.S. Patent 61/603,790, PCT/EP2013/053967.

Technical Note:

1. Catalyst for metathesis applications.

References:

1. *Angew. Chem.*, **2017**, *129*, 1001–1006.

44-0795 1,3-Bis(2,4,6-trimethylphenyl)-4-[(trimethylammonio)methyl]imidazolidin-2-ylidene)-(2-i-propoxy-5-nitrobenzylidene)dichlororuthenium(II) chloride nitro-StickyCat Cl (1415661-45-8) 100mg
500mg
C₃₅H₄₇Cl₃N₄O₃Ru; FW: 779.20; green powdr.
air sensitive, (store cold)
Note: Recommended storage 2-8°C. U.S. Patent 61/603,790 PCT/EP2013/053967.

Technical Note:

1. Catalyst for olefin metathesis applications.

References:

1. *U.S. Pat. Appl. Publ.* **2013**, US 20130225807 A1 20130829.
2. *Green Chemistry*, **2012**, *14*(12), 3264-3268.

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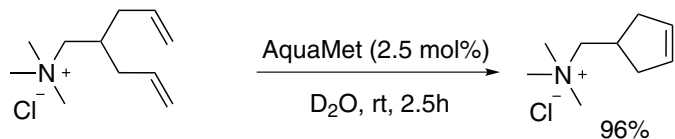
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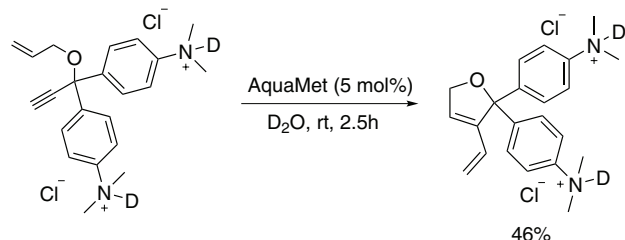
44-0768 [1,3-Bis(2,4,6-trimethylphenyl)-4-[(4-ethyl-4-methylpiperazin-1-ium-1-yl)methyl]imidazolidin-2-ylidene]-(2-*i*-propoxybenzylidene)dichlororuthenium(II) chloride **AquaMet** (1414707-08-6) 100mg
500mg
C₃₉H₅₅Cl₃N₄ORu; FW: 803.31; green powdr.
Note: U.S. Patent 61/603,790,PCT/EP2013/053967. Aperion Ruthenium Metathesis Catalyst Kit component.

Technical Notes:

1. This is an highly active catalyst for olefin metathesis in water.
2. This catalyst is used as linker free heterogeneous metathesis catalysts after immobilization on silica or siliceous mesoporous molecular sieves. TON of ~16000 for the RCM of (-)-β-citronellene are reported. (Ref. 2)



Tech. Note (1)
Ref. (1)



Tech. Note (1)
Ref. (1)

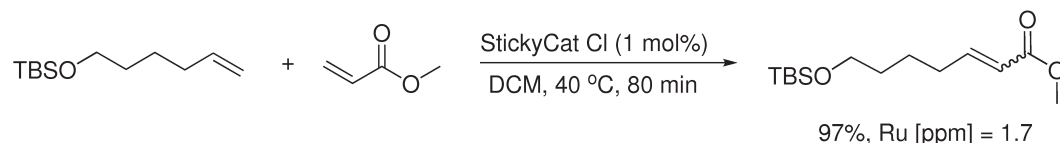
References:

1. *Catal. Sci. Technol.*, **2012**, 22, 2424
2. *ACS Catal.*, **2014**, 4, 3227

44-0765 [1,3-Bis(2,4,6-trimethylphenyl)-4-[(trimethylammonio)methyl]imidazolidin-2-ylidene]-(2-*i*-propoxybenzylidene)dichlororuthenium(II) chloride **StickyCat Cl** (1452227-72-3) 100mg
500mg
C₃₅H₄₈Cl₃N₃ORu; FW: 734.20; green powdr.
Note: U.S. Patent 61/603,790,PCT/EP2013/053967. Aperion Ruthenium Metathesis Catalyst Kit component.

Technical Note:

1. This is an easily removable olefin metathesis catalyst. It shows high activity at 40-110°C. Residual ruthenium metal is usually below 5 ppm.



Tech. Note (1)
Ref. (1)

References:

1. *Green Chem.*, **2012**, 14, 3264

44-0797 Dichloro(1,3-Bis(2,6-di-*i*-propylphenyl)-4-((4-ethyl-4-methylpiperzain-1-ium-1-yl)methyl)imidazolidin-2-ylidene)(2-*i*-isopropoxybenzylidene)ruthenium(II) hexafluorophosphate **FixCat PF6** 100mg
500mg
C₄₅H₆₇Cl₂F₆N₄OPRu; FW: 996.98; green powdr.
air sensitive, (store cold)
Note: Recommended storage 2-8°C. U.S. Patent 61/603,790 PCT/EP2013/053967.

Technical Note:

1. Catalyst for metathesis applications.

References:

1. *Angew. Chem.* **2017**, 129, 1001 –1006.

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