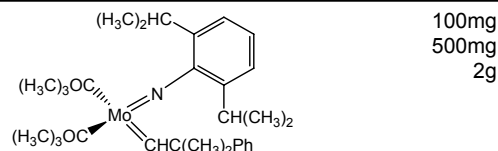


STREM Metathesis Catalysts and Ligands

Molybdenum-based catalysts

metals · inorganics · organometallics · catalysts · ligands · custom synthesis · cGMP facilities · nanomaterials

42-1200 **2,6-Diisopropylphenylimidoneophylidene molybdenum(VI) bis(t-butoxide)**
amp [126949-65-3]
Mo(C₁₀H₁₂)(C₁₂H₁₇N)(OC₄H₉)₂; FW: 549.65; yellow to orange powdr.
air sensitive, moisture sensitive, (store cold)

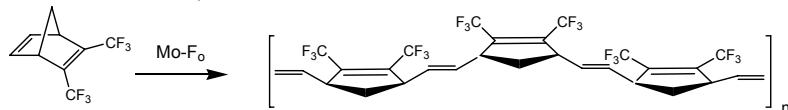


Note:

This material is covered under US Patents 4,681,956 and 4,727,215 and their foreign equivalents owned by Massachusetts Inst. of Technology.

Technical Note:

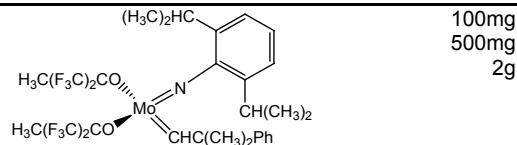
- The "ROMP" catalyst (Mo-F₀) is a relatively mild initiator for the living ROMP of functionalized norbornenes and norbornadienes that do not contain active protons.



References:

- Ring-Opening Polymerization (D.J. Brunelle, Ed.), 1993, 129.
- J. Am. Chem. Soc., 1990, 112, 8378.

42-1205 **2,6-Diisopropylphenylimidoneophylidene molybdenum(VI) bis(hexafluoro-t-butoxide) SCHROCK'S CATALYST** [139220-25-0]
amp Mo(C₁₀H₁₂)(C₁₂H₁₇N)[OC(CH₃)(CF₃)₂]₂; FW: 765.53; orange to green powdr.
air sensitive, moisture sensitive, (store cold)

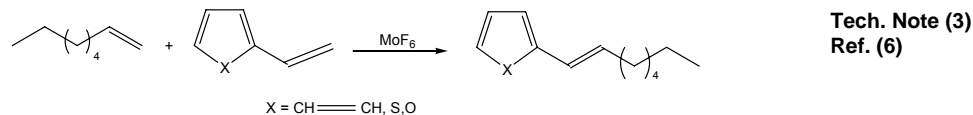
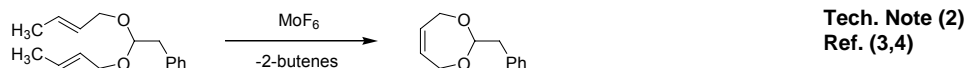
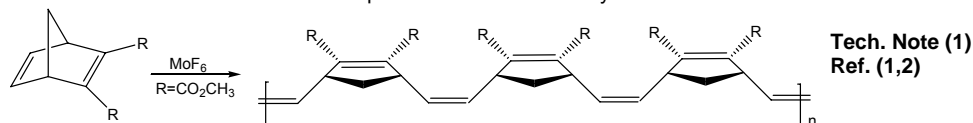


Note:

This material is covered under US Patents 4,681,956 and 4,727,215 and their foreign equivalents owned by Massachusetts Inst. of Technology.

Technical Notes:

- Unlike Mo(C₁₀H₁₂)(C₁₂H₁₇N)(OC₄H₉)₂, the bis(hexafluoro-t-butoxide) (MoF₆) derivative will metathesize many ordinary olefins, especially terminal olefins, and will ROMP many norbornene or substituted norbornadiene monomers to give all cis, and often isotactic, polymers.
- Useful for the "ring-closing" of dienes or the coupling of terminal olefins.
- Useful for cross-metathesis of aliphatic alkenes with 2-vinyl aromatics.



References:

- J. Am. Chem. Soc., **1994**, 116, 3414.
- J. Am. Chem. Soc., **1993**, 115, 4413.
- J. Am. Chem. Soc., **1992**, 114, 5426.
- J. Am. Chem. Soc., **1992**, 114, 7324.
- Tetrahedron, **1998**, 54, 4413. (review article)
- J. Mol. Catal. Chem., **2002**, 190, 45.

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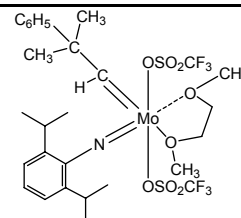
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42-1210 2,6-Diisopropylphenylimido neophylidenemolybdenum(VI) bis(trifluoromethanesulfonate)dimethoxyethane adduct [126949-63-1]
 $\text{Mo}(\text{C}_{10}\text{H}_{12})(\text{C}_{12}\text{H}_{17}\text{N})(\text{OSO}_2\text{CF}_3)_2(\text{C}_4\text{H}_{10}\text{O}_2)$; FW: 791.68; yellow to orange pwdr.
air sensitive, moisture sensitive, (store cold)



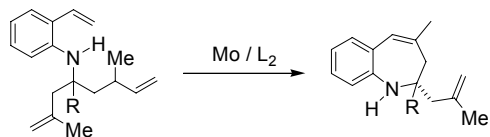
100mg
500mg

Note:

This material is covered under US Patents 4,681,956 and 4,727,215 and their foreign equivalents owned by Massachusetts Inst. of Technology.

Technical Notes:

- Starting material for the preparation of other "ROMP" catalysts. Catalysts can be prepared (even *in situ*) by adding the appropriate alkoxide, including enantiomerically pure alkoxide ligands such as 3,3'-disubstituted binaphtholates or tartrates.
- Asymmetric ring closing metathesis of amines.



Tech. Note (2)
Ref. (3)

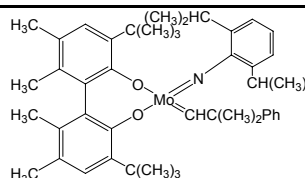
References:

- J. Am. Chem. Soc.*, **1993**, 115, 4413.
- Angew. Chem. Int. Ed.*, 2001, 40, 1452.
- Org. Lett.*, 2003, 5, 4899.

42-1212 2,6-Diisopropylphenylimidoneophylidene[*racemic*-BIPHEN]molybdenum(VI), min. 97% *rac*-SCHROCK-HOVEYDA CATALYST [300344-02-9]

$\text{Mo}(\text{C}_{10}\text{H}_{12})(\text{C}_{12}\text{H}_{17}\text{N})(\text{C}_{24}\text{H}_{32}\text{O}_2)$; FW: 755.93; red xtl.
air sensitive, moisture sensitive, (store cold)

BIPHEN = 5,5',6,6'-Tetramethyl-3,3'-di-*t*-butyl-1,1'-biphenyl-2,2'-diol



100mg
500mg

Technical Note:

- A ring-closing metathesis catalyst.

42-1213 2,6-Diisopropylphenylimidoneophylidene[(*R*)-(+)-BIPHEN]molybdenum(VI), min. 97% (*R*) SCHROCK-HOVEYDA CATALYST [329735-77-5]

$\text{Mo}(\text{C}_{10}\text{H}_{12})(\text{C}_{12}\text{H}_{17}\text{N})(\text{C}_{24}\text{H}_{32}\text{O}_2)$; FW: 755.93; red xtl.
air sensitive, moisture sensitive, (store cold)

Technical Note:

- See 42-1214.

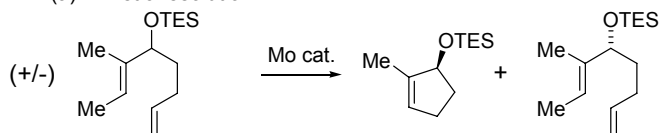
42-1214 2,6-Diisopropylphenylimidoneophylidene[(*S*)-(-)-BIPHEN]molybdenum(VI), min. 97% (*S*) SCHROCK-HOVEYDA CATALYST [205815-80-1]

$\text{Mo}(\text{C}_{10}\text{H}_{12})(\text{C}_{12}\text{H}_{17}\text{N})(\text{C}_{24}\text{H}_{32}\text{O}_2)$; FW: 755.93; red xtl.
air sensitive, moisture sensitive, (store cold)

Technical Note:

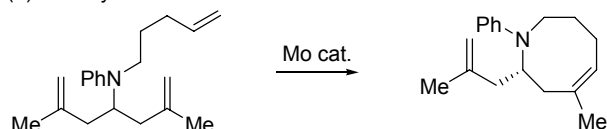
- The new Schrock-Hoveyda, chiral molybdenum catalyst can effect various modes of enantioselective olefin metathesis with excellent selectivity.

(a) Kinetic resolution.



Ref. (1)

(b) Desymmetrization of tri- or tetraenes.



Ref. (2)

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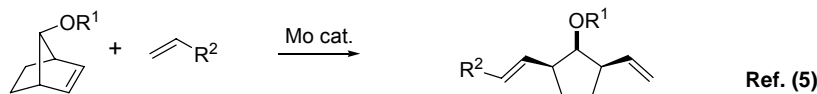
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42-1214 **2,6-Diisopropylphenylimidoneophylidene[(S)-(-)-BIPHEN]molybdenum(VI), min. 97% (S) SCHROCK-HOVEYDA CATALYST**
amp [205815-80-1]
(cont.)

(c) Asymmetric Ring-Opening metathesis/Ring-Closing metathesis.

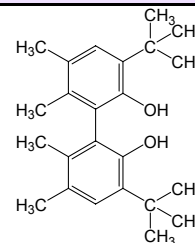


References:

1. *J. Am. Chem. Soc.*, **1998**, 120, 4041.
2. *J. Am. Chem. Soc.*, **2005**, 127, 8526.
3. *Chem. Eur. J.*, **2001**, 7, 945. (review)
4. *Angew. Chem. Int. Ed.*, **2003**, 42, 4592. (review)
5. *J. Am. Chem. Soc.*, **1999**, 121, 11603.
6. *J. Am. Chem. Soc.*, **2006**, 128, 5153.
7. *Angew. Chem. Int. Ed.*, **2007**, 46, 4534.

Also Available BIPHEN Ligands

08-2045 **racemic-5,5',6,6'-Tetramethyl-3,3'-di-t-butyl-1,1'-biphenyl-2,2'-diol, 99% rac-BIPHEN H₂**
[101203-31-0]
C₂₄H₃₄O₂; FW: 354.54; white to off-white xtl.; m.p. 163-165°

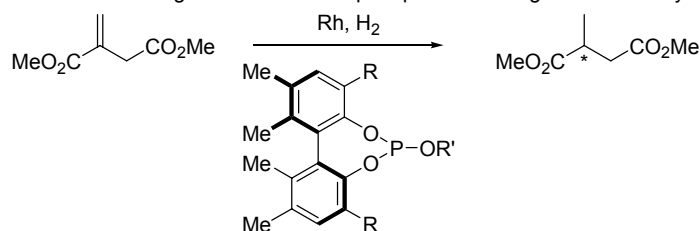


5g
25g

BIPHEN = 5,5',6,6'-Tetramethyl-3,3'-di-t-butyl-1,1'-biphenyl-2,2'-diol

Technical Notes:

1. Used as a ligand backbone for metathesis' catalysts.
2. Used as a ligand backbone in catalytic asymmetric hydrogenation.
3. Used as a ligand backbone for asymmetric hydroformylation of allyl cyanide.
4. Used as a ligand backbone for phosphoramidite ligands in the asymmetric Rh-catalyzed [2+2+2] cycloaddition.



References:

1. See 42-1212.
2. *Org. Lett.*, **2003**, 5, 3831.
3. *J. Org. Chem.*, **2004**, 69, 4031.
4. *Angew. Chem. Int. Ed.*, **2009**, 48, 2379.

08-2046 **(R)-(+)-5,5',6,6'-Tetramethyl-3,3'-di-t-butyl-1,1'-biphenyl-2,2'-diol, 99% (R)-BIPHEN H₂** [329735-68-4]
C₂₄H₃₄O₂; FW: 354.54; white powdr.; [α]_D +78° (c 0.352, THF)

100mg
500mg
2g

Technical Note:

1. See 42-1214.

08-2047 **(S)-(-)-5,5',6,6'-Tetramethyl-3,3'-di-t-butyl-1,1'-biphenyl-2,2'-diol, 99% (S)-BIPHEN H₂** [205927-03-3]
C₂₄H₃₄O₂; FW: 354.54; white powdr.; [α]_D -78° (c 0.352, THF)

100mg
500mg
2g

Technical Note:

1. See 42-1214.

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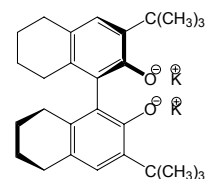
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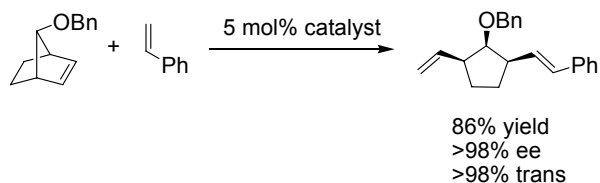
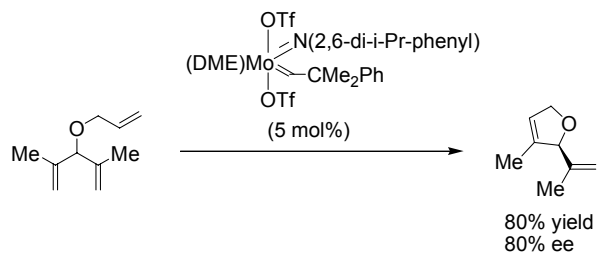
19-1600 (R)-(-)-5,5',6,6',7,7',8,8'-Octahydro-3,3'-di-*t*-butyl-1,1'-bi-2-naphthol, dipotassium salt
 [350683-75-9]
 C₂₈H₃₆K₂O₂; FW: 482.80; cream-colored powdr.; [α]_D -35° (c 1, THF)
moisture sensitive



100mg
500mg

Technical Note:

- Ligand used in combination with 42-1210 for asymmetric ring closing and ring opening metathesis.



Reference:

- Angew. Chem. Int. Ed.*, **2001**, 40(8), 1452.

19-1601 (S)-(+)-5,5',6,6',7,7',8,8'-Octahydro-3,3'-di-*t*-butyl-1,1'-bi-2-naphthol, dipotassium salt
 C₂₈H₃₆K₂O₂; FW: 482.80; cream-colored powdr.; [α]_D +35° (c 1, THF)
moisture sensitive

100mg
500mg

Technical Note:

- See 19-1600.

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