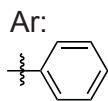
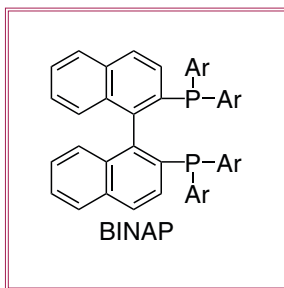
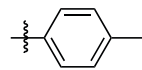


BINAP Catalyst & Ligand Kits for asymmetric hydrogenation & other catalytic applications

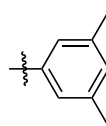
BINAP is a chiral ligand that has been used in a variety of asymmetric reactions since 1980. Especially BINAP-Ru complex affords high enantioselectives in asymmetric hydrogenations of a wide range of olefins and functionalized ketones.



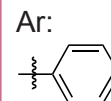
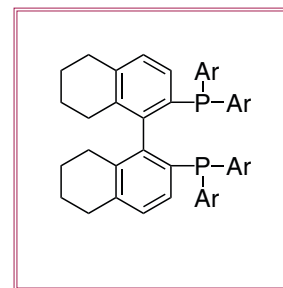
BINAP



ToIBINAP



XyIBINAP



H₈-BINAP

ToIBINAP has high solubility in organic solvents. This

property solves the problems caused by low solubility intrinsic to BINAP and its complexes. **XyIBINAP** is usually used in the Noyori's Ru-Diphosphine-Diamine complexes for hydrogenation of simple ketones. In many cases this ligand gives higher ee values than those with BINAP or ToIBINAP. **H₈-BINAP**-Ru complexes hydrogenate unsaturated carboxylic acids in higher enantioselectives than BINAP-Ru complexes do.

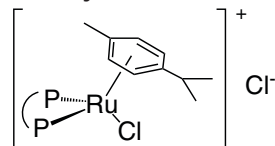
These kits contain 250mg of each of the items listed below it. All items are available for individual sale in 250mg, 1g & 5g unit sizes

96-6950 Takasago BINAP Ligand Kit

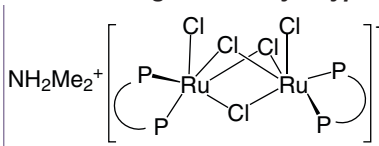
Item#	Acronym	CAS#	Item#	Acronym	CAS#
15-0150	(R)-(+)-BINAP	76189-55-4	15-0151	(S)-(-)-BINAP	76189-56-5
15-0152	(R)-(+)-ToIBINAP	99646-28-3	15-0153	(S)-(-)-ToIBINAP	100165-88-6
15-0476	(R)-(+)-XyIBINAP	137219-86-4	15-0477	(S)-(-)-XyIBINAP	135139-00-3

96-6953 Takasago BINAP Ru Acetate Catalyst Kit

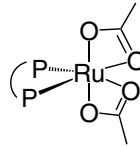
Metal catalysts in this kit are from the following four catalyst types:



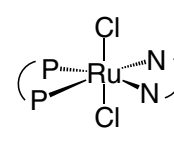
[RuCl(p-cymene)(P^{*}P)]Cl (I)



[NH₂Me₂][{RuCl(P^{*}P)}₂(μ-Cl)₃] (II)



[Ru(OAc)₂(P^{*}P)] (III)



[RuCl₂(P^{*}P)(N^{*}N)] (IV)

Item#	Acronym (Ligand P [*] P)	CAS#	Item#	Acronym (Ligand P [*] P)	CAS#
[Ru(OAc) ₂ (P [*] P)](III)					
44-0152	(R)-BINAP	325146-81-4	44-0153	(S)-BINAP	261948-85-0
44-0162	(R)-ToIBINAP	116128-29-1	44-0163	(S)-ToIBINAP	106681-15-6
44-0164	(R)-XyIBINAP	374067-50-2	44-0165	(S)-XyIBINAP	374067-49-9

96-6951 Takasago BINAP Ru Cymene Catalyst Kit

Item#	Acronym (Ligand P [*] P)	CAS#	Item#	Acronym (Ligand P [*] P)	CAS#
[RuCl[(p-cymene)(P [*] P)]Cl(I)]					
44-0084	(R)-BINAP	145926-28-9	44-0086	(S)-BINAP	130004-33-0
44-0088	(R)-ToIBINAP	131614-43-2	44-0089	(S)-ToIBINAP	228120-95-4
44-0092	(R)-XyIBINAP	944451-24-5	44-0093	(S)-XyIBINAP	944451-25-6

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96-6954 Takasago BINAP Ru Diamine Catalyst Kit

Item#	Acronym (Ligand P ⁺ P)	CAS#	Item#	Acronym (Ligand P ⁺ P)	CAS#
<i>[RuCl₂(P⁺P)(N⁺N)](IV)</i>					
44-0212	RuCl ₂ [(R)-XylBINAP][(R)-daipen]	220114-32-9	44-0213	RuCl ₂ [(S)-XylBINAP][(S)-daipen]	220114-01-2
44-0217	(R)-RUCY [®] XylBINAP	1384974-38-2	44-0218	(S)-RUCY [®] XylBINAP	1312713-89-5
44-0226	RuCl ₂ [(S)-XylBINAP][(S,S)-dpen]	220114-38-5	44-0224	RuCl ₂ [(S)-XylBINAP][(S,S)-dpen]	220114-03-4

96-6952 Takasago BINAP Ru Dimer Catalyst Kit

Item#	Acronym (Ligand P ⁺ P)	CAS#	Item#	Acronym (Ligand P ⁺ P)	CAS#
<i>[NH₂Me₂][{RuCl(P⁺P)}₂(μ-Cl)₃]Cl (II)</i>					
44-0510	(R)-BINAP	199684-47-4	44-0511	(S)-BINAP	199541-17-8
44-0512	(R)-TolBINAP	749935-02-2	44-0513	(S)-TolBINAP	309735-86-2
44-0514	(R)-XylBINAP	944451-08-5	44-0515	(S)-XylBINAP	944451-10-9

H₈-BINAP - Also Available (not included in the above kits) - Unit Sizes: 50mg, 250mg

15-2972	(R)-(+)-H ₈ -BINAP	139139-86-9	15-2973	(S)-(-)-H ₈ -BINAP	139139-93-8
44-0094	[RuCl(p-cymene)((R)-H ₈ -BINAP)]Cl	944451-26-7	44-0095	[RuCl(p-cymene)((S)-H ₈ -BINAP)]Cl	944451-27-8
44-0516	[NH ₂ Me ₂][{RuCl((R)-H ₈ -BINAP)} ₂ (μ-Cl) ₃]	204933-84-6	44-0517	[NH ₂ Me ₂][{RuCl((S)-H ₈ -BINAP)} ₂ (μ-Cl) ₃]	944451-12-1
44-0166	Ru(OAc) ₂ [(R)-H ₈ -BINAP]	374067-51-3	44-0167	Ru(OAc) ₂ [(S)-H ₈ -BINAP]	142962-95-6

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