

MCAT-53™ Catalyst

The catalyst that takes Green Chemistry to a new level.

A Novel and new Ru formato catalyst for C-C coupling in water.

-No acid
-No co-solvent
-No surfactant
-No oxidants
-No ligands

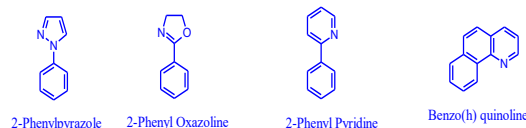
Chicago Discovery Solutions' proprietary and patented catalyst MCAT-53™ is made for CH activated C-C coupling reactions. No need to add acid, co-solvent, surfactant, oxidants or ligands or perform additional steps for activation of the catalyst.

Traditional metal-catalyzed cross-coupling reactions are regularly conducted in polar, aprotic solvents such as *N*-methylpyrrolidinone (NMP), dimethylformamide (DMF) or dimethylacetamide (DMAc) (1, 2). These solvents are undesirable because of their toxicity and disposal costs.

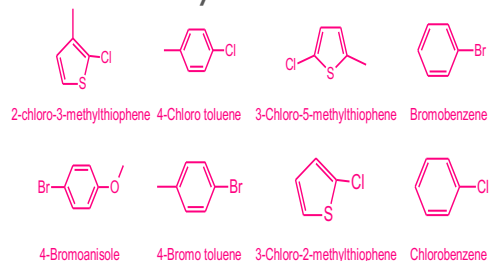
MCAT-53™ is a ruthenium based solid air stable catalyst that has been recently discovered by the scientists of Chicago Discovery Solutions LLC., USA. It has been tentatively assigned as having chemical formula Ru₂Cl₂(*p*-cymene)(HCOO)₃Na.

In contrast to Pd and other metal catalyzed C-H activated C-C coupling reactions, ruthenium based MCAT-53™ achieves C-H-activated C-C coupling in water under ligand-free conditions, requiring no oxidants (such as copper (II) salts and silver (I) salts, or benzoquinone) and no acid. The catalyst is tailor made to work in DI/ distilled water. Only a base such as potassium carbonate may be occasionally required.

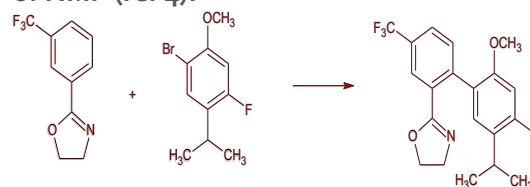
This air-stable and bench-stable catalyst, MCAT-53™ has been tested for carbon-carbon bond formation in water on substrates such as aryl oxazolines, benzoquinolines and phenyl pyridines (see references-3, 4).



Bromides, chlorides and heavily substituted halides shown below can work smoothly under the catalytic conditions.



MCAT-53™ has been demonstrated to be useful for the synthesis of advanced intermediate of Anacetrapib in water instead of NMP (ref 4).



Please contact us for more information about MCAT-53™ catalyst.

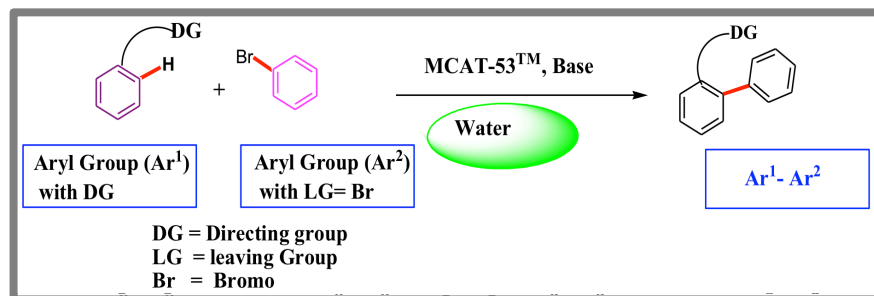
MCAT-53

Aldrich Sigma
Catalogue no.
900285

CDS Catalogue no.
1102

References

1. Fischmeister and Doucet. *Green Chem.*, 2011, 13, 741-753.
2. Constable et al. *Green Chem.*, 2007, 9, 411-420.
3. PCT application PCT application WO/US 2014/059281, US 10,3009,471
4. *Organic Process Research and Development*, 2018, 22, 1119-1130.



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