

MCAT-53™ Catalyst

The catalyst that takes Green Chemistry to a new level.

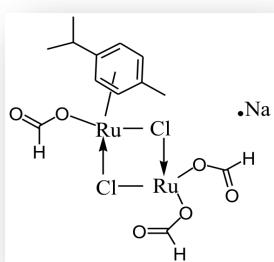
A Novel and new Ru formato catalyst for C-C coupling in water.

- 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 $\text{Ru}_2\text{Cl}_2(\text{p-cymene})(\text{HCOO})_3\text{Na}$.



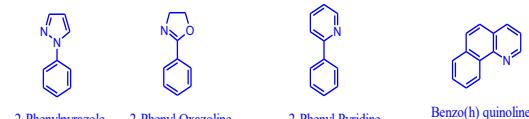
MCAT-53

Aldrich Sigma
Catalogue no.
900285

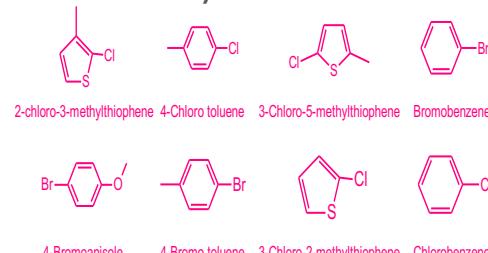
CDS Catalogue no.
1102

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.

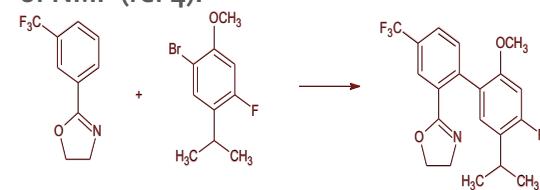
This air-stable and bench-stable catalyst, MCAT-53™ has been tested for carbon-carbon bond formation in water on substrates such as aryl oxazolines, benzoquinolines and phenyl pyridines (see references-3, 4).



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).



References

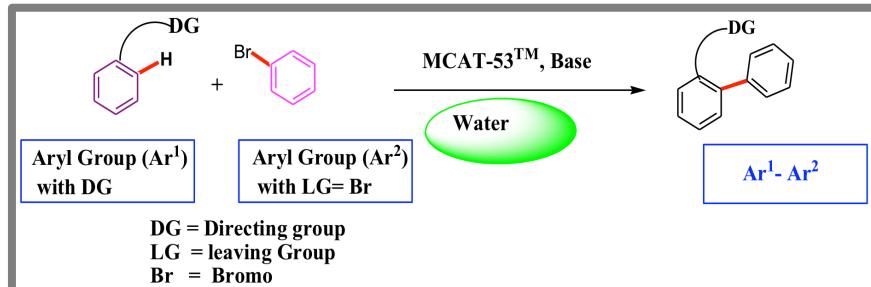
1. Fischmeister and Doucet. *Green Chem.*, 2011, 13, 741-753.

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.

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



CHICAGO DISCOVERY SOLUTIONS
23561 W. Main Street
Plainfield, IL 60544

PHONE
815-609-2071

WEB
Chicagodiscoverysolutions.com
sales@chicagodiscoverysolutions.com