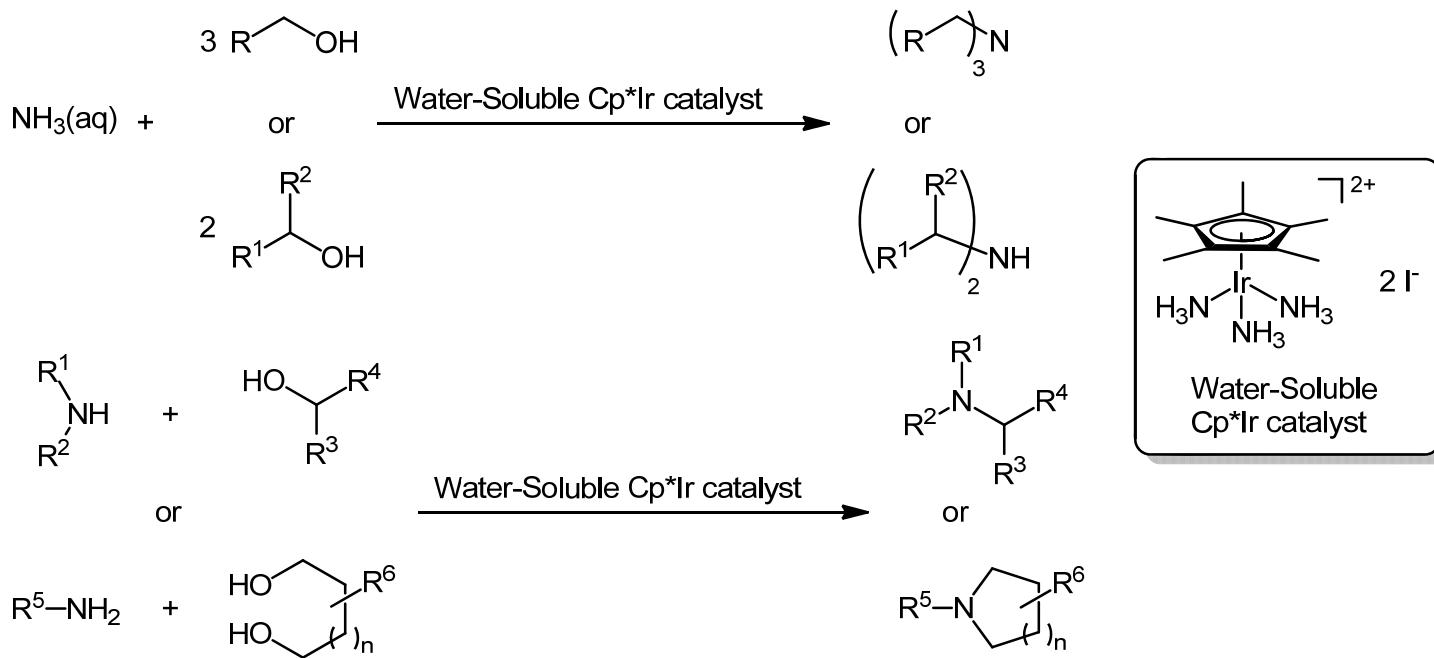


Iridium Catalyst for Multialkylation of Aqueous Ammonia with Alcohols

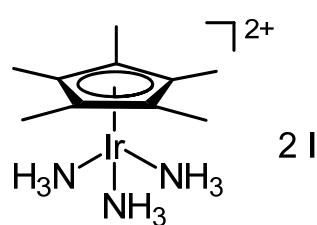


Development of effective methods for preparing amines is an important task, since amine compounds are useful in a wide range of applications such as pharmaceuticals, agricultural materials, functionalized materials, and starting materials for resins.

We Kanto Chemical launched Ir catalyst developed by Emeritus Prof. Ryohei Yamaguchi and Prof. Ken-ichi Fujita of Kyoto University for amine syntheses. With this Ir catalyst, alkylated amine compounds can be obtained by the reaction of ammonia or amine compounds with alcohols as the alkylating reagents using water as a solvent in the air.



List of product

Product	Product number	Package
Triammine(pentamethylcyclopentadienyl)iridium(III) diiodide CAS:1254038-11-3 FW:632.34 	40092-68	100 mg
	40092-95	500 mg



Kanto Kagaku

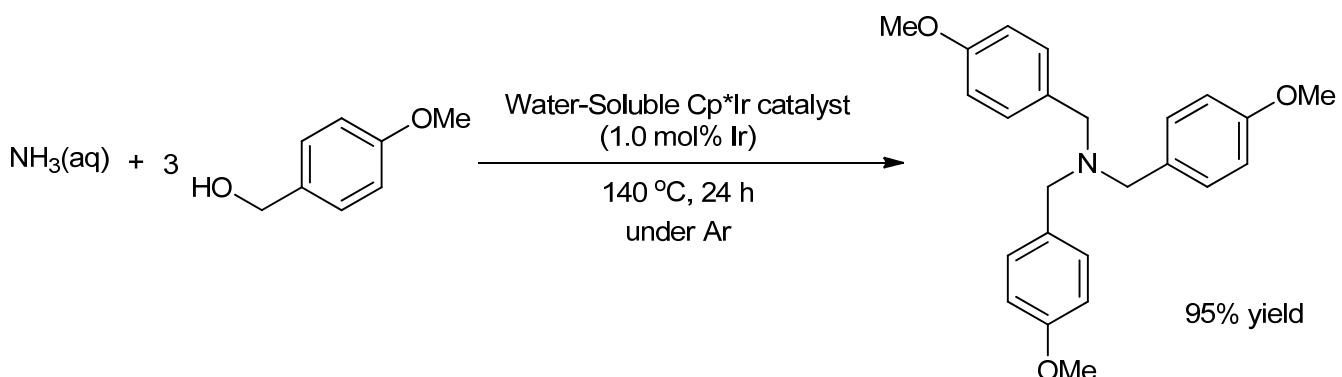


Advantages of this reaction

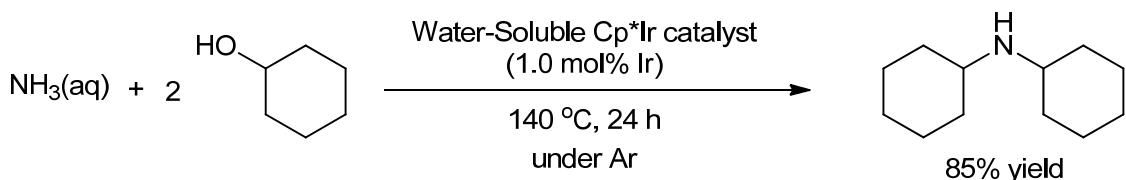
- Reactions using water as a solvent in the air
- High atom economy
- Reactions with the recycled catalyst



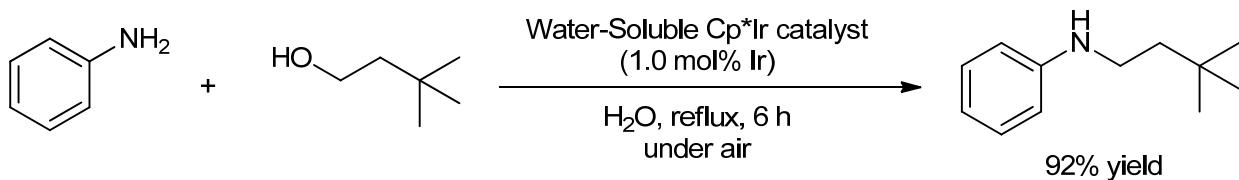
Reaction 1 (reaction of aqueous ammonia with the primary alcohol)¹⁾



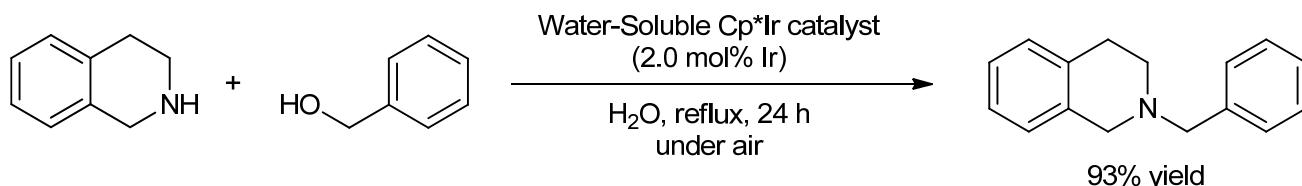
Reaction 2 (reaction of aqueous ammonia with the secondary alcohol)¹⁾



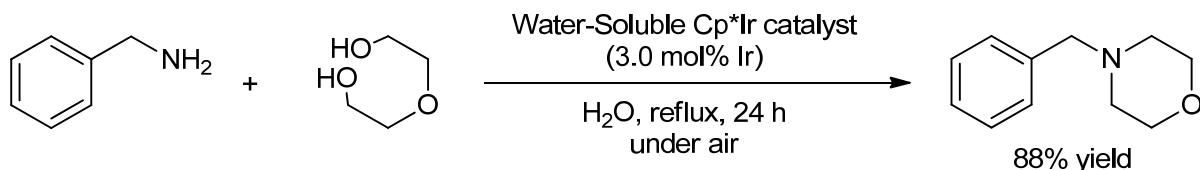
Reaction 3 (reaction of the primary amine with the primary alcohol)²⁾

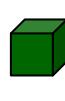


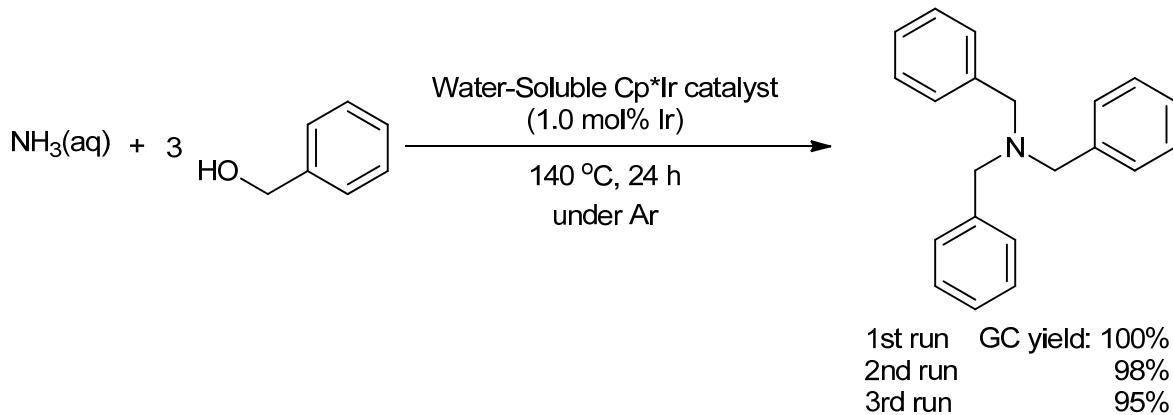
 Reaction 4 (reaction of the secondary amine with the primary alcohol)²⁾

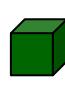


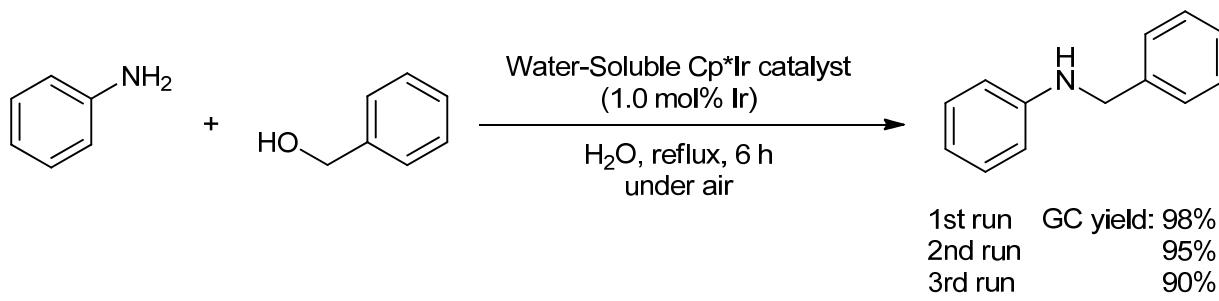
 Reaction 5 (reaction of the primary amine with the diol)²⁾



 Repeated reactions 1 with the recycled catalyst
(reaction of aqueous ammonia with the primary alcohol)¹⁾



 Repeated reactions 2 with the recycled catalyst
(reaction of the primary amine with the primary alcohol)²⁾



 References

- 1) Kawahara, R.; Fujita, K.; Yamaguchi, R. *J. Am. Chem. Soc.* **2010**, *132*, 15108.
- 2) Kawahara, R.; Fujita, K.; Yamaguchi, R. *Adv. Synth. Catal.* **2011**, *353*, 1161.



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