

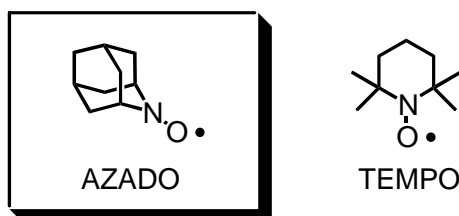
Ultra-highly active catalyst, AZADO for alcohol oxidation

Nissan Chemical Industries, Ltd., has been working on AZADO (an ultra-highly active catalyst for alcohol oxidation developed by Professor Yoshiharu Iwabuchi, Graduate School of Pharmaceutical Sciences, Tohoku University) for commercial development. AZADO has been adopted as a theme for the commissioned project “2007 Collaborative Development of Innovative Seeds, Potentiality Verification Stage” (hereafter referred to as the commissioned project^(Note)) of the Japan Science and Technology Agency (JST).

This will allow us to receive financial support for research and development expenses from JST, as well as a support system including technical advice and project control, which will greatly facilitate development for practical application, such as the provision of a stable supply of AZADO and examination of its application range.

(Note) This commissioned project aims to achieve innovation by focusing on fundamental research by universities and other institutions, and then verify the potential of candidate “seeds” of innovation from the viewpoint of industry. This will lead to joint research between the university or other institutions and industry.

[Oxidation Reaction using AZADO]



AZADO—the abbreviation of Azaadamantane N-oxyl—is a nitroxyl radical catalyst. Oxidation from alcohols to corresponding aldehydes, ketones, and carboxylic acids is possible. This catalyst can be used with inexpensive co-oxidants, such as sodium hypochlorite (NaClO) and sodium chlorite (NaClO₂). TEMPO is a well-known nitroxyl radical oxidation catalyst, but AZADO has a number of beneficial features in comparison to TEMPO as follows:

- Ultra-high activity (catalytic amount: 0.01 mol%, which is over 20-fold higher activity than TEMPO)
- Able to oxidize secondary alcohols with large steric hindrance.

In field of fine chemicals, oxidation reactions tend to be avoided due to the safety of the process, toxicity of oxidizing agents, and problems associated with cost. The use of AZADO for oxidation reactions overcomes these problems, as well as addressing social needs, such as low environmental load. This is a new technology that will contribute to both industry and society.

[Intellectual Property Rights]

Our company has received the intellectual property rights for AZADO-related compounds from Tohoku University.

[Custom Manufacturing of Fine Chemicals using AZADO]

Our company will conduct custom manufacturing using AZADO-mediated oxidation. Please inquire below if interested.

<Website for Custom Chemicals Department>

<http://www.nissanchem.co.jp/finetech/english/index.html>

<Website for JST>

<http://www.jst.go.jp/EN/index.html>

[Contact Information]

Chemicals Division, Custom Chemicals Department

Phone:+81-3-3296-8005

Fax:+81-3-3296-8360

E-mail: finetech@nissanchem.co.jp