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ONLINE ISSN : 1349-273X

PRINT ISSN : 1346-8804

Journal of the Japan Petroleum Institute

Vol. 49 (2006) , No. 4 pp.206-209



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Carboxylation of 2-Naphthol with Carbon Dioxide in Anisole

[Takayuki Iijima](#)¹⁾, [Toru Iwase](#)¹⁾ and [Tatsuaki Yamaguchi](#)¹⁾

1) Dept. of Life and Environmental Sciences, Faculty of Engineering, Chiba Institute of Technology

(Received: October 24, 2005)

Carboxylation of 2-naphthol with carbon dioxide in aprotic polar solvents proceeds at the lower temperature in comparison with the Kolbe-Schmitt reaction. The carboxylation of 2-naphthol with carbon dioxide in anisole, an aprotic polar solvent, was investigated to assess the effect of the reaction conditions such as temperature and time on the product yield and selectivity.

The carboxylation of 2-naphthol attained high yield at 373 K, and yield decreased at higher temperatures. The carboxylated product consisted only of 2-hydroxy-1-naphthoic acid at 373 K, but the selectivity for 2-hydroxy-1-naphthoic acid decreased and the selectivity for 3-hydroxy-2-naphthoic acid increased at higher temperatures. In addition, 6-hydroxy-2-naphthoic acid formed at 543 K.

The selectivity for 2-hydroxy-1-naphthoic acid decreased, and that of 6-hydroxy-2-naphthoic acid increased as the reaction time increased at 543 K.

Thermal rearrangement of 2-hydroxy-1-naphthoic acid to 3-hydroxy-2-naphthoic acid and 6-hydroxy-2-naphthoic acid probably proceeds simultaneously with decarboxylation of 2-hydroxy-1-naphthoic acid.

Keywords: [2-Naphthol](#), [Carbon dioxide](#), [Carboxylation](#), [Anisole](#), [Hydroxynaphthoic acid](#)



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To cite this article:

Takayuki Iijima, Toru Iwase and Tatsuaki Yamaguchi, *Journal of the Japan Petroleum Institute*, Vol. **49**, No. 4, p.206 (2006) .

doi:10.1627/jpi.49.206

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