

JPI Journal of the Japan Petroleum Institute
The Japan Petroleum Institute

[Available Issues](#) | [Instructions to Authors](#) | [Japanese](#) >> [Publisher Site](#)

Author: [ADVANCED](#) Volume Page
Keyword:

[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1349-273X

PRINT ISSN : 1346-8804

Journal of the Japan Petroleum Institute

Vol. 50 (2007) , No. 6 pp.329-334



[\[PDF \(446K\)\]](#) [\[References\]](#) [\[Errata\]](#)

Tungstophosphoric Acid-catalyzed Oxidative Desulfurization of Naphtha with Hydrogen Peroxide in Naphtha/Acetic Acid Biphasic System

[Kazumasa Yazu](#)¹⁾, [Shinya Sato](#)¹⁾, [Yoshikazu Sugimoto](#)¹⁾, [Akimitsu Matsumura](#)¹⁾ and [Ikuo Saito](#)¹⁾

1) Energy Technology Research Institute, National Institute of Advanced Industrial Science and Technology

(Received: April 10, 2006)

The 12-tungstophosphoric acid (TPA)-catalyzed oxidative desulfurization of naphtha with H₂O₂ was investigated. All organosulfur compounds examined were efficiently oxidized with H₂O₂ and TPA catalyst in acetic acid (AcOH). The order of the oxidation reactivities was sulfides, disulfides > benzothiophenes > thiophenes. Methyl substituents on benzothiophenes and thiophenes increased the reactivity of the sulfur atom. The major oxidation products from the organosulfur compounds, except a few thiophenes, were the corresponding sulfones. The organosulfur compounds in octane were also oxidized with H₂O₂ and TPA catalyst in an octane/AcOH biphasic system. The oxidation proceeded in the AcOH phase and most oxidation products remained in this phase, resulting in the successive removal of the sulfur compounds from the octane phase. Using this oxidative treatment effectively reduced the sulfur content of naphtha, as the sulfur content was reduced to about 0.5 mass ppm after adsorption with silica gel. Hydrodesulfurization is an effective pretreatment for oxidative desulfurization of naphtha, by which the sulfur content can be reduced to below 0.1 mass ppm.

Keywords: [Oxidative desulfurization](#), [Naphtha](#), [Tungstophosphoric acid](#), [Hydrogen peroxide](#), [Thiophene](#), [Benzothiophene](#)



[\[PDF \(446K\)\]](#) [\[References\]](#) [\[Errata\]](#)

Download Meta of Article [\[Help\]](#)

[RIS](#)

[BibTeX](#)

To cite this article:

Kazumasa Yazu, Shinya Sato, Yoshikazu Sugimoto, Akimitsu Matsumura and Ikuo Saito,
Journal of the Japan Petroleum Institute, Vol. **50**, No. 6, p.329 (2007) .

doi:10.1627/jpi.50.329

JOI JST.JSTAGE/jpi/50.329

Copyright (c) 2008 by The Japan Petroleum Institute



[Japan Science and Technology Information Aggregator, Electronic](#)

