

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Papers in Biomaterials

Chemical and Biomolecular Engineering
Research and Publications

September 2002

Ethyl tert-Butyl Ether and Methyl tert-Butyl Ether: Status, Review, and Alternative Use Exploring the Environmental Issues of Mobile, Recalcitrant

Hossein Nouredini

Department of Chemical Engineering, University of Nebraska-Lincoln, hnouredd@unlnotes.unl.edu

Follow this and additional works at: https://digitalcommons.unl.edu/chemeng_biomaterials

 Part of the [Biomaterials Commons](#)

Nouredini, Hossein, "Ethyl tert-Butyl Ether and Methyl tert-Butyl Ether: Status, Review, and Alternative Use Exploring the Environmental Issues of Mobile, Recalcitrant" (2002). *Papers in Biomaterials*. 3.
https://digitalcommons.unl.edu/chemeng_biomaterials/3

This Article is brought to you for free and open access by the Chemical and Biomolecular Engineering Research and Publications at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Papers in Biomaterials by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

**Ethyl tert-Butyl Ether and Methyl tert-Butyl Ether:
Status, Review, and Alternative Use**

**Exploring the Environmental Issues of Mobile, Recalcitrant
Compounds in Gasoline**

Hossein Nouredini

Petroleum products leaking from under ground storage tanks have raised concerns regarding the quality of ground water resources. The concerns about the environmental behavior and rate of MTBE as an oxygenated additive prompted this investigation to explore the technical characteristics of MTBE in comparison to ETBE. Evaluation of the existing literature suggests that ETBE has more favorable characteristics than MTBE. Findings in this research suggest that ETBE is a technically sound oxygenated octane enhancer, which can help refiners meet specifications for cleaner burning gasoline.

This article was originally published in ACS SYMPOSIUM SERIES 799, Oxygenates in Gasoline Environmental Aspects, © 2002 American Chemical Society.

The American Chemical Society allows the posting of only the title, abstract, tables, and figures from articles appearing in the ACS SYMPOSIUM SERIES. All the text and the figures appearing are copyrighted by © 2002 American Chemical Society.

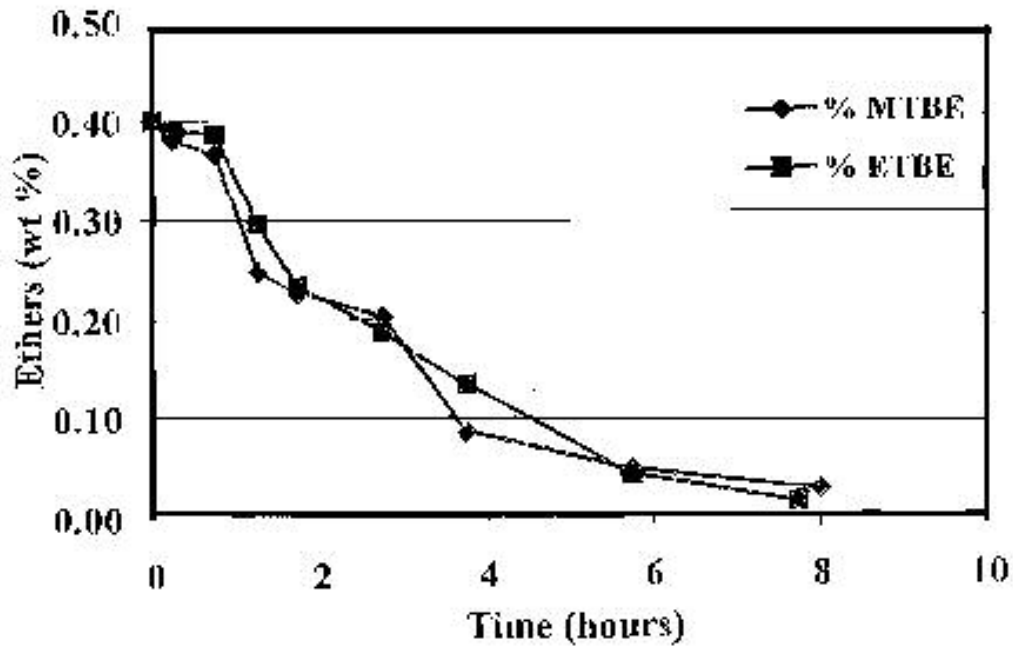


Figure 1. Rate of dispersion of MTBE and ETBE from water in a trough setting subject to an initial ether concentration of 0.4wt%

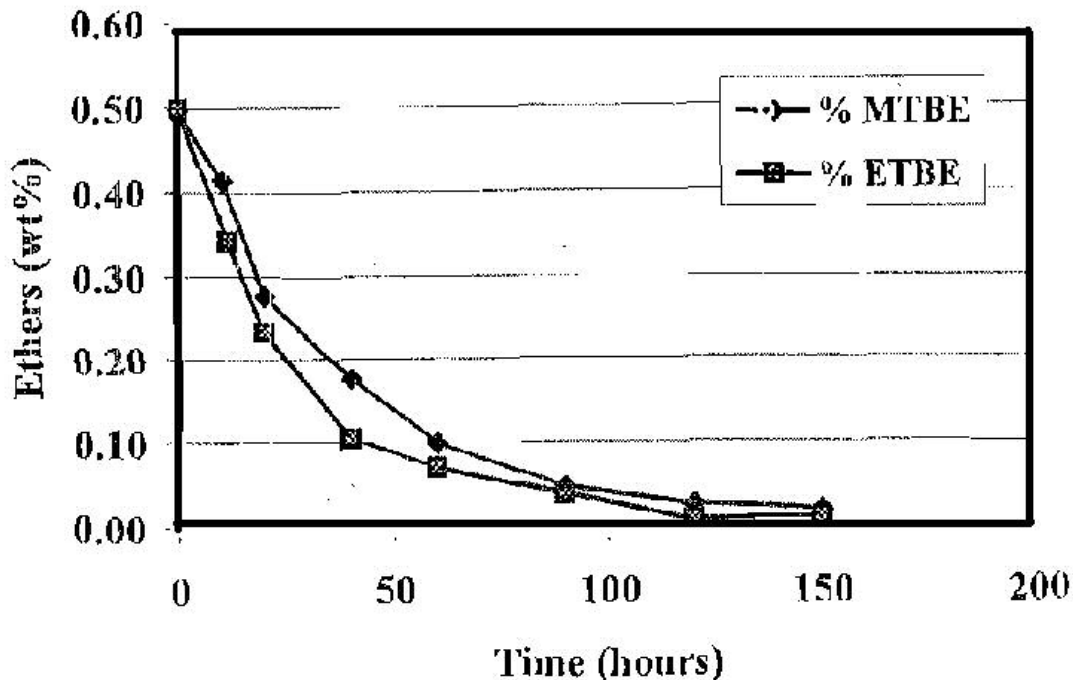


Figure 2. Rate of dispersion of MTBE and ETBE from water in a very high-stirred tank subject to an initial ether concentration of 0.50 wt%.

Copyright © 2002 American Chemical Society.

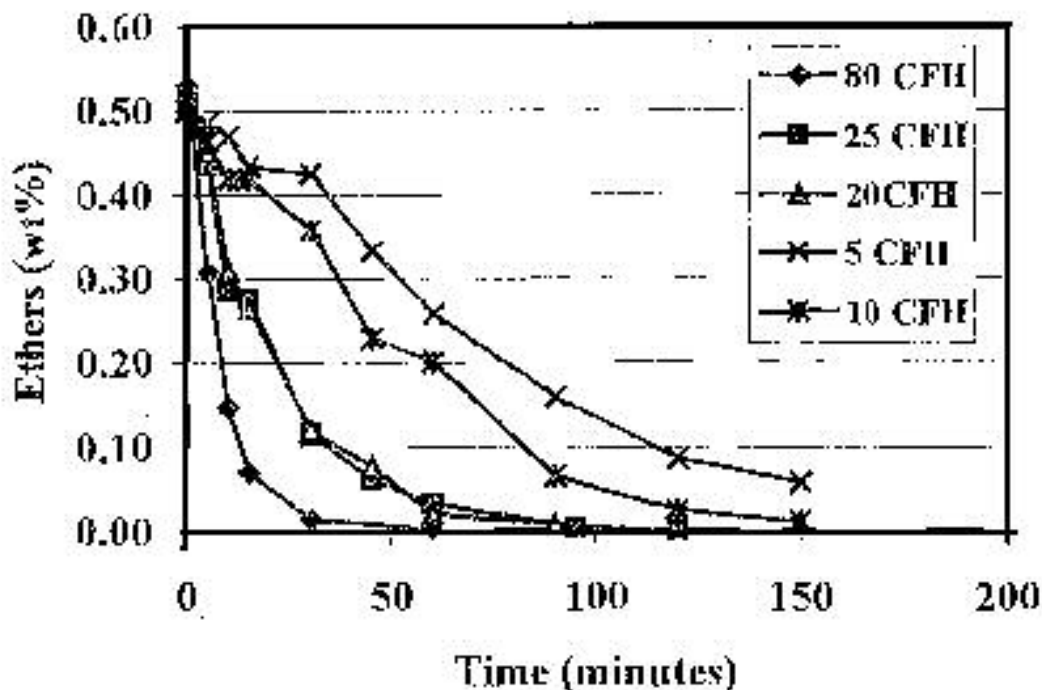


Figure 3. Rate of stripping of MTBE from water in a packed column subject to an air flow rate 5, 10, 20, 25 and 80 CFH

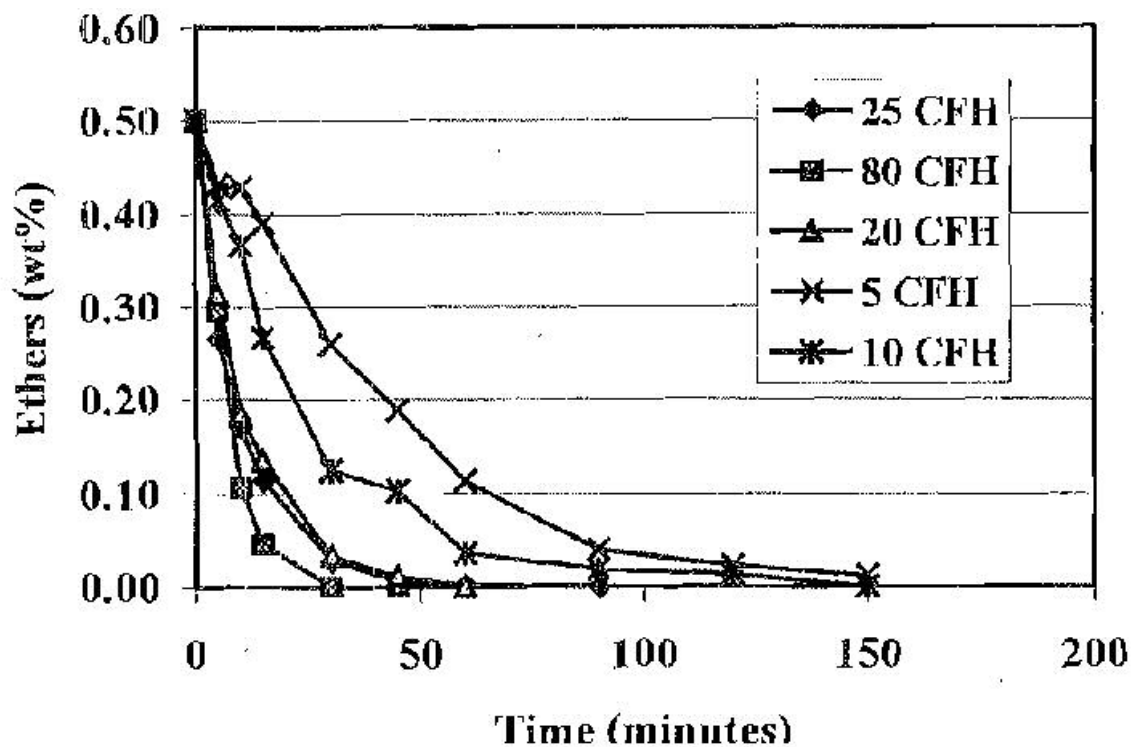


Figure 4. Rte of stripping of ETBE from water in a packed column subject to an airflow rate of 5, 10, 20, 25 and 80 CFH

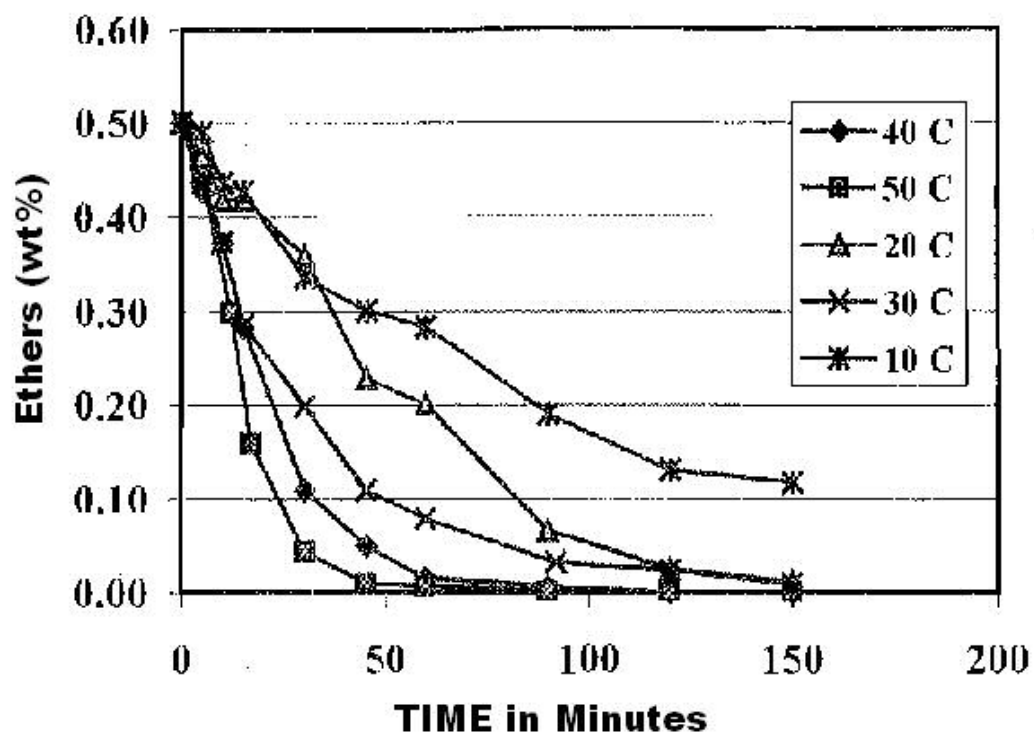


Figure 5. RATE of stripping of MTBE from water in a packed column subject to an airflow rate of 10 CFH and 10,20,30, and 50 C

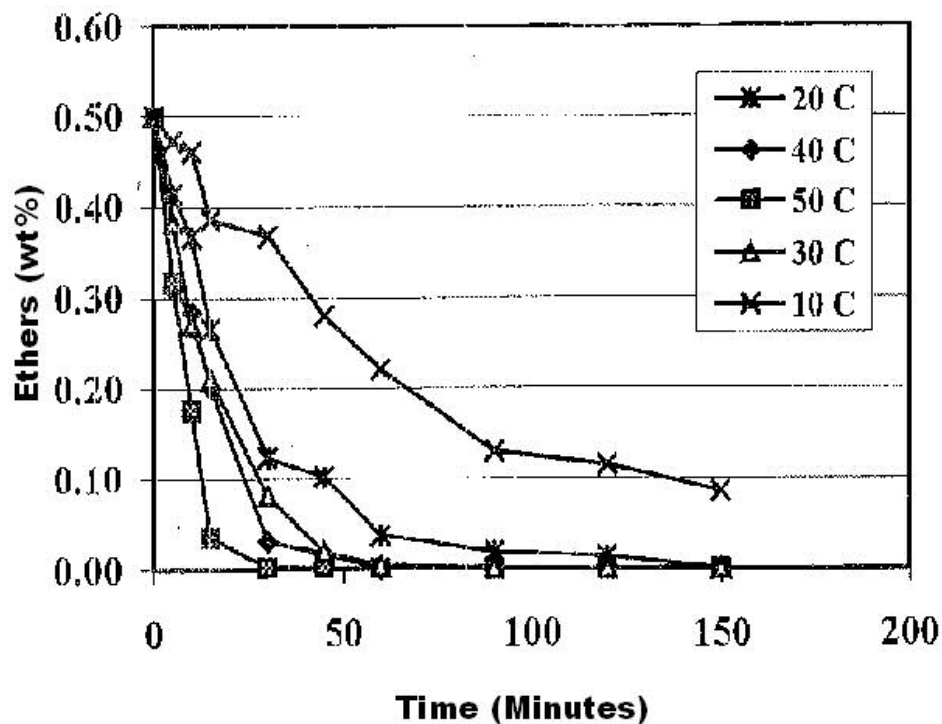


Figure 6. Rate of Stripping of ETBE from water in a packed column subject to an air flow rate of 10 CFH at 10, 20, 30, 40 and 50 C

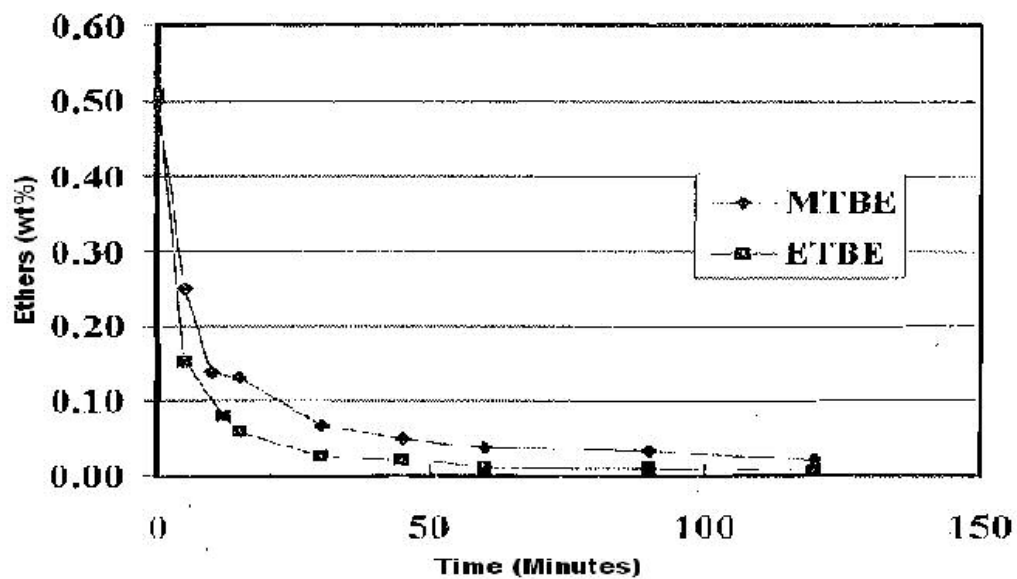


Figure 7. Rate of absorption of MTBE and ETBE on activated carbon subject to an initial ether concentration of 0.05 wt%