

**USE OF HILDEBRAND SOLUBILITY PARAMETERS FOR THE  
CORRELATION OF EMISSIONS FROM STOCK TANK CRUDE OILS**

**R. E. Babcock\***

University of Arkansas

BEC 3202

Fayetteville, AR 72701

Voice: 479 575 5410

Fax: 479 575 7926

Email: [rbabcoc@uark.edu](mailto:rbabcoc@uark.edu)

**Jorge M. Plaza**

Trinity Consultants, Inc.

Baton Rouge, LA

In this last decade tremendous emphasis has been put on the control and reduction of emissions of Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs). This trend obviously has affected the petroleum industry. On June 17 1999, EPA issued Regulations for National Emission Standards for Hazardous Air Pollutants (NESHAPs) for oil and gas production pursuant to section 112 of the Clean Air Act. Over 480 oil and gas production facilities were impacted by these rules. Current emissions are estimated at 76,700 tons per year. Regulations are expected to reduce HAP emissions by 77%. These regulations are in the process of being revised by EPA in the very near future if not by the time of this paper.

IPEC has been active in funding projects relevant to this issue and several other previous studies funded by API, EPA, and industry have attempted to develop and verify emission models for crude oil stock tanks. This paper presents a discussion of the applicability of the difference between the Hildebrand solubility parameter of the crude oil and that of light hydrocarbon vapors as a correlating variable for emission predictions from stock tanks. Limited field data is presented in support of the correlating scheme.