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**13 July 1994**

**Committee D02 on Petroleum Products and Lubricants  
Subcommittee D02.04 on Hydrocarbon Analysis**

**Research Report D02-1329**

**Interlaboratory Study to Establish Precision Statements for ASTM  
D5580, Test for Determination of Benzene, Toluene, Ethylbenzene, P/M-  
Xylene, O-Xylene, C9 and Heavier Aromatics and Total Aromatics in  
Finished Gasoline by Gas Chromatography**

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**ASTM D.02.04.L**  
**Study Group on the Determination of Aromatics in**  
**Petroleum Products by Gas Chromatography**

**Research Report For D5580**

**Determination of Benzene, Toluene, Ethylbenzene, P/M-Xylene, O-Xylene,**  
**C9 and Heavier Aromatics and Total Aromatics in Finished Gasoline**

The attached information represents the research report for method D5580. The entire set of data received from the list of cooperators are included for archiving purposes.

**Outline of Research Report**

- Section 1. Executive summary of cooperative study
- Section 2. List of participating labs
- Section 3. Statistical evaluation of data
- Section 4. Copy of method used in cooperative study
- Section 5. Chromatographic data from cooperative study

Submitted by



Vince Giarrocco  
Study Group Chairman  
July 7, 1994

## **Section 1 - Summary of Cooperative Study**

The method used in the cooperative study was originally proposed to the study group by Amoco Oil (Naperville, IL) at the December 1992 meeting. A ruggedness study was performed using the initial draft. Subsequently, several modifications to the method were made reflecting input from the study group. The modifications also followed the similar standard/sample prep improvements made to D4815 during the 1992/93 timeframe.

Draft #3 of the method was distributed and used for the cooperative study. Eight gasoline samples (A1-A8) were distributed to thirteen laboratories. Frank DiSanzo, Mobil Research, Paulsboro coordinated the sample distribution. Specific gravities were provided for each sample. The labs were asked to prepare the samples in duplicate. Two of the samples (A1, A2) were synthetic blends of the aromatics in alkylate. Sample A2 was a control sample in which the labs were given the benzene and total aromatic results. This sample was not included in the statistics. The remainder of the samples were typical finished gasolines. Results were received from eleven labs and the data sent to Mr. Dave Lawery for statistical evaluation. The evaluation was performed using the mass % results only. The volume % results reported by each lab were not used. For informational purposes only, the chairman converted the reported mass % data to volume %. (This data is included in Section 5 of this report)

Draft #4 was then prepared based upon the results of the round-robin.

## **Section 2 - List of Participating Labs**

	<i>Laboratory</i>
	Texaco Research, Port Arthur, TX Ashland Research Ashland, KY CARB, El Monte, CA Amoco, Naperville, IL Core Labs, Houston, TX Unocal, Brea, CA Arco Products, Carson, CA Hewlett-Packard, Wilmington, DE Shell Westhollow, Houston, TX Chevron Research, Richmond, CA Texaco Research, Beacon, NY