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1 November 2012

**Committee D02 on Petroleum Products and Lubricants
Subcommittee D02.04.0L on Gas Chromatography Methods**

Research Report D02-1749

**Interlaboratory Study to Establish Precision Statements for ASTM
D5501-12, Determination of Ethanol Content of Denatured Fuel
Ethanol by Gas Chromatography**

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1. Introduction:

Interlaboratory Study 561 was conducted to establish a precision statement for D5501, Determination of Ethanol Content of Denatured Fuel Ethanol by Gas Chromatography.

2. Test Method:

The Test Method used for this ILS is D5501-12. To obtain a copy of D5501, go to ASTM's website, www.astm.org, or contact ASTM Customer Service by phone at **610-832-9585** (8:30 a.m. - 4:30 p.m. Eastern U.S. Standard Time, Monday through Friday) or by email at service@astm.org.

3. Participating Laboratories:

The following laboratories participated in this interlaboratory study

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4. Description of Samples:

There were 21 samples of varying targeted results used for this study. Each sample was prepared and distributed by Peggy Broughton of Marathon Petroleum Company. Below is a list of the samples

Blend	Matrix	Est wt% EtOH	Est wt% MeOH	E1064 H2O, Wt%
Mix 1	Gasol	10	0.1	0.081
Mix 2	Gasol	15	<.1	0.102
Mix 3	Gasol	20	<.1	0.117
Mix 4	Gasol	31	0.3	0.266
Mix 5	RNL-W	53	<.1	0.438
Mix 6	RNL-S	72	<.1	0.702
Mix 7	PNL-W	70	<.1	0.553
Mix 8	NG	82	<.1	0.71
Mix 9	NG	62	0.5	0.552
Mix 10	CN	42	0.4	0.402
Mix 11	CARB	28	0.2	0.256
Mix 12	Gasol	90	<.1	0.604
Mix 13	CARB	85	0.6	0.704
Mix 14	PNL-W	91	0.05	0.755
Mix 15	NG	99.5	<0.01	
Mix 18	Abs EtOH	99.8	<.1	0.056
Mix 20	PNL-W	10	0.3	
Mix 21	EtOH1012	97.0	<0.1	

NG = Natural Gasoline
 Gasol = Gasoline
 RNL = Reg No Lead Gasoline
 PNL = Premium No Lead Gasoline
 -S = summer grade
 -W = winter grade
 CARB = California CARB gasoline (low olefins)
 CN = FCC Cracked Naphtha (high olefins)
 iC8 = isooctane

5. Interlaboratory Study Instructions

Laboratory participants were emailed the test program instructions. For a copy of the instructions, please see Annex A.

6. Description of Equipment/Apparatus¹:

For information on the equipment/apparatus used by each laboratory, please see Annex B.

7. Data Report Forms:

Each laboratory was provided with a data report form for the collection of data. A copy of the data is provided below.

¹ The equipment listed was used to develop a precision statement for D5501-12. This listing is not an endorsement or certification by ASTM International.
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