U. S. Department of Commerce
Malcolm Baldrige
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 1815a

Reference Fuel n-Heptane

(In cooperation with the Service des Materiaux
de Reference of the Bureau National
de Metrologie in Paris France)

This Standard Reference Material (SRM) is intended for use as a primary standard in the octane rating of motor ar aviation fuels as specified in ASTM test methods (see Volume 05.04, Annual Book of ASTM Standards) and evaluating ASTM methods for chemical analysis of fuels by gas chromatography (D 2268). This SRM exceeds tl ASTM specification for a reference fuel. The certified values are:

n-Heptane, purity by difference	99.987%
Impurities	
Total organics (other than n-Heptane)	0.011 ± 0.003%
Isooctane (2,2,4-Trimethylpentane)	0.007 ± 0.001%
Water	0.002 ± 0.001%

The lead concentration in this SRM is certified to be less than 10 μg/L.

The material for this SRM was obtained from the ELF Company in France, ampouled by the Laboratoire Nation d'Essais (LNE), and analyzed by NBS, LNE, and the Institut Francais du Petrole (IFP)

The homogeneity of this SRM, as determined by LNE using the gas chromatography technique, was judged to satisfactory when the first three ampouled series and the two ampoules of the following series were discarded.

All three laboratories followed the gas chromatography technique specified in ASTM Method D 2268 to determine t organic impurities. The water content was determined by LNE using the classical Karl Fischer method.

The results obtained by the three laboratories are given below:

	NBS	LNE	IFP
Isooctane	0.006 ± 0.001%	0.006 ± 0.001%	0.008 ± 0.(
Total organics	0.010 ± 0.002%	0.013 ± 0.004%	0.010 ± 0.(
Water	- - - - -	0.002 ± 0.001%	- - - - -
Lead	<0.4 μg/L	5.4 ± 3.1 μg/L	<5 μg/L

The lead concentration was determined by NBS and LNE using various modifications of ASTM Method D 1368- while IFP used a variation of atomic absorption spectrometry (D 3237).

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Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materi