

Standard Method of Test for LEAD IN GASOLINE, POLAROGRAPHIC METHOD¹



ASTM Designation: D 1269 - 61 (Reapproved 1968)

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 1269; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

NOTE.—Section 6(b) was changed and Notes 7 and 8 were added editorially in July, 1963. Note 12 was deleted and a new Section 8 added editorially in September, 1964. Section 8(b) was deleted editorially in July, 1965.

Scope

1. This method covers the polarographic determination of the total lead content of gasoline and other volatile distillates blended with lead alkyls (tetraethyllead or tetramethyllead, trimethylethyllead, dimethyldiethyllead, methyltriethyllead, or mixtures thereof) within the concentration range of 0.5 to 5.0 g of lead per gallon.

NOTE 1.—Method D 526,² Test for Lead in Gasoline, Gravimetric Method, is also available for this test. In addition, operating details of a push-button type polarograph, which is acceptable for use in Method D 1269, have been pub-

lished as information.³ Methods D 526 and D 1269 give equivalent results within their stated precision limits.

NOTE 2.—The method has not been co-operatively tested below the 0.5 g per gal level.

Summary of Method

2. The lead alkyl is converted to lead chloride and extracted from the gasoline by refluxing with concentrated hydrochloric acid. Known volumes of cadmium chloride and gelatin solution are added to the acid extract. After dilution to a specific volume the lead content of the solution is determined polarographically.

Apparatus

3. (a) *Electrolysis Assembly*,⁴ as shown in Fig. 1, consisting of the following component parts:

(1) *Sample Cell*.⁴—The cell shown in Fig. 1 has been found satisfactory⁴ (Note 3). It is designed to enable an operator to change samples without having to assemble and dismantle the apparatus. An index mark on the cell

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-2 on Petroleum Products and Lubricants. A list of members may be found in the ASTM Year Book.

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In 1961, this method was revised in order to make it applicable to the testing of gasolines containing both TEL and TML. Sections 8 and 9 were revised to specify calculations and precision in terms of grams of lead per US gallon.

² Appears in this publication.

³ See Appendix VII, compilation of "ASTM Standards on Petroleum Products and Lubricants," November, 1956, p. 914.

⁴ Obtainable from Fisher Scientific Co., Pittsburgh, Pa.