U. S. Department of Commerce
John T. Connor, Secretary
National Bureau of Standards
A. V. Astin, Director

Certificate of Analysis

Standard Reference Material 1074a

Calcium 2-Ethylhexanoate

(Standard for Determination of Calcium in Petroleum Products)

This compound was prepared to insure material that is essentially free from other metals and has suitable solubility, compatibility, and uniformity for use in the preparation of a standard of calcium in lubricating oils. The compound is certified to two parts per hundred of calcium, and every effort should be made to maintain a uniform procedure by following the directions in this certificate.

CHEMICAL AND SPECTROGRAPHIC ANALYSES

Procedure and Results of Chemical Analysis

Calcium, percent ---------- 12.5

A 1-g sample of calcium 2-ethylhexanoate (dried for 48 hr over phosphorus pentoxide) was wrapped in filter paper, covered with oxalic acid, and ignited at 700 °C. The residue was dissolved in dilute perchloric acid and the calcium titrated potentiometrically with standard ethylenediamine tetra-acetic acid (EDTA) solution.

Procedure and Results of Spectrographic Analysis

The compound was examined spectrographically for metallic impurities. A 5-mg sample of the compound was excited in a direct-current arc and the photographed spectrum was examined for the characteristic lines of 51 elements. Several impurities were found, but none is considered to be present in sufficient concentration to interfere with the intended use. The impurities were each estimated to be less than 0.01 percent.

STABILITY.—Tests show that standard lubricating-oil solutions of this compound with concentrations of calcium up to 500 ppm are stable for several weeks when prepared by the directions given below.

COMPATIBILITY.—Lubricating-oil solutions of this compound have been found to be compatible with lubricating-oil solutions of the other compounds in this series. Blends of several different compounds have been prepared by the procedures given in the certificates for the other compounds. (Tests have not been carried out to insure compatibility with the various additives that may be in the oils to be analyzed.)

The calcium 2-ethylhexanoate was prepared by Clarence Wade. Chemical analyses were conducted by B. B. Bendigo, and spectrographic analyses by Elizabeth K. Hubbard.

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W. Wayne Meinke, Chief
Office of Standard Reference Materials

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