



Certificate of Analysis

Standard Reference Material 154a

Titanium Oxide

TiO₂ ----- Percent
99.6*

* Based on material dried at 105 °C.

COMPOSITION.—The following percentages of constituents of Standard Sample 154a were obtained by chemical methods: loss on ignition—0.23; SiO₂—0.01; Fe₂O₃—0.004; P₂O₅—0.05. Spectrographic analysis indicates the presence of Al, Ba, Ca, Cu, Mg, Pb and Sb in amounts probably less than 0.01 percent each. These values have not been established with sufficient certainty to warrant certification and are given only as a matter of general information.

PROCEDURE FOR USE AS A STANDARD IN COLORIMETRY

Place 3 to 5 g of the sample, thoroughly mixed (by tumbling in the bottle) in a glass-stoppered weighing bottle and weigh accurately. Transfer approximately 1.004 g of the sample, without loss, to a 250-ml Erlenmeyer flask and reweigh. Without delay, transfer approximately 1.0 g of the sample to a clean, dry weighing bottle provided with a well-fitting ground glass stopper. Weigh accurately and determine the loss on drying for 2 hr at 105 °C. Correct the weight of the first sample taken for the loss on drying. Add 10 g of (NH₄)₂SO₄ and 25 ml of H₂SO₄ (sp. gr. 1.84). Insert a short-stemmed glass funnel in the neck of the flask and heat cautiously to incipient boiling while rotating the flask over a free flame. Continue the heating until complete solution has been effected and no unattached material remains on the wall of the flask. Cool and rapidly pour the solution into 450 ml of cool water which is vigorously stirred. Rinse the flask with diluted H₂SO₄ (5+95). Transfer the solution without loss to a 1000-ml volumetric flask, dilute to the mark with diluted H₂SO₄ (5+95), and thoroughly mix. The weight of the sample, on a dry basis, multiplied by 0.000996 represents the amount of TiO₂ in grams per milliliter.

PROCEDURE FOR USE AS A STANDARD IN VOLUMETRIC ANALYSIS

Transfer to a 250-ml Erlenmeyer flask approximately 1.75 g of the standard, accurately weighed and corrected for loss on drying at 105 °C as described in the Procedure for Use as a Standard in Colorimetry.² Add 20 g (NH₄)₂SO₄ and 25 ml of

¹ If operations have been properly performed the solution should be clear at this point and normally will not require filtration.

² Alternately, a 0.3500-g sample can be used. In this case transfer the sample to a 200-ml Erlenmeyer flask and dissolve by heating with 10 g (NH₄)₂SO₄ and 10 ml of H₂SO₄ (sp. gr. 1.84). Cool and rapidly pour the solution into 175 ml of cool water which is vigorously stirred. Rinse the flask with diluted H₂SO₄ (5+95), dilute the solution to 200 ml and proceed with the reduction and titration as directed.

Washington, D. C. 20234
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W. Wayne Meinke, Chief
Office of Standard Reference Materials

(This certificate supersedes certificate of 4-4-56. Editorial revision only.)

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