

Standard Methods of Test for

ACIDITY AND ALKALINITY OF INDUSTRIAL WATER¹



ASTM Designation: D 1884 - 67

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 1884; 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.

1. Scope

1.1 These methods cover the determination of acidity or alkalinity of industrial water. Four methods are given as follows:

	Sections
Referee Method (Electrometric Titration).....	5 to 13
Non-Referee Method A (Electrometric or Color-Change Titration).....	14 to 22
Non-Referee Method B (Color-Comparison Titration).....	23 to 30
Non-Referee Method C (Electrometric or Color-Change Titration after Boiling).....	31 to 39

1.2 In all the methods, hydrogen or hydroxide ions present in water by virtue of the dissociation or hydrolysis of its solutes, or both, are neutralized by titration with standard alkali (acidity) or standard acid (alkalinity). Of the four procedures, the Referee Method is the most precise and accurate. With it, a titration curve is developed which de-

fines inflection points and indicates buffering capacity; the acidity or alkalinity relative to a particular pH can be determined from the curve. The non-referee methods are used to determine acidity or alkalinity relative to a pre-designated end point based on the change in color of an internal indicator or the equivalent pH measured electrometrically. They are suitable for routine control purposes.

1.3 When titrating to selected datum points, the choice of end points will be determined primarily by the applicable process controls for the water; the choice must be such, however, that significant errors in titration due to inflection points on a typical titration curve are avoided. In some instances the titration end point may be at a pH beyond that at which the constituents of the water cease to react with the acid or alkali. Conversely, the desired end point may be such that only a part of the neutralizing capacity is measured.

2. Definitions

2.1 The terms "acidity" and "alkalinity" in these methods are defined in accordance with ASTM Definitions

¹ Under the standardization procedure of the Society, these methods are under the jurisdiction of the ASTM Committee D-19 on Water. A list of members may be found in the ASTM Year Book.

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