
INTERNATIONAL STANDARD



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Sodium tripolyphosphate for industrial use — Measurement of pH — Potentiometric method

Tripolyphosphate de sodium à usage industriel — Mesurage du pH — Méthode potentiométrique

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Descriptors : sodium tripolyphosphates, chemical analysis, measurement, pH, potentiometric analysis.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the technical committees were published as ISO Recommendations; these documents are in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 47, *Chemistry*, has reviewed ISO Recommendation R 851-1968 and found it technically suitable for transformation. International Standard ISO 851 therefore replaces ISO Recommendation R 851-1968, to which it is technically identical.

ISO Recommendation R 851 had been approved by the member bodies of the following countries :

Austria	India	South Africa, Rep. of
Belgium	Israel	Spain
Brazil	Italy	Switzerland
Bulgaria	Japan	Thailand
Chile	Korea, Dem. P. Rep. of	Turkey
Czechoslovakia	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Netherlands	U.S.S.R.
France	New Zealand	Yugoslavia
Germany	Poland	
Hungary	Romania	

No member body had expressed disapproval of the Recommendation.

No member body disapproved the transformation of the Recommendation into an International Standard.

Sodium tripolyphosphate for industrial use – Measurement of pH – Potentiometric method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a potentiometric method for the measurement of the pH value of a solution, at a conventional concentration of 10 g/l, of sodium tripolyphosphate (*pentasodium triphosphate*) for industrial use.

2 PRINCIPLE

Measurement of the pH of a sodium tripolyphosphate solution at a conventional concentration of 10 g/l by means of a pH meter.

3 REAGENTS

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity, freshly boiled and cooled to ambient temperature.

3.1 Disodium tetraborate, 0,01 M buffer solution.

Dissolve $3,81 \pm 0,01$ g of sodium tetraborate decahydrate ($\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$) in water, transfer quantitatively to a 1 000 ml one-mark volumetric flask, dilute to the mark and mix.

Store this solution in a hermetically sealed plastic bottle in the absence of atmospheric carbon dioxide and renew at least once a month.

According to the temperature, this solution gives the following pH values :

Temperature	pH
°C	
15	9,26
20	9,22
25	9,18
30	9,14

The pH change for + 1 °C is equal to – 0,008 pH unit.

3.2 Disodium tetraborate and sodium hydroxide, buffer solution.

Add 100 ml of 0,01 N sodium hydroxide solution to 100 ml of the sodium tetraborate buffer solution (3.1) and mix.

According to the temperature, this solution gives the following pH values :

Temperature	pH
°C	
15	9,64
20	9,61
25	9,58
30	9,55

The pH change for + 1 °C is equal to – 0,006 pH unit.

4 APPARATUS

Ordinary laboratory apparatus and

4.1 pH meter, fitted with a glass measurement electrode and a calomel reference electrode, of sensitivity 0,05 pH unit.

5 PROCEDURE

5.1 Test portion

Weigh, to the nearest 0,001 g, 1 g of the test sample.

5.2 Preparation of test solution

Place 50 ml of water in a beaker of suitable capacity (for example 250 ml) and add, in small quantities, the test portion (5.1), stirring with a glass rod until dissolution is complete.

Transfer quantitatively the solution to a 100 ml one-mark volumetric flask, dilute to the mark and mix.

NOTE – Prepare the test solution just before use.