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Maleic anhydride for industrial use — Methods of test — Part VI : Determination of iron content — 2,2'-Bipyridyl photometric method

*Anhydride maléique à usage industriel — Méthodes d'essai —
Partie VI : Dosage du fer — Méthode photométrique au bipyridyle-2,2'*

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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 1390-1970 and found it technically suitable for transformation. The technical committee, however, divided the recommendation into six parts (ISO 1390, parts I to VI), which therefore replace ISO Recommendation R 1390-1970, to which they are technically identical.

ISO Recommendation R 1390 had been approved by the member bodies of the following countries :

Austria	Iran	South Africa, Rep. of
Belgium	Ireland	Spain
Brazil	Italy	Sweden
Cuba	Korea, Rep. of	Switzerland
Czechoslovakia	Netherlands	Thailand
France	New Zealand	Turkey
Germany	Poland	United Kingdom
Hungary	Portugal	U.S.S.R.
India	Romania	

No member body had expressed disapproval of the Recommendation.

The member bodies of the following countries disapproved the transformation of the Recommendation into an International Standard :

France
Netherlands

Maleic anhydride for industrial use – Methods of test – Part VI : Determination of iron content – 2,2'-Bipyridyl photometric method

1 SCOPE AND FIELD OF APPLICATION

This part of ISO 1390 specifies a 2,2'-bipyridyl photometric method for the determination of the iron content of maleic anhydride for industrial use.

This document should be read in conjunction with part I (see the annex).

2 PRINCIPLE

Dissolution, in hot hydrochloric acid, of the residue from the determination of ash of a test portion (see part V). Reduction, by hydroxylammonium chloride, of the trivalent iron contained in the solution thus obtained. Formation of the coloured complex iron(II)-2,2'-bipyridyl in a buffered medium. Photometric measurement of the coloured complex at a wavelength of about 510 nm.

3 REAGENTS

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

3.1 Hydrochloric acid, ρ approximately 1,19 g/ml, about 38 % (m/m) solution or approximately 12 N.

3.2 Nitric acid, approximately 4 N solution.

3.3 Urea ($\text{NH}_2\text{—CO—NH}_2$) solution.

Dissolve 100 g of urea in 100 ml of water.

3.4 Hydroxylammonium chloride ($\text{NH}_2\text{OH}\cdot\text{HCl}$), 100 g/l solution.

3.5 Ammonium acetate ($\text{CH}_3\text{COONH}_4$), 500 g/l solution.

3.6 2,2'-Bipyridyl, 5 g/l hydrochloric solution.

Dissolve 0,5 g of 2,2'-bipyridyl in 100 ml of approximately 1 N hydrochloric acid solution.

3.7 Iron, standard solution corresponding to 0,100 g of Fe per litre.

Weigh, to the nearest 0,000 1 g, 0,702 2 g of ammonium iron(II) sulphate hexahydrate $[(\text{NH}_4)_2\text{SO}_4\cdot\text{FeSO}_4\cdot 6\text{H}_2\text{O}]$, dissolve in 50 ml of approximately 3 N sulphuric acid solution, transfer quantitatively to a 1 000 ml one-mark volumetric flask, dilute to the mark and mix.

1 ml of this standard solution contains 0,100 mg of Fe.

3.8 Iron, standard solution corresponding to 0,010 g of Fe per litre.

Place, in a 1 000 ml one-mark volumetric flask, 100 ml of the standard iron solution (3.7), dilute to the mark and mix.

1 ml of this standard solution contains 10 μg of Fe.

Prepare this solution immediately before use.