

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF

AS/NZS 1580.505.1:1996

**Paints and related materials— Methods of test
Method 505.1: pH of water-based paints**

RECONFIRMATION NOTICE

Technical Committee CH-003 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 30 May 2013.

Approved for reconfirmation in New Zealand on behalf of the Standards Council of New Zealand on 26 August 2013.

The following are represented on Technical Committee CH-003:

Australasian Corrosion Association
Australian Paint Approval Scheme
Australian Paint Manufacturers' Federation
Australian Pipeline Industry Association
Institution of Professional Engineers New Zealand
Master Painters New Zealand Association
Water Corporati

NOTES

Australian/New Zealand Standard[®]

Paints and related materials—Methods of test

Method 505.1: pH of water-based paints

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CH/3, Paints and Related Materials, to supersede AS 1580.505.1—1987.

This Standard differs from the previous edition, in that Method B has been included as a method for production control purposes.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

METHOD

1 SCOPE This Standard sets out two methods for determining the pH of water-based paints. Method A is a referee method and is considered to be primarily applicable to paints whose pH is within the nominal range of pH = 3 to pH = 10.

NOTE: Method A may be used for paints whose pH occurs outside this range but the test laboratory should be aware of the limitations of the accuracy of glass electrodes used at these extremes of pH. Hence the precision data stated in Clause 9 is not applicable to those cases.

Method B is intended for production control to determine the approximate pH only.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

- 1580 Paints and related materials—Methods of test
- 1580.101.4 Conditions of test, temperature controlled
- 1580.102.1 Sampling procedure
- 1580.103.1 Preliminary examination and preparation for testing
- 2831 Thermometers—Solid stem—Long and short—For precision use

ASTM

- E70 Test methods for pH of aqueous solutions with the glass electrode

BS

- 1647 pH measurement
- 1647.2 Part 2: Specification for reference value standard solutions and operational reference standard solutions

BATES, Roger G (NBS), ‘Determination of pH—Theory and Practice’, J Wiley & Sons, NY (1965).

3 METHOD A—REFEREE METHOD

3.1 Principle After a specified pH meter is calibrated with reference solutions under prescribed conditions, the pH of the test paint is directly measured and corrections made, if appropriate, for apparent instrumental error.

3.2 Apparatus

3.2.1 pH measuring instrument—capable of measuring accurately to the nearest 0.1 pH unit. It should include—

- (a) suitable electrode(s) with stand;

NOTE: Some waterborne paints are coagulated by potassium chloride solution from the electrode, which may lead to inaccurate results. This may be avoided by using a double junction electrode as a reference electrode.

- (b) a means of directly reading the pH value; and
- (c) a temperature-compensating control which may be manual or automatic.

NOTES:

- 1 Due to the many different brands of pH meters and electrodes that are available, it is recommended that as far as possible the user should follow the manufacturer's instructions on the operation and maintenance of the unit and the electrodes. Note should also be taken of the effective range of the apparatus.
- 2 Accrediting organizations may specify a nominated calibration procedure for junction electrodes.

3.2.2 Thermometer—accurate to $\pm 0.5^{\circ}\text{C}$ over the temperature range 10°C to 35°C .

NOTE: Suitable thermometers are shown in AS 2831.

3.3 Materials

3.3.1 Reference solutions Two standard buffer solutions with—

- (a) preferably, pH values bracketing the pH of the test sample; or
- (b) alternatively, pH values very close to the suspected pH of the test sample.

NOTE: A table of acceptable buffer solutions is given in Appendix A.

3.3.2 Saturated potassium chloride (KCl) solution

3.3.3 Distilled or deionized water—freshly boiled and cooled to ambient temperature.

3.4 Preparation of sample A representative sample of paint shall be taken in accordance with AS 1580.102.1 and prepared for testing as described in AS 1580.103.1.

3.5 Test conditions Unless otherwise specified, the test shall be performed under routine conditions as specified in AS 1580.101.4.

3.6 Procedure

3.6.1 Calibration of instrument Calibrate the instrument as follows:

- (a) Switch on the instrument and allow it to reach operating conditions in accordance with the manufacturer's instructions.
- (b) Prepare the electrodes in accordance with the manufacturer's instructions or the recommended procedure.
- (c) Prepare the two standard buffer solutions. Allow them to come to room temperature.
- (d) Note the temperature of the test sample(s) and adjust the temperature-compensating control of the instrument to the proper setting.

NOTE: This adjustment is not necessary for units fitted with an automatic temperature-compensating device.