Australian Standard®

# METHODS OF TEST FOR VITREOUS ENAMEL COATINGS

## PART 3.1: MISCELLANEOUS—DETERMINATION OF THE PERFORMANCE OF CONTINUOUS CLEANING VITREOUS ENAMEL COATINGS

THE following scientific, industrial and governmental organizations and departments were officially represented on the committee entrusted with the preparation of these standard methods:

Australian Electrical Manufacturers Association

Australian Gas Association

Australian Vitreous Enamellers Institute

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Department of Science

Electricity Supply Association of Australia

Gas Appliance Manufacturers Association of Australia

Health Commission of N.S.W.

Metal Trades Industry Association of Australia

Australian Standard®

# METHODS OF TEST FOR VITREOUS ENAMEL COATINGS

## PART 3.1: MISCELLANEOUS—DETERMINATION OF THE PERFORMANCE OF CONTINUOUS CLEANING VITREOUS ENAMEL COATINGS

# PREFACE

These standard methods were prepared by the Association's Committee on Vitreous Enamel Finishes as the revision, metrication and extension of the methods in AS K95—1961 which they accordingly supersede.

During its work on these standard methods, the committee took particular note of ISO/TC 107/SC 7 published documents and standards, and accordingly has introduced test methods and equipment which have been adopted as international standards. These include:

| | |
|---|---|
| ISO 2722 | Vitreous and Porcelain Enamels—<br>Determination of Resistance to Citric Acid at Room Temperature |
| ISO 2723 | Vitreous and Porcelain Enamels for Sheet Steel—<br>Production of Specimens for Testing |
| ISO 2724 | Vitreous and Porcelain Enamels for Cast Iron—<br>Production of Specimens for Testing |
| ISO 2733 | Vitreous and Porcelain Enamels—<br>Apparatus for Testing with Acid and Neutral Liquids and their Vapours |
| ISO 2734 | Vitreous and Porcelain Enamels—<br>Apparatus for Testing with Alkaline Liquids |
| ISO 2742 | Vitreous and Porcelain Enamels—<br>Determination of Resistance to Boiling Citric Acid |
| ISO 2743 | Vitreous and Porcelain Enamels—<br>Determination of Resistance to Boiling Hydrochloric Acid |
| ISO 2744 | Vitreous and Porcelain Enamels—<br>Determination of Resistance to Boiling Water and Water Vapour |
| ISO 2745 | Vitreous and Porcelain Enamels—<br>Determination of Resistance to Hot Sodium Hydroxide |
| ISO 2746 | Vitreous and Porcelain Enamels—<br>Enamelled Articles for Service under Highly Corrosive Conditions—High Voltage Test |

International tests for the determination of abrasion resistance have not yet been finalized; accordingly, this standard relies on the test developed by the Porcelain Enamel Institute in America as specified in ASTM C448—1964.

The introduction of continuous cleaning enamels on the commercial market has necessitated the inclusion of a test method to test their efficacy.

These standard methods may require reference to the following standards:

| | |
|---|---|
| AS 1580 | Methods of Test for Paints, Varnishes, Lacquers and Related Materials (Metric Units)—<br>Method 602.2, Specular Gloss |
| AS 1914 | Glossary of Terms Relating to Vitreous Enamel Coatings |
| BS 1041 | Code for Temperature Measurement |

LIST OF METHODS

| Number | Title |
|---|---|
| PART 1— CHEMICAL TESTS | |
| AS 2219.1.1—1978 | Determination of resistance of vitreous enamel coatings to hot sodium hydroxide |
| AS 2219.1.2—1978 | Determination of resistance of vitreous enamel coatings to boiling water and water vapour |
| AS 2219.1.3—1978 | Determination of resistance of vitreous enamel coatings to boiling hydrochloric acid |
| AS 2219.1.4—1978 | Determination of resistance of vitreous enamel coatings to boiling citric acid |
| AS 2219.1.5—1978 | Determination of resistance of vitreous enamel coatings to citric acid at room temperature |
| PART 2— PHYSICAL TESTS | |
| AS 2219.2.1—1978 | Determination of resistance of vitreous enamel coatings on steel to thermal shock |
| AS 2219.2.2—1978 | Determination of the heat resistance of vitreous enamel coatings on cast iron |
| AS 2219.2.3—1978 | Determination of abrasion resistance of vitreous enamal coatings |
| PART 3— MISCELLANEOUS TESTS | |
| AS 2219.3.1—1978 | Determination of the performance of continuous cleaning vitreous enamel coatings |

STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**

# METHODS OF TEST FOR VITREOUS ENAMEL COATINGS

PART 3—MISCELLANEOUS

## AS 2219.3.1
## DETERMINATION OF THE PERFORMANCE OF CONTINUOUS CLEANING VITREOUS ENAMEL COATINGS

**1 SCOPE.** This standard describes the procedure for assessing the ability of continuous cleaning vitreous enamel surfaces to withstand contamination by spattered fatty soils during cooking.

**2 PRINCIPLE.** Known quantities of fatty cooking ingredients and beef dripping are applied to heated test panels. Efficiency of the enamel to be self-cleaning is assessed by mass of soil retained after heating.

**3 DEFINITIONS.** For the purpose of this standard, the following definitions apply:

*Test sample*—a portion of material or a group of items selected from a batch or consignment by a sampling procedure.

*Test specimen*—a portion of material or a single item taken from the sample for the purpose of applying a particular test.

*Test panel*—a panel prepared for testing and made from a test specimen by some mechanical operation.

**4 REAGENTS.** The following reagents (cooking soils) are required:

(a) *Cooking oil mixture.* Mix equal quantities by mass of peanut oil, safflower oil and hydrogenated palm oil; gently heat to approximately 100°C and stir thoroughly.

(b) *Beef dripping.* Heat to approximately 100°C.

**5 APPARATUS.** The following apparatus is required:

(a) Temperature controlled oven (±5°C up to 300°C).

(b) Tared drop bottle for dispensing cooking soil.

NOTE: The size of the drop bottle should be such that 1 drop dispenses 25 ± 5 mg of hot soil.

ISBN 07262 1591 0