Australian Standard®

Guide to the properties of paints for buildings

Part 0: General information on the specification, purchasing and testing of paints

This Australian Standard was prepared by Committee CH/3, Paints and Related Materials. It was approved on behalf of the Council of Standards Australia on 28 June 1991 and published on 16 September 1991.

The following interests are represented on Committee CH/3:

Australasian Corrosion Association

Australian Paint Manufacturers Federation

Austroads

Bureau of Steel Manufactures of Australia

Confederation of Australian Industry

Department of Defence

Government Paint Committee

National Association of Testing Authorities, Australia

Railways of Australia Committee

Retail Traders Association of Australia

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PREFACE

This Standard was prepared by the Standard Australia Committee on Paints and Related Materials to augment the range of Standard dealing with partings for buildings.

The AS 3730 series will progressively augment existing Standards on paints and replace SAA TR1 Part 1 to 10—1982, *Paints for buildings*.

The AS 3730 series has been prepared as guides to the range of frequently used paints for buildings which are air-dried and generally applied on site. These guides include features of each product type and typical product characteristics. Typical product characteristics are to be taken as a guide only and not as mandatory. Because a product is used as part only of an overall painting system, the AS 3730 guides should not be used as a substitute for a detailed painting specification from the manufacturer, based on AS 2311—1983, *The painting of buildings* or NATSPEC Section 570, *Painting*. Successful specifications are based on the proved performance of the total paint system, and not on the characteristics of individual paint products in isolation.

This Part provides general information not covered in individual guides for paint specifications for buildings in the AS 3730 series.

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STANDARDS AUSTRALIA

Australian Standard

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1 SCOPE This Standard presents information generally applicable to the specification of paints intended for decorative, and to a lesser extent, protective purposes on domestic, public and commercial buildings. It refers to the difficulties involved in setting specifications for paints that are intended for a wide range of uses.

2 REFERENCED DOCUMENTS A list of documents referred to in this Standard is given in Appendix A.

3 DIFFICULTIES IN SPECIFICATION Paints for buildings are used by a very wide section of the community, e.g. the building industry, the public service, painting contractors and individuals. These different sectors of the market emphasize different criteria for product suitability, e.g. home owners are concerned mainly with durability, architects with colour and texture, and painters with ease of application.

Because the emphasis on product characteristics is so varied, Standards which set minimum or maximum values for durability, opacity and non-volatile content by volume are not appropriate for all these fields of use, and therefore tend to be written for the informed user.

To any user, weathering and minimum number of paint coats required should be of paramount importance. Maximum protection of the substrate at minimum long-term cost is considered to be the prime objective in painting and should be the subject of definite, verifiable requirements in Standards for building paints. Manufacturers' experience has shown that the contributions made by colour and volume solids components to the performance of a product cannot be isolated from other important characteristics such as hiding power, application properties, durability and finish. A paint can only be regarded as a mixture of components so closely integrated in the formulation that no one characteristic can be altered without having a measurable effect on others. Because of these considerations colour is of major importance when specifying paints for buildings.

4 THE SPECIFICATION OF 'VOLUME SOLIDS' Paint usually comprises a semi-solid or solid material dispersed or dissolved in a liquid allowing the product to be readily applied to a surface or substrate. The amount of thinning liquid is adjusted to optimize the application properties, or price per litre of the paint. An acceptable, well-established method of test for the determination of spreading rate has not yet been found, however the amount of paint required to coat a surface can be estimated from the area to be covered at the desired *dry* film thickness. The spreading rate varies considerably from product to product but can be assessed for any one paint by measurement of the non-volatile content of the paint and using the equation—

$$A = 10 \times N \times L/F \quad \ldots 4(1)$$

where

A = area to be covered, in square metres

N = the non-volatile content, in percent by volume

L = the volume of paint required, in litres

F = the dry film thickness, in micrometres

Theoretically, the use of a paint with half the non-volatile content of another, would require the use of twice the quantity of paint for a given area and dry film thickness. However, uncertainty about the repeatability and reproducibility of current methods for determining volume solids of different paints, and its contributions to the hiding power at specific dry film thicknesses, does not justify the adoption of numerical limits for the volume solids content.

5 THE SPECIFICATION OF COLOUR (see also Appendix B) Although a large number of pigments are available, many have some technical limitations, and currently it is not possible to produce paints with similar properties over the whole colour spectrum. In general, the darker colours have excellent opacity but have poorer gloss retention outdoors owing to the radiant energy absorbed from the sun. Some colours, such as reds and yellows, and their related pastel tints, in general have lower opacity.

Organic pigments of very fine particle size colour white base paint strongly to produce clean bright colours. However, the same pigments in high concentrations contribute to poor flow and gloss and may be less opaque and durable than coarser pigments of the same chemical type.