INTERNATIONAL STANDARD ISO 2814

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Paints and varnishes — Comparison of contrast ratio (hiding power) of paints of the same type and colour

First edition — 1973-12-15

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UDC 667.657.1

Ref. No. ISO 2814-1973 (E)

Descriptors : paints, tests, coatings, covering power.

Price based on 2 pages

FOREWORD

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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.

International Standard ISO 2814 was drawn up by Technical Committee ISO/TC 35, *Paints and varnishes,* and circulated to the Member Bodies in May 1972.

It has been approved by the Member Bodies of the following countries :

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Printed in Switzerland

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0 INTRODUCTION

This International Standard is one of a series dealing with the sampling and testing of paints, varnishes and related products. It should be read in conjunction with ISO 1512, *Paints and varnishes — Sampling*, and ISO 1513, *Paints and varnishes — Examination and preparation of samples for testing.*

The method specified in this International Standard has been worked out after careful study by an ISO Task Group. The method, comparison of contrast ratio of films drawn down on a black and white substrate at equal wet film thickness, is the simplest of those investigated and has been found to give a reproducible comparison for paints of similar type. Because different operators using the same film coating device obtain films differing significantly in thickness, probably due to variation in pressure on the applicator, the method is not satisfactory as an absolute method for the determination of hiding power and the development of an International Standard for this is still in progress.

The objective of this work was to standardize a method relating closely to practical application. For this reason the wet film thickness (or spreading rate) has been specified rather than the dry film thickness or mass. The wet film thickness selected, approximately 50 μm, corresponds to a spreading rate of approximately 20 m^2/l; for most paints this represents an average for brush application of a free-flowing paint on a smooth, non-porous surface.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the standard method to be used in comparing the contrast ratios given by paint films of white or light colours, of reflectance factor greater than 40 %, dried at normal air temperatures and applied at approximately equal wet film thickness to black and white substrates.

ISO ...[1] specifies a method for determining the hiding power (contrast ratio) of a paint.

2 APPARATUS

2.1 Substrate

One of the following substrates shall be chosen :

2.1.1 *Cards*, measuring at least 100 mm × 200 mm, thickness 0,2 to 0,35 mm, printed and varnished to give adjacent black and white areas readily wetted by, but impervious to, solvent- or water-thinned paints. The black and white areas shall each be of a minimum 80 mm × 80 mm size. The reflectance of the white areas of the card shall not be less than 75 % no more than 85 % and that of the black areas shall not be more than 5 %. The reflectance of white areas of the cards in comparative tests shall not vary by more than ± 1 % from the mean.

NOTE — Morest Chart, Form OP7, has been found suitable, but other cards, which satisfy the above requirements, may be used also. In any series of comparative tests, including interlaboratory tests, cards from the same printing shall be used.

2.1.2 *Clear transparent polyester film*, at least 100 mm × 200 mm and approximately 50 μm thick, used over black and white glass plates. The reflectance of the white plate shall not be less than 84 % nor more than 86 %, and that of the black plate shall not be more than 5 %.

2.2 Film applicator

A block applicator of rectangular shape, having a slot at least 70 mm wide ground from the underface to form a gap 100 ± 2 μm deep when the applicator is placed on an optically plane surface. The dimensions of the flat portion of the slot from front to back of the applicator block should be not less than 5 mm. By agreement, applicators with gaps other than 100 μm may be used.

2.3 Reflectometer

A photoelectric instrument giving an indicated reading proportional to the intensity of light diffusely reflected from the surface under test, within an accuracy of 1 %, and having a spectral response approximating to the CIE photopic luminous efficiency function weighted for C.I.E. Illuminant C or D 65.[2]

3 PREPARATION OF SAMPLE

Representative samples of the products to be compared shall be taken, as specified in ISO 1512. The samples shall be prepared for testing as specified in ISO 1513.

1) In preparation.

2) See Commission Internationale de l'Éclairage, CIE Compte Rendu 1963.

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