



المواصفة القياسية الكويتية
KWS 16/2018

الأصباغ (الدهانات) اللامعة ذات الأساس الألكيدي للأعمال الداخلية
والخارجية وأعمال البناء والخرسانة

**Gloss Alkyd Paint for Interior and Exterior Uses and
for concrete, steel, and wood surfaces.**

الهيئة العامة للصناعة
دولة الكويت

تمثل إدارة المواصفات والمقاييس جهاز التقييس الوطني بدولة الكويت وهي عضو مؤسس في هيئة التقييس لدول مجلس التعاون لدول الخليج العربية وهي هيئة إقليمية تضم في عضويتها أجهزة التقييس الوطنية في الدول الأعضاء، ومن مهام الإدارة إعداد المواصفات القياسية واللوائح الفنية الكويتية بواسطة لجان فنية متخصصة.

قامت اللجنة الفنية بدراسة وتحديث المواصفة القياسية الكويتية رقم KWS 16 ، التعاريف والتصنيف والخصائص وبطاقة البيانات مع إدخال تعديلات فنية عليها وذلك وفق القرار الوزاري الصادر بشأنها.

**Public Authority for Industry
Specifications and Standards Department**

Final Draft

8.3.2018

**Gloss Alkyd Paints for Interior and Exterior Uses
and for concrete, steel, and wood surfaces.**

KSS No.16/1994

**Gloss Alkyd Paints for Interior and Exterior Uses
and for concrete, steel, and wood surfaces.**

1) Scope

1.1 This Kuwaiti Standard is concerned with the requirements and testing methods of alkyd (oily) gloss paints as well as base paints for painting as a final layer, used in alkyd paints for exterior and interior uses and for concrete, steel, and wood surfaces.

2 Normative references:

- 2.1 GSO ISO 1513 – Paints and Varnishes – Examination and Preparation of test samples
- 2.2 GSO ISO 1514 - Paints and Varnishes – standard Panels for testing
- 2.3 GSO ISO 2808 Paints and Varnishes – determination of film thickness
- 2.4 GSO ISO 15528 Paints, varnishes and raw materials for paints and varnishes – Sampling
- 2.5 GSO ISO 3270 Paints and varnishes and their raw materials - Temperatures and humidities for conditioning and testing
- 2.6 GSO ISO 2811-1 Paints and Varnishes- determination of density – Part 1: pycnometer method.
- 2.7 GSO ISO 6504-3 Paints and varnishes - Determination of hiding power - Part 3: Determination of contrast ratio of light-coloured paints at a fixed spreading rate
- 2.8 GSO ISO 2884-2 Paints and varnishes - Determination of viscosity using rotary viscometers - Part 2: Disc or ball viscometer operated at a specified speed
- 2.9 GSO ISO 3251 Paints, varnishes and plastics - Determination of non-volatile-matter content
- 2.10 GSO ISO 2813 Paints and varnishes -- Determination of gloss value at 20 degrees, 60 degrees and 85 degrees
- 2.11 GSO ISO 9117-4 Paints and varnishes -- Drying tests -- Part 4: Test using a mechanical recorder
- 2.12 ASTM D2486 standard test methods for scrub resistance of wall paints.
- 2.13 GSO ISO 1524 Paints, varnishes and printing inks -- Determination of fineness of grind
- 2.14 GSO ISO 1523 Determination of flash point -- Closed cup equilibrium method
- 2.15 GSO ISO 3856-1 Paints and varnishes - Determination of "soluble" metal content - Part 1: Determination of lead content - Flame atomic absorption spectrometric method and dithizone spectrophotometric method

- 2.16 GSO ISO 1647-3 Paints and varnishes -- Methods of exposure to laboratory light sources -- Part 3: Fluorescent UV lamps
- 2.17 GSO ISO 1519 Paints and varnishes -- Bend test (cylindrical mandrel)
- 2.18 GSO ISO 6272-1 Paints and varnishes -- Rapid-deformation (impact resistance) tests -- Part 1: Falling-weight test, large-area indenter
- 2.19 GSO ISO 2812-1 Paints and varnishes -- Determination of resistance to liquids -- Part 1: Immersion in liquids other than water
- 2.20 GSO ISO 11890-1 Paints and varnishes - Determination of volatile organic compound (VOC) content – Part 1: Difference method
- GSO ISO 11890-2 Paints and varnishes - Determination of volatile organic compound (VOC) content Part 2: Gas-chromatographic method

3 Classifications:

- 3.1 Alkyd gloss paints for interior and exterior uses are classified into premium and medium categories.
- 3.2 Gloss alkyd paints are classified as they include the white color and three types of bases: base (a) for light colours, base (b) for medium colours and base (c) for dark colours.

4 Definitions:

4.1 Gloss

Extent of the painted surface's ability to reflect light.

4.2 Final appearance:

A paint which provides upon its dryness a layer with a high degree of gloss.

4.3 Vehicle:

The carrier medium shall contain a dryable oil or alkyd resin or a mixture of both. Further, it contains a suitable solvent or a mixture of diluters and additives.

4.4 Pigments:

Any pigments and suitable dispersion materials may be used, provided the final product meets all the requirements of this standard specification.

4.5 Base:

It is a semi-finished product which needs to be tinted to be a finished coloured product and it is classified as A base, B base, and C base depending on the required colour of final product.

4.6 Skinning:

The formation of a skin layer on top of the paint surface inside the container.

4.7 Opacity

The ability of the paint layer to conceal or opaque the painted underneath surface.

4.8 Drying time

The time elapsed between using the paint layer and reaching the specified dryness condition.

4.9 Peeling (removal)

The failure which occurs due to the bulging of a dried layer of paint or varnish upon painting with another layer, and usually appears in the form of twists

4.10 Lifting (bulging)

This is a failure which occurs in the paint or dried painted layer and usually appears in the form of curls when painted with another layer above it.

5 Requirements

5.1 Composition:

Alkyd (oily) paint consists of a color with suitable spreading substances with suitable ratios in alkyd (oily) medium or any type of industrial alkyds with any other suitable compositions suitable for the production of the paint substance which achieve the requirements of this specification.

5.2 Application properties:

The paint shall be characterized by satisfactory application properties upon applying it according to the manufacturers' recommendations. The dry layer of paint should be gloss, well adhered and free of any surface deformation such as sagging, crinkling, cracking, pinholds, or any other surface defects, after the lapse of 24 hours as a maximum of air drying.

5.3 Status in the container:

The paint shall be free of particles, skinning surfaces or gelling and the paint shall not contain any residue or granules other than the ones that can be re-mixed in the paint, in order for the paint to be in a smooth and homogenous status.

5.4 Storage properties:

The paint shall retain its properties if left in its tightly sealed original container away from direct sunlight for a period not less than 12 months without forming a skin layer on the surface or its composition thickens during this period and upon occurrence of deposition, it may be re-mixed easily.

5.5 Appearance of dried film (finish):

When a film of the paint has dried for the specified drying period, it shall have, smooth, firmly adherent and substantially free from brush marks or sagging or wrinkling, and shall in no way be inferior as regards finish to a film prepared in the same way and the same time from the approved reference sample.

5.6 Requirements:

Table No.1 illustrates the requirements for the premium category and table No.2 the requirements for the medium category, and the base paints for each category.

Table 1: (Alkyd Paints – Premium / Gloss)

Premium / Gloss				
Test Description	اللون الأبيض (White)	أساس أ (Base A)	أساس ب (Base B)	أساس ج (Base C)
Specific gravity ISO 2811-1 (Maximum)	1.3	1.3	1.2	1.2
Opacity - % ISO 6504-3 (Minimum)	90	90	80	NA
Viscosity - poise ISO 2884-2	5-10	5-10	5-10	5-10
Gloss ISO 2813(at angle 60°) (Minimum)	80	80	80	80
Surface Dry Time – Hrs. ISO 9117-4 at film thickness 100 µm (Maximum)	3	3	3	3
Full Dry / Dry to hardness - Hrs. ISO 9117-4 at film thickness 100 µm (Maximum)	24	24	24	24
Scrub resistance ASTM D2486 at film thickness 100 µm (Minimum 3000 cycles)	pass	pass	pass	pass
Fineness of Grind - Micron ISO 1524 (Maximum)	30	30	30	30
Flash point - °C ISO1523 (Minimum)	35	35	35	35
Lead - wt.% ISO 3856-1 (Maximum)	0.06	0.06	0.06	0.06
Artificial weathering ISO 16474-3 (at 360 hrs.)	pass	pass	pass	pass
Elasticity Bend ISO 1519 at 3mm	pass	pass	pass	pass
Impact test ISO 6272-1 (at 1000gm, 85 cm)	pass	pass	pass	pass
Kerosene Resistance ISO 2812-1 (at 24 hrs.)	pass	pass	pass	pass
Non Volatile Material - wt.% ISO 3251 (Minimum)	55	50	50	45
Volatile Organic Compound- g/L ISO 11890-1/ ISO 11890-2 (Maximum)	500	500	500	500

*For any test sample the exposed area should not exceed (Maximum 5mm) along the same direction of the brush

Table 2: (Alkyd Paints Gloss– Medium)

Medium / Gloss				
Test Description	اللون الأبيض (White)	أساس أ (Base A)	أساس ب (Base B)	أساس ج (Base C)
Specific gravity ISO 2811-1 (Maximum)	1.3	1.2	1.2	1.2
Opacity - % ISO 6504-3 (Minimum)	90	90	80	NA
Viscosity - poise ISO 2884-2	5-10	5-10	5-10	5-10
Gloss ISO 2813(at angle 60°) (Minimum)	80	80	80	80
Surface Dry Time – Hrs. ISO 9117-4 at film thickness 100 µm (Maximum)	4	4	4	4
Full Dry / Dry to hardness - Hrs. ISO 9117-4 at film thickness 100 µm (Maximum)	24	24	24	24
Scrub resistance ASTM D2486 at film thickness 100 µm (Minimum 3000 cycles)	pass	pass	pass	pass
Fineness of Grind - Micron ISO 1524 (Maximum)	30	30	30	30
Flash point - °C ISO1523 (Minimum)	35	35	35	35
Lead - wt.% ISO 3856-1 (Maximum)	0.06	0.06	0.06	0.06
Artificial weathering ISO 16474-3 (at 360 hrs.)	pass	pass	pass	pass
Elasticity Bend ISO 1519 at 3mm	pass	pass	pass	pass
Impact test ISO 6272-1(at 1000gm, 85 cm)	pass	pass	pass	pass
Kerosene Resistance ISO 2812-1 (at 24 hrs.)	pass	pass	pass	pass
Non Volatile Material - wt.% ISO 3251 (Minimum)	50	50	50	45
Volatile Organic Compound- g/L ISO 11890-1/ ISO 11890-2 (Maximum)	500	500	500	500

*For any test sample the exposed area should not exceed (Maximum 5mm) along the same direction of the brush

6) Sampling:

- 6.1 A sample representing the paint consignment of not less than 4 litres or 1 gallon shall be taken according to the method stipulated under clause 2.4
- 6.2 The samples shall be prepared for testing according to clause 2.1 & 2.2

7) Packing:

- 7.1 The paints shall be packed in suitable, clean, dry and tightly sealed containers, and inactive to the contents whereby the free space from the full level is 15% as a maximum.
- 7.2 A variation in the content by $\pm 2\%$ shall be allowed.

8) Labelling:

The following details shall be placed on each container in Arabic language or in Arabic and English languages, in a manner difficult to be removed.

- 8.1 Name and type of the paint, its classification according to clause 3 and the type of the base used whether A, B, or C for each class.
- 8.2 Name of the manufacturer or its trademark.
- 8.3 Country of origin
- 8.4 If the paints are manufactured according to a license, this detail shall be stated.
- 8.5 Production batch number
- 8.6 Production date (month, year), expiry date or validity period from the production date.
- 8.7 Net volume in litres or its equivalent.
- 8.8 Method of use and maximum limit for the dilution percentage whereby the paint retains its properties.
- 8.9 Any warning details relevant to this paint (example: may cause allergy upon contacting the skin)
- 8.10 Warning: it is prohibited to use containers to store foodstuff
- 8.11 Other clarification details (for example storage conditions, it should be stored in the shade, as per the technical and safety data sheet of the substance TDS).
- 8.12 Place the international logo of the United Nations Program which demonstrates hazard of paint.
- 8.13 Indicate whether the product conforms with this specification standard.

الجهات التي اشتركت في وضع المواصفات القياسية

-الهيئة العامة للصناعة - إدارة المواصفات والمقاييس - إدارة مختبرات الجودة.

-وزارة الأشغال العامة/ المركز الحكومي للأبحاث والبناء.

-المؤسسة العامة للرعاية السكنية.

-شركة أصباغ جي تي سي المحدودة GTC.

-أصباغ ناشونال NATIONAL

-شركة همبل للأصباغ البحرية - الكويت HEMPEL.

-شركة سايبس SIPES.

-شركة أصباغ ام بي سي MPC

-شركة أصباغ كي بي سي KPC

-شركة أصباغ جوتن JOTUN