CARICOM Regional Standard

Paints - Solvent-borne coatings - Specification

CDCRS 48: 202X

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Committee representation

This CARICOM Regional Standard was developed under the supervision of the Regional Technical Sub-Committee for Paints, (hosted by the CARICOM Member State, Trinidad and Tobago), which at the time comprised the following members:

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Foreword

This CARICOM Regional Standard *CRS 39:202X*, *Paints – Solvent-borne coatings – Specification* has been developed under the authority of the CARICOM Regional Organisation for Standards and Quality (CROSQ). It was approved as a CARICOM Regional Standard by the CARICOM Council for Trade and Economic Development (COTED).

This standard is a revision of and supersedes CCS 20:1992, *Paint – Interior and oil modified alkyd* which was prepared for the Caribbean Common Market Standards Council (CCMSC).

This standard sets the minimum requirements for solvent-borne coatings for interior and exterior use that are manufactured or traded within the Caribbean Community. It specifies performance as well as physical and chemical requirements for coatings.

The revision of CCS 20:1992 was undertaken by the Regional Technical Sub-Committee for Paints hosted by Trinidad and Tobago. This revision was undertaken to incorporate reductions in the lead and volatile organic content of paint in alignment with global initiatives to protect the environment and the health and safety of the consumer. The major changes from the previous version of the standard include the following:

a) inclusion of a reduced maximum limit for lead;

b) inclusion of a reduced maximum limit for volatile organic compounds;

c) inclusion of reference test methods;

d) inclusion of an Annex that provides recommended gloss level ranges for solvent-borne coatings.

The labelling requirements outlined in this standard have been extracted from the relevant requirements in the regional labelling standard CRS 55-2: 2016, *Labelling of goods- Part 2: Specific requirements for pre-packaged goods.*

In preparing this standard considerable assistance was derived from the following document:

Trinidad and Tobago Bureau of Standards
TTS 165:2011, *Architectural coatings – Solvent-borne paints – Specification*

An informative annex is included in this standard which provides pertinent information to aid in the clarification and understanding of the document. This annex is as follows:

- Annex A which is informative and provides recommended gloss level ranges for solvent-borne coatings.

1 Scope

This standard establishes requirements for solvent-borne coatings and primers intended for use on interior and exterior surfaces. It also includes requirements for performance and labelling of solvent-borne top coats and primers.

It applies to solvent-borne coatings with alkyd and modified alkyd resins for decorative and architectural applications.

This standard does not apply to stains, varnishes, glazing compounds, lacquers, putties, water-borne coatings and industrial coatings.

NOTE: Solvent-borne coatings covered under this standard are intended for use on wood, metal, bituminous substrates, plastic and glass but are not limited to these applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM International

ASTM D562, Standard test method for measuring Krebs Unit (KU) Viscosity using a Stormer-type viscometer

ASTM D1210, *Standard test method for fineness of dispersion of pigment-vehicle systems by Hegman-Type Gauge*

ASTM D4587, *Standard practice for fluorescent UV condensation exposures of paint and related coatings*

ASTM D4214, *Standard test methods for evaluating the degree of chalking of exterior paint films*

ASTM D5590, *Determining the resistance of paint films and related coatings to fungal defacement by accelerated four-week agar plate assay*

ASTM D5589, *Standard test method for determining the resistance of paint films and related coatings to algal defacement*

ASTM D2805, *Standard test method for hiding power of paints by reflectometry*

ASTM D3960, Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings

ASTM D523, *Standard test method for specular gloss*

International organization for Standardization

ISO 11890-1, *Paints and varnishes- Determination of volatile organic compound (VOC) content – Part 1: Difference method*

ISO 11890-2, Paints and varnishes — Determination of volatile organic compounds(VOC) and/or semi volatile organic compounds (SVOC) content — Part 2: Gas-chromatographic method

ISO 6503, *Paints and varnishes – Determination of total lead – Flame atomic absorption spectrometric method*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
alkyd resin
synthetic resin made from polyhydric alcohols and polybasic acids; generally modified with resins, fatty oils or fatty acids

3.2
chalking
appearance of a loosely adherent powder on the surface of a film or coat arising from the degradation of one or more of its constituents

3.3
coating
film
layer formed from a single or multiple application of a coating material to a substrate

3.4
coating material
product in liquid form, that when applied to a substrate forms a layer possessing decorative and other specific properties

3.5
colour
sensation resulting from the perception of light of a given spectral composition by the human eye

3.6
fineness of grind
term related to the size of the largest particles in a mill base or in a coating material

3.7
glazing compound
dough-like material consisting of pigment and vehicle, used for sealing window glass in frames

NOTE Glazing compound differs from putty in that it retains its plasticity for an extended period.

3.8
lacquer
coating composition that is based on synthetic thermoplastic film-forming material dissolved in organic solvent that dries primarily by solvent evaporation

3.9
mistinted coating
coating that does not match the colour specified by the manufacturer

3.10
paint
pigmented coating material which, when applied to a substrate, forms an opaque dried film having decorative or specific technical properties

3.11
peeling
detachment of areas of the coating due to loss of adhesion

3.12
primer
coating that has been formulated for use as the first coat in a coating system on prepared surfaces

3.13
putty
surface compound
dough-like material consisting of pigment and vehicle used for sealing glass in frames and for filling imperfections in wood or metal surfaces.

3.14
recoat time
time at which the film has solidified so completely that an additional coat can be applied witihout the development of any film irregularities

NOTE Film irregularities inclulde lifting, removal or loss of adhesion of the first coat.

3.15
stain
clear semi-transparent or opaque coating labelled and formulated to change the colour of a surface, but not conceal the grain pattern or texture

3.16
solvent-borne coating
alkyd coating
oil-based coating
coating formulated on the base of hydrocarbon solvents which are used as the vehicle to carry the solid components of the paint

3.17
untinted base
incomplete paint that requires addition of colourants to be considered a finished product

3.18
varnish
liquid composition that is converted to a transparent or translucent solid film after application as a thin layer

3.19
viscosity
parameter to describe the internal flow resistance of a material

3.20
volatile organic compound (VOC)
organic compound that evaporates spontaneously under conditions of standard temperature and standard atmospheric pressure (0^0C and 101325 Pa)

NOTE The maximum boiling point of the VOC should be 250^0C at standard pressure.

3.21
wrinkling
development of ripples in a film of coating material during drying

4 General requirements

4.1 Solvent-borne coatings shall consist of a suitable mixture of pigment, resin and additives in a solvent-borne medium.

4.2 **S**olvent-borne coatings shall be suitable for application via brush, roller or spraying in keeping with the manufacturer's instructions.

4.3 The container in which the solvent-borne coating is supplied to the customer shall be free from any visible signs of corrosion on its interior or exterior surface or any other defects that may compromise the integrity of its contents up until its expiry date.

4.4 The integrity of the solvent-borne coatings shall be maintained during handling, storage and transportation.

5 Specific requirements

5.1 Requirements for liquid properties

5.1.1 Solvent-borne coatings shall comply with the requirements outlined in Table 1 when tested in accordance with the specified test methods.

NOTE Recommended gloss levels are outlined in Annex A.

5.1.2 Solvent-borne coatings shall show no evidence of skin formation that cannot be re-dissolved and shall be free from lumps when visually inspected after initial opening of the container.

Table 1 — Requirements for liquid properties of solvent-borne coatings

Property	Top coat (Internal and external applications)		Primer		Test method
	Minimum	Maximum	Minimum	Maximum	
Viscosity (Kreb units)	75	-	70	-	ASTM D562
Fineness of grind (Hegman units)	5	-	5	-	ASTM D1210
Volatile organic compound[a] (g/L)	-	450	-	450	ISO 11890-1, ISO 11890-2 or ASTM D3960
Lead content (% by weight or ppm)	-	0.009% or 90ppm	-	0.009% or 90 ppm	ISO 6503
Opacity (%)	90% (for coatings using a wet film thickness of 200 µm)	-	-	-	ASTM D2805

[a] Volatile organic compound (VOC) is calculated as a total value without factoring exempted compounds in the calculation.

5.2 Requirements for properties of solid coating

5.2.1 Accelerated weathering resistance

When tested and exposed to cycle No. 2 of Table 1 for 360 hr according to ASTM D4587, the solid coating of solvent-borne coatings shall show no more chalking than rating #6 using ASTM D4214 as it pertains to chalking of coatings.

5.2.2 Fungal and algal resistance

When solvent-borne coatings are tested in accordance with ASTM D5589 and ASTM D5590, the algal and fungal growth respectively shall not exceed a rating of 1.

NOTE A rating of 1 is equivalent to < 10% algal growth (traces of growth).

6 Applicability and appearance

6.1 General properties

6.1.1 The liquid coating shall have good flowing and application properties and shall dry to a uniform appearance without visible streaks or sags upon visual inspection.

6.1.2 The solid coating shall not exhibit undesirable roughness or grittiness when dry, regardless of the method of application used.

6.1.3 The appearance of the applied coating via brushing, spraying or roller coating shall be uniform in texture, colour and gloss with no evidence of lifting, wrinkling, lack of uniformity or other defects.

NOTE The above properties can be verified using the test methods below or any other equivalent test methods:

a) AS/NZS 1580.205.1:1987*, Paints and related materials – Methods of test- Method 205.1: Application properties – Brushing;*

b) AS/NZS 1580.205.2:1997, *Paints and related materials – Methods of test- Method 205.2: Application properties – Conventional spraying;* or

c) AS/NZS 1580.205.3:1997, *Paints and related materials – Methods of test- Method 205.3: Application properties – Roller coating.*

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7 Packaging and labelling requirements

7.1 The label on each container in which the solvent-borne coating is packaged shall comply with the following information in the English language or the official language of the country in which it is being sold:

a) name and address of the manufacturer, importer or distributor (including retailer and wholesaler);

NOTE It is recommended that contact information be included on the label.

b) brand name;

c) the words "solvent-borne paint" or "alkyd" or "oil-based paints“ or similar words;

d) directions for use;

e) thinning instructions;

f) intended use whether interior or exterior;

g) maximum VOC content;

h) main ingredients;

i) recoat time;

j) spreading rate;

k) instructions for surface preparation of coated and uncoated surfaces;

l) first aid information;

m) country of origin;

n) lead content (in % by weight or ppm);

o) net contents in volume;

p) batch number or lot number;

q) expiry date;

r) storage conditions;

NOTE Recommended wording includes ‘cool dry place, away from direct sunlight and heat sources‘.

s) cautionary notes as follows:

1) Keep out of reach of children (or similar statement);

2) this product may be harmful if swallowed (or similar statement); and

3) Read label before using (or similar statement).

t) colour identification of the dry film in terms of a colour name and or colour code.

NOTE 1 The colour code can be a referenced in a colour card from the manufacturer or a colour standard established by a company or industry.

NOTE 2 It is acknowledged that imported base paints are coloured at the point of sale and may not display a colour identification at the point of inspection by the relevant national competent authority. The colour identification should be given at the point of retail sale or documented in a commercial arrangement.

NOTE 3 The disposal of coatings should be in alignment with the requirements of the national competent authority.

NOTE 4 The colour is normally agreed upon between the manufacturer, importer or distributor (including retailer or wholesaler) and the purchaser at the point of sale.

7.2 Mistinted coatings shall be clearly labelled using the word “mistinted” or any variation of the word.

Annex A
(informative)

Recommended gloss level for coatings

Table A.1 outlines the recommended gloss level (% at 60º) for interior and exterior solvent-borne coatings when tested in accordance with ASTM D523.

Table A.1 — Recommended gloss level ranges for coatings

Gloss levels	Gloss units (% at 60º)	
	Minimum	Maximum
Matte	1	5
Low - gloss	6	30
Medium - gloss	31	70
High - gloss	>70%	-

END OF DOCUMENT