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Standards Board

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Series 1
Série des 1

WITHDRAWAL

October 2011

Selected standards in the series Paints, pigments and related products

These CGSB standards and National Standards of Canada are hereby withdrawn due to limited use and support for their revision.

The Standards Council of Canada requires that accredited Standards Development Organizations, such as the CGSB, regularly review a consensus Standard to determine whether to re-approve, revise or withdraw. The review cycle is normally five years from the publication date of the latest edition of the Standard.

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RETRAIT

Octobre 2011

Sélection de normes de la série Peintures, pigments et produits connexes

Ces normes de l'ONGC et ces Normes nationales du Canada sont retirées par le présent avis en raison de leur utilisation limitée et du manque de support pour leur révision.

Le Conseil canadien des normes exige que les organismes accrédités d'élaboration de normes, tel que l'ONGC, effectue régulièrement un examen des normes consensuelles afin de déterminer s'il y a lieu d'en renouveler l'approbation, de les réviser ou de les retirer. Le cycle d'examen d'une norme est généralement de cinq ans à partir de la date de publication de la dernière édition de celle-ci.

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CAN/CGSB-1.5-M91

Low Flash Petroleum Spirits Thinner
(ICS 87.040)

CAN/CGSB-1.28-98

Exterior Alkyd House Paint (ICS 87.040)

CAN/CGSB-1.36-97

General Purpose Interior Alkyd Varnish
(ICS 87.040)

CAN/CGSB-1.38-2000

Interior Enamel Undercoater (ICS 87.040)

CAN/CGSB-1.40-97

Anticorrosive Structural Steel Alkyd Primer
(ICS 87.040)

CAN/CGSB-1.57-2003

Interior Alkyd Semigloss Enamel
(ICS 87.040)

CAN/CGSB-1.59-97

Alkyd Exterior Gloss Enamel (ICS 87.040)

CAN/CGSB-1.60-97

Interior Alkyd Gloss Enamel (ICS 87.040)

cette information. Ces normes doivent être consultées à des fins archivistiques seulement puisque leur contenu a été révoqué à la date du présent avis de retrait.

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CAN/CGSB-1.5-M91

Diluant, essence minérale à faible point d'éclair (ICS 87.040)

CAN/CGSB-1.28-98

Peinture aux résines alkydes d'extérieur pour bâtiments (ICS 87.040)

CAN/CGSB-1.36-97

Vernis d'intérieur aux résines alkydes d'usage général (ICS 87.040)

CAN/CGSB-1.38-2000

Peinture-émail d'intérieur, pour couche de fond (ICS 87.040)

CAN/CGSB-1.40-97

Peinture pour couche primaire anticorrosion, aux résines alkydes, pour acier de construction (ICS 87.040)

CAN/CGSB-1.57-2003

Peinture-émail, d'intérieur, semi-brillante, aux résines alkydes (ICS 87.040)

CAN/CGSB-1.59-97

Peinture-émail, d'extérieur, brillante, aux résines alkydes (ICS 87.040)

CAN/CGSB-1.60-97

Peinture-émail brillante d'intérieur aux résines alkydes (ICS 87.040)

CAN/CGSB-1.61-2004

Exterior and Interior Marine Alkyd Enamel
(ICS 87.040)

CAN/CGSB-1.69-98

Aluminum Paint (ICS 87.040)

1-GP-71 (Oct 1983)

Methods of Testing Paints and Pigments
(ICS 87.040)

1-GP-71

Methods of Testing Paints and Pigments

No. 5-96

Drying Times of Paints and Related
Coatings (ICS 87.040)

No. 38-96

Blushing Resistance of Lacquer
Finishes (ICS 87.040)

No. 73-96

Beilstein Test for Chlorinated Solvents
(ICS 87.040)

CAN/CGSB-1.73-97

Exterior and Interior Enamel for Floors
(ICS 87.040)

CAN/CGSB-1.74-2001

Alkyd Traffic Paint (ICS 87.040)

CAN/CGSB-1.76-2000

Interior and Exterior Heat-Resistant Enamel
(ICS 87.040)

CAN/CGSB-1.81-M90

Air Drying and Baking Alkyd Primer for
Vehicles and Equipment (ICS 87.040)

CAN/CGSB-1.84-M91

Alkyd Primer for Hardwood (ICS 87.040)

CAN/CGSB-1.61-2004

Peinture-émail aux résines alkydes,
d'extérieur et d'intérieur, marine
(ICS 87.040)

CAN/CGSB-1.69-98

Peinture à l'aluminium (ICS 87.040)

1-GP-71 (oct. 1983)

Méthodes d'essai des peintures et pigments
(ICS 87.040)

1-GP-71

Méthodes d'essai des peintures et pigments

N° 5-96

Durée de séchage des peintures et
revêtements apparentés (ICS 87.040)

N° 38-96

Résistance à l'opalescence des
produits-laque de finition (ICS 87.040)

N° 73-96

Détermination de la présence de
solvants chlorés par l'essai de Beilstein
(ICS 87.040)

CAN/CGSB-1.73-97

Peinture-émail d'extérieur et d'intérieur,
pour sols (ICS 87.040)

CAN/CGSB-1.74-2001

Peinture alkyde de démarcation routière
(ICS 87.040)

CAN/CGSB-1.76-2000

Peinture-émail résistant à la chaleur,
d'intérieur et d'extérieur (ICS 87.040)

CAN/CGSB-1.81-M90

Peinture pour couche primaire aux résines
alkydes, séchant à l'air ambiant et au four,
pour véhicules automobiles et équipement
(ICS 87.040)

CAN/CGSB-1.84-M91

Peinture d'impression aux résines alkydes,
pour bois dur (ICS 87.040)

CAN/CGSB-1.88-92

Gloss Alkyd Enamel, Air Drying and Baking
(ICS 87.040)

CAN/CGSB-1.100-99

Interior Flat Latex Paint (ICS 87.040)

CAN/CGSB-1.104-M91

Semigloss Alkyd Air Drying and Baking
Enamel (ICS 87.040)

CAN/CGSB-1.105-M91

Quick-Drying Primer (ICS 87.040)

CAN/CGSB-1.114-M91

Quick-Drying Flat Enamel (ICS 87.040)

CAN/CGSB-1.118-95

Interior Flat Alkyd Finish (ICS 87.040)

CAN/CGSB-1.119-2000

Interior Latex Primer-Sealer (ICS 87.040)

CAN/CGSB-1.122-99

Anticorrosive Vinyl Primer (ICS 87.040)

CAN/CGSB-1.132-M90

Zinc Chromate Primer, Low Moisture
Sensitivity (ICS 87.040)

CAN/CGSB-1.135-99

Flat Alkyd Enamel for Equipment
(ICS 87.040)

CAN/CGSB-1.138-97

Exterior Latex Flat Paint (ICS 87.040)

CAN/CGSB-1.143-98

Silicone Alkyd Heat-Resistant Aluminum
Enamel (ICS 87.040)

CAN/CGSB-1.88-92

Peinture-émail brillante aux résines alkydes,
séchant à l'air ambiant et au four
(ICS 87.040)

CAN/CGSB-1.100-99

Peinture-émulsion mate d'intérieur
(ICS 87.040)

CAN/CGSB-1.104-M91

Peinture-émail semi-brillante aux résines
alkydes séchant à l'air ambiant et au four
(ICS 87.040)

CAN/CGSB-1.105-M91

Peinture pour couche primaire à séchage
rapide (ICS 87.040)

CAN/CGSB-1.114-M91

Peinture-émail mate à séchage rapide
(ICS 87.040)

CAN/CGSB-1.118-95

Peinture de finition mate d'intérieur aux
résines alkydes (ICS 87.040)

CAN/CGSB-1.119-2000

Peinture-émulsion d'impression d'intérieur
(ICS 87.040)

CAN/CGSB-1.122-99

Peinture pour couche primaire, aux résines
vinyliques, anticorrosion (ICS 87.040)

CAN/CGSB-1.132-M90

Peinture pour couche primaire, au chromate
de zinc, à faible sensibilité à l'humidité
(ICS 87.040)

CAN/CGSB-1.135-99

Peinture-émail mate aux résines alkydes
pour équipement (ICS 87.040)

CAN/CGSB-1.138-97

Peinture-émulsion (latex) mate, d'extérieur
(ICS 87.040)

CAN/CGSB-1.143-98

Peinture-émail aux résines silicones-
alkydes résistante à la chaleur (ICS 87.040)

CAN/CGSB-1.145-97

Solvent-Based Pigmented Stain
(ICS 87.040)

CAN/CGSB-1.146-99

Cold Curing, Gloss Epoxy Coating
(ICS 87.040)

CAN/CGSB-1.150-M91

Clear Lacquer for Wood Furniture
(ICS 87.040)

CAN/CGSB-1.153-2000

High-Build, Gloss Epoxy Coating
(ICS 87.040)

CAN/CGSB-1.154-M89

Latex Type Paint for Concrete Floors
(ICS 87.040)

CAN/CGSB-1.158-M89

Cellulose Nitrate Primer, Modified Alkyd
Type (ICS 87.040)

CAN/CGSB-1.159-92

Acrylic Cellulose Nitrate Gloss Lacquer
(ICS 87.040)

CAN/CGSB-1.160-93

Low Gloss Acrylic Cellulose Nitrate
Lacquer (ICS 87.040)

CAN/CGSB-1.162-2004

Emulsion Coating for Stucco and Masonry
(ICS 87.040)

CAN/CGSB-1.165-2004

Cold-Curing Epoxy Primer (ICS 87.040)

CAN/CGSB-1.171-98

Inorganic Zinc Coating (ICS 87.040)

CAN/CGSB-1.175-97

Polyurethane Interior Coating (ICS 87.040)

CAN/CGSB-1.145-97

Teinture pigmentée à base de solvant
(ICS 87.040)

CAN/CGSB-1.146-99

Revêtement aux résines époxydiques,
durcissant à froid, brillant (ICS 87.040)

CAN/CGSB-1.150-M91

Vernis-laque pour meubles en bois
(ICS 87.040)

CAN/CGSB-1.153-2000

Revêtement par peinture aux résines
époxydiques, à pouvoir garnissant élevé,
brillant (ICS 87.040)

CAN/CGSB-1.154-M89

Peinture-émulsion (latex) pour sols en béton
(ICS 87.040)

CAN/CGSB-1.158-M89

Peinture-laque pour couche primaire, au
nitrate de cellulose et aux résines alkydes
modifiées (ICS 87.040)

CAN/CGSB-1.159-92

Produit-laque brillant à la résine acrylique et
au nitrate de cellulose (ICS 87.040)

CAN/CGSB-1.160-93

Peinture-laque aux résines acryliques et au
nitrate de cellulose, peu brillante
(ICS 87.040)

CAN/CGSB-1.162-2004

Revêtement de type émulsion pour stuc et
maçonnerie (ICS 87.040)

CAN/CGSB-1.165-2004

Peinture pour couche primaire aux résines
époxydiques, durcissant à froid
(ICS 87.040)

CAN/CGSB-1.171-98

Enduit au zinc minéral (ICS 87.040)

CAN/CGSB-1.175-97

Revêtement de polyuréthane d'intérieur
(ICS 87.040)

CAN/CGSB-1.176-2000

Interior Clear Moisture-Curing Polyurethane Coating (ICS 87.040)

CAN/CGSB-1.177-M91

Two-Component Polyurethane Coating, Resistant to Chalking and Yellowing (ICS 87.040)

1-GP-180Ma (Feb 1996)

Coating, Polyurethane, Two-Package, General Purpose (ICS 87.040)

CAN/CGSB-1.181-99

Ready-Mixed Organic Zinc-Rich Coating (ICS 87.040)

CAN/CGSB-1.183-99

Zinc-Rich Epoxy Coating (ICS 87.040)

CAN/CGSB-1.184-98

Coal Tar-Epoxy Coating (ICS 87.040)

CAN/CGSB-1.188-2004

Emulsion Filler for Masonry Block (ICS 87.040)

CAN/CGSB-1.189-2000

Exterior Alkyd Primer for Wood (ICS 87.040)

CAN/CGSB-1.190-M90

Sanding Type Primer Surfacer (ICS 87.040)

1-GP-191M (Apr 1980)

Enamel, Automotive Refinishing, Fast Drying, Gloss (ICS 87.040)

1-GP-192Ma (Feb 1985)

Deck Coating, Nonslip, Epoxy (ICS 87.040)

CAN/CGSB-1.176-2000

Revêtement de polyuréthane, d'intérieur, durci à l'humidité, non pigmenté (ICS 87.040)

CAN/CGSB-1.177-M91

Revêtement de polyuréthane, à deux constituants séparés, non jaunissant et non farinant (ICS 87.040)

1-GP-180Ma (févr. 1996)

Revêtement de polyuréthane, à deux constituants séparés, pour utilisation générale (ICS 87.040)

CAN/CGSB-1.181-99

Enduit riche en zinc, organique et préparé (ICS 87.040)

CAN/CGSB-1.183-99

Enduit aux résines époxydiques, riche en zinc (ICS 87.040)

CAN/CGSB-1.184-98

Revêtement à base de goudron de houille-résines époxydiques (ICS 87.040)

CAN/CGSB-1.188-2004

Apprêt-émulsion pour blocs de maçonnerie (ICS 87.040)

CAN/CGSB-1.189-2000

Peinture d'impression, d'extérieur, aux résines alkydes, pour le bois (ICS 87.040)

CAN/CGSB-1.190-M90

Peinture pour couche primaire surfaçante de type ponçable (ICS 87.040)

1-GP-191M (avr. 1980)

Peinture-émail brillante, à séchage rapide, pour le repeinturage des carrosseries de véhicules automobiles (ICS 87.040)

1-GP-192Ma (févr. 1985)

Revêtement de pont, antidérapant, aux résines époxydiques (ICS 87.040)

CAN/CGSB-1.193-99

High-Build Epoxy Marine Coating
(ICS 87.040)

CAN/CGSB-1.195-99

Interior Latex Semigloss Paint (ICS 87.040)

CAN/CGSB-1.198-2001

Cementitious Primer for Galvanized
Surfaces (ICS 87.040)

1-GP-200Ma (Jan 1985)

Deck Coating, Nonslip, Polyurethane
(ICS 87.040)

CAN/CGSB-1.202-2003

Interior Alkyd Low Gloss Enamel
(ICS 87.040)

CAN/CGSB-1.203-2003

Exterior Latex Wood Primer (ICS 87.040)

CAN/CGSB-1.204-98

Exterior Latex Pigmented Stain
(ICS 87.040)

CAN/CGSB-1.205-2003

Sealer for Application to Asbestos-Fibre
Releasing Materials (ICS 87.040)

CAN/CGSB-1.207-98

Low-Temperature Curing Epoxy Coating
(ICS 87.040)

CAN/CGSB-1.208-99

Marine Interior Water-Borne Gloss Enamel
(ICS 87.040)

CAN/CGSB-1.209-2003

Interior Latex Low Gloss Paint (ICS 87.040)

CAN/CGSB-1.210-2003

Quick-Drying Alkyd Primer for Structural
Steel (ICS 87.040)

CAN/CGSB-1.193-99

Revêtement aux résines époxydiques, à
pouvoir garnissant élevé, marin
(ICS 87.040)

CAN/CGSB-1.195-99

Peinture-émulsion semi-brillante d'intérieur
(ICS 87.040)

CAN/CGSB-1.198-2001

Peinture primaire additionnée de ciment,
pour surfaces galvanisées (ICS 87.040)

1-GP-200Ma (janv. 1985)

Revêtement de pont, antidérapant, aux
résines polyuréthanes (ICS 87.040)

CAN/CGSB-1.202-2003

Peinture-émail d'intérieur, aux résines
alkydes, peu brillante (ICS 87.040)

CAN/CGSB-1.203-2003

Peinture-émulsion (latex) d'impression
extérieure, pour bois (ICS 87.040)

CAN/CGSB-1.204-98

Teinture-émulsion pigmentée pour extérieur
(ICS 87.040)

CAN/CGSB-1.205-2003

Peinture d'obturation pour matériaux
renfermant des fibres d'amiante
(ICS 87.040)

CAN/CGSB-1.207-98

Revêtement aux résines époxydiques
durcissant à basse température
(ICS 87.040)

CAN/CGSB-1.208-99

Peinture-émail brillante en suspension
aqueuse, marine, d'intérieur (ICS 87.040)

CAN/CGSB-1.209-2003

Peinture-émulsion d'intérieur peu brillante
(ICS 87.040)

CAN/CGSB-1.210-2003

Peinture primaire aux résines alkydes à
séchage rapide pour acier de charpente
(ICS 87.040)

CAN/CGSB-1.211-95

Coating Systems for Marine Floating Navigational Aids (Buoys) (ICS 87.040)

CAN/CGSB-1.212-2004

Heavy-Metal-Free Marine Primer for Steel and Light-Alloy Surfaces (ICS 87.040)

CAN/CGSB-1.213-2004

Etch Primer (Pretreatment Coating or Tie Coat) for Steel and Aluminum (ICS 87.040)

CAN/CGSB-1.214-2004

Heavy-Metal-Free, Water-Borne, Marine Primer for Steel and Light-Alloy Surfaces (ICS 87.040)

CAN/CGSB-1.215-96

Two-Package Epoxy Blockfiller (ICS 87.040)

CAN/CGSB-1.216-97

Exterior Water-Borne Gloss Enamel (ICS 87.040)

CAN/CGSB-1.219-2001

Lead and Chromate-Free Waterborne Traffic Paint (ICS 87.040)

CAN/CGSB-1.220-2001

Lead and Chromate-Free Alkyd Traffic Paint (ICS 87.040)

CAN/CGSB-1.223-2004

Heavy-Metal-Free, Water-Borne Wash Primer-Tie Coat (ICS 87.040)

CAN/CGSB-1.300-2000

Applied Coating System of Semigloss Baked Finish for Metal Office Furniture (ICS 87.040)

CAN/CGSB-1.500-75

Methods for Test for Toxic Trace Elements in Protective Coatings (ICS 87.040)

CAN/CGSB-1.211-95

Systèmes de revêtement pour aides à la navigation flottantes (bouées) (ICS 87.040)

CAN/CGSB-1.212-2004

Peinture primaire sans métal lourd, marine, pour surfaces en acier et en alliage léger (ICS 87.040)

CAN/CGSB-1.213-2004

Peinture primaire réactive (enduit de traitement préliminaire ou couche de liaison) pour l'acier et l'aluminium (ICS 87.040)

CAN/CGSB-1.214-2004

Peinture primaire, sans métal lourd, en suspension aqueuse, marine, pour surfaces en acier et en alliage léger (ICS 87.040)

CAN/CGSB-1.215-96

Apprêt pour blocs aux résines époxydiques en deux constituants (ICS 87.040)

CAN/CGSB-1.216-97

Peinture-émail brillante d'extérieur en suspension aqueuse (ICS 87.040)

CAN/CGSB-1.219-2001

Peinture à l'eau de démarcation routière sans plomb ni chromate (ICS 87.040)

CAN/CGSB-1.220-2001

Peinture alkyde de démarcation routière sans plomb ni chromate (ICS 87.040)

CAN/CGSB-1.223-2004

Peinture primaire réactive – Couche de liaison, sans métal lourd, en suspension aqueuse (ICS 87.040)

CAN/CGSB-1.300-2000

Système de revêtement de finition semi-brillant, cuit au four, pour meubles métalliques de bureau (ICS 87.040)

CAN/CGSB-1.500-75

Méthodes d'essai des éléments toxiques à l'état de trace dans les revêtements protecteurs (ICS 87.040)

CAN/CGSB-1.501-M89

Method for Permeance of Coated
Wallboard (ICS 87.040)

CAN/CGSB-1.501-M89

Méthode de détermination de la perméance
des panneaux muraux revêtus (ICS 87.040)



Canadian
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CAN/CGSB-1.171-98

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Inorganic Zinc Coating

National Standard of Canada

Canada



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Although the intended primary application of this standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

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The principal objectives of the Council are to foster and promote voluntary standardization as a means of advancing the national economy, benefiting the health, safety and welfare of the public, assisting and protecting the consumer, facilitating domestic and international trade, and furthering international co-operation in the field of standards.

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Approval of a standard as a National Standard of Canada indicates that a standard conforms to the criteria and procedures established by the Standards Council of Canada. Approval does not refer to the technical content of the standard; this remains the continuing responsibility of the accredited standards-development organization.

Those who have a need to apply standards are encouraged to use National Standards of Canada whenever practicable. These standards are subject to periodic review; therefore, users are cautioned to obtain the latest edition from the organization preparing the standard.

The responsibility for approving National Standards of Canada rests with the:

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INORGANIC ZINC COATING

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CANADIAN GENERAL STANDARDS BOARD

INORGANIC ZINC COATING

1. SCOPE

- 1.1 This standard applies to inorganic zinc coating for use on steel superstructures, decks and hulls of vessels, bridges, towers, offshore drilling rigs, tank linings and reconditioned equipment that may be exposed to aggressive environments, marine atmospheres and to intermittent immersion¹ in fresh or salt water.
- 1.2 The coating is suitable for use in areas where recoating is difficult, expensive, abnormally time consuming or where the life of conventional coatings has been found to be too short.
- 1.3 The testing and evaluation of a product against this standard may require the use of materials and/or equipment that could be hazardous. This document does not purport to address all the safety aspects associated with its use. Anyone using this standard has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any applicable regulatory requirements prior to its use.

2. REFERENCED PUBLICATIONS

- 2.1 The following publications are referenced in this standard:
- 2.1.1 Canadian General Standards Board (CGSB)
1-GP-71 — Methods of Testing Paints and Pigments
CAN/CGSB-8.2 — Sieves, Testing, Woven Wire, Metric.
- 2.1.2 Health Canada
Hazardous Products (Liquid Coating Materials) Regulations.
- 2.1.3 American Society for Testing and Materials (ASTM)
D 521 — Standard Test Method for Chemical Analysis of Zinc Dust (Metallic Zinc Powder)
D 4060 — Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
- 2.1.4 Society for Protective Coatings (SSPC)
SSPC-PA 2 — Paint Application Specification No. 2 — Measurement of Dry Film Thickness with Magnetic Gauges.
- 2.2 A reference to a regulation is always to the latest issue. A dated reference is to the issue specified. An undated reference is to the latest issue, unless otherwise specified by the authority applying this standard. The sources are given in the Notes section.

3. CLASSIFICATION

- 3.1 The coating shall be supplied in the following types and classes as specified (par. 8.1):
- 3.1.1 **Types**
Type 1 — Self-curing, solvent-borne
Type 2 — Self-curing, water-borne.

¹ Subject to the manufacturer's instructions, this coating may be used for total immersion conditions in sea water.

- 3.1.2 **Classes**
- Class A — High flash
- Class B — Low flash.

4. GENERAL REQUIREMENTS

- 4.1 The coating system shall produce a dried, cured film that is composed principally of inorganic silicates pigmented with finely divided metallic zinc.
- 4.1.1 **Type 1** — Type 1 coating shall be formulated and manufactured to become water insoluble to the point of resisting intermittent contact with water, rain or condensation within 1 h of application at temperatures between -20°C and 30°C and at relative humidities between 40% and 95% (par. 8.3.2).
- 4.1.2 **Type 2** — Type 2 shall be suitable for application at temperatures between 5° and 30°C and at a relative humidity below 70%, where immediate water contact is not imminent (i.e. min. 3 h).
- 4.2 **General Application and Appearance** — When mixed in a suitable container according to manufacturer's instructions, the components shall produce a coating suitable for application by commercial spraying equipment.
- 4.3 The coating shall show good levelling, without sagging, mud-cracking or loss of adhesion when applied according to the manufacturer's instructions.
- 4.4 When stored in dry conditions in the original unopened container for one year from the date of manufacture at temperatures between 5° and 40°C , the liquid silicate components of Types 1 and 2 shall be capable of being readily mixed to a uniform condition by stirring. In addition, the container of the pigment component shall not display gassing as indicated by a bulging condition. When mixed in accordance with manufacturer's instructions, the coating shall meet the requirements for applicability and appearance (par. 5.14).
- 4.5 **Toxic Elements** — The paint shall be manufactured to conform to the requirements of the Hazardous Products (Liquid Coating Materials) Regulations for designated toxic elements.

5. DETAILED REQUIREMENTS

When mixed and applied as directed, the coating shall comply with the following detailed requirements:

		Test Method		
		Min.	Max.	CGSB 1-GP-71
5.1	Drying time, dry hard, h	—	4	5, Method A ²
5.2	Flash point ³ (type 1 only), Pensky-Martens, $^{\circ}\text{C}$			
	Class A	35	—	3.1
	Class B	10	—	3.1
5.3	Immersion Test, Type 2 — Type 2 coating applied as directed in par. 7.2.1.2, air-dried in accordance with CGSB standard 1-GP-71, Method 103.1 for 4 h without the use of a curing agent, and then immersed in distilled water at room temperature for 18 h, shall be removed from the panel by light rubbing with a soft brush.			
5.4	Zinc Content			
5.4.1	Metallic Zinc Content in Pigment Component — The metallic zinc content of the pigment component shall not be less than $95\% \pm 2\%$ when tested in accordance with ASTM D 521.			
5.4.2	Total Zinc Content of Mixed Material — The zinc content of the mixed material shall be within $\pm 2\%$ of the value stated by the manufacturer when tested in accordance with CGSB standard 1-GP-71, Method 50.29.			

² Except that the test is conducted using steel panels in accordance with CGSB standard 1-GP-71, Method 100.1.

³ When the liquid components, curing solution, and thinner are tested separately.

- 5.5 **Silica in Silicate Solution Component** — The silica content of the silicate solution component shall be within $\pm 2\%$ of the value stated by the manufacturer when tested in accordance with CGSB standard 1-GP-71, Method 50.30.
- 5.6 **Coarse Particles** — Not more than 1.0% of the pigment component shall be retained on a No. 200⁴ sieve and 0.1%, on a No. 100 sieve.
- 5.7 **Salt Spray Resistance** — When scored and then subjected to 720 h in the salt spray cabinet, the cured coating shall not show blistering or corrosion of the substrate extending beyond the width of the scribe when tested in accordance with CGSB standard 1-GP-71, Method 129.2 and par. 7.2.1.
- 5.8 **Impact Resistance, Direct** — When subjected to the impact of a 1 kg ball dropped 2.25 m, the coating shall have a rating of not less than 8 when tested in accordance with CGSB standard 1-GP-71, Method 147.2 and par. 7.2.1⁵.
- 5.9 **Abrasion Resistance** — When the cured coating (par. 7.2.1) is subjected to 1000 cycles (1 kg load) using the Taber Abraser with a CS 17 wheel according to ASTM D 4060, Type 1 shall have a maximum loss of 350 mg and Type 2, 200 mg.
- 5.10 **Shower Resistance** — Type 1 and Type 2 coatings, when dried for 2 and 4 h respectively, shall withstand a continuous spray of water for 5 min with no evidence of having been washed off the test panels when tested in accordance with par. 7.2.2.
- 5.11 **Water Resistance** — After curing 7 d, as specified in par. 7.2.1.1, a portion of the coating shall be submerged for 60 d in distilled water at $55 \pm 2^\circ\text{C}$. It shall show no softening or loss of adhesion when compared with the unsubmerged portion, immediately after removal from the water and after conditioning 4 h under standard conditions according to CGSB standard 1-GP-71, Method 103.1 and when tested in accordance with CGSB 1-GP-71, Method 110.1.
- 5.12 **Boiling Water Immersion** — After immersion in boiling water for 8 h, the coating shall be free from wrinkling, blistering, loss of adhesion, and other visible defects when examined 24 h after removal when tested in accordance with par. 7.2.3.
- 5.13 **Resistance to Synthetic Sea Water and Aromatic Fuel** — Apart from a moderate change in appearance, the coating system shall show no corrosion after 20 cycles of exposure to synthetic sea water and aromatic fuel, except that edge effects shall be disregarded. On the recoated area, the adhesion of the added coating shall be as good as the adhesion of the original coat to the steel when tested in accordance with par. 7.2.4.
- 5.14 **Applicability and Appearance** — When sprayed to a dry-film thickness of 65 μm , the coating shall show good flow out and levelling properties and shall be free from visible defects, ridges, sagging or mud-cracking when tested in accordance with par. 7.2.5.
- 5.15 **Cathodic Protection** — When immersed in synthetic sea water for 30 d as specified, the coating shall prevent corrosion in the 60 mm circular bare area when tested in accordance with par. 7.2.6.
6. **PREPARATION FOR DELIVERY**
- 6.1 **Packing and Marking** — Unless otherwise specified (par. 8.1), packing and marking shall be in accordance with normal commercial practice and requirements outlined in par. 6.2 and 6.3.
- 6.2 **Labelling**
- 6.2.1 In addition to the labelling requirements of any relevant Acts or Regulations, each container shall be suitably labelled to show the following information:
- Name of material
Standard number: CAN/CGSB-1.171-98
Type and class
Manufacturer's name and address

⁴ See CAN/CGSB-8.2.

⁵ Except use SAE 1020 steel panels which are 3.2 mm thick.

Manufacturer's batch number
Manufacturer's code number (if applicable)
Date of manufacture.

- 6.2.2 **Mixing and Thinning Instructions** — Details of mixing and thinning may be listed on the label. In addition the label shall clearly indicate that "The material shall be used within four hours after mixing and shall be agitated slowly during application to prevent settling of the zinc pigment."
- 6.2.3 **Cautionary Labelling** — In addition to any special markings specified (par. 8.1), each container shall have a warning label of appropriate size, stating the hazards of flammability, the precautions to be taken during use of the material, storage conditions and the medical attention required in event of contact with the skin or eyes. The label shall also conform to Transport Canada's regulations for the flammability of the ingredients.
- 6.2.4 **Toxic Elements** — The coating shall be labelled to conform to the requirements of the Hazardous Products (Liquid Coating Materials) Regulations for designated toxic elements.
- 6.3 **Packaging** — The supplier shall fill the containers in such a manner that the total contents of one container of the silicate shall mix with the total contents of one container of the zinc dust, and constitute one unit. Four litre or smaller containers of the silicate component and the zinc dust component shall be packed together in one carton. The curing agent of Type 2 coating may be packed separately.
- 6.4 **Instruction Sheet** — An instruction sheet shall be supplied by the manufacturer with each shipment and shall give detailed mixing instructions and directions for use.

7. INSPECTION

- 7.1 **Sampling** — Sampling shall be carried out in accordance with CGSB standard 1-GP-71, Method 1.1.
- 7.2 **Testing**
- 7.2.1 **Panel Preparation**
- 7.2.1.1 Use spray equipment recommended by the manufacturer and grit-blasted steel panels according to CGSB standard 1-GP-71, Method 100.2. Apply the mixed coating within 2 to 4 h after the components have been mixed together, to obtain a dry film thickness⁶ of 75 to 100 µm (3 to 4 mils) when tested in accordance with SSPC-PA 2. It is important to have all materials agitated slowly during application to prevent settling of the zinc pigment. Before testing, the panels shall dry for 7 d.
- 7.2.1.2 For immersion or corrosion tests, protect the back of the panels with a suitable primer or with the coating under test.
- 7.2.2 **Shower Resistance**
- 7.2.2.1 Prepare test panels according to par. 7.2.1. except that the cure time shall be 2 h for Type 1 and 4 h for Type 2.
- 7.2.2.2 After the required curing period, expose each panel to a continuous spray of water for 5 min in accordance with CGSB standard 1-GP-71, Method 110.11. Examine the panels for evidence of the film having been washed off in accordance with par. 5.9.
- 7.2.3 **Boiling Water Immersion** — Prepare panels and cure the coating as specified in par. 7.2.1. Then immerse one half of each panel in boiling distilled water for 8 h. Examine the panels 24 h after removal from the water.
- 7.2.4 **Resistance to Synthetic Sea Water and Aromatic Fuel** — Subject the coated panels (par. 7.2.1) to 20 cycles comprising the following exposures:
- 7.2.4.1 **Synthetic Sea Water** — Immerse the coated panels for one week at a temperature of $23 \pm 2^\circ\text{C}$ in fresh synthetic sea water prepared as outlined in CGSB standard 1-GP-71, Method 113.2.

⁶ The range of total dry film thickness is a recommendation for specific exposures. Latitude in dry film thickness per coat is given in order to accommodate different manufacturers' products.

- 7.2.4.2 *Aromatic Fuel* — After immersing the panels in the synthetic sea water, totally immerse them for one week in standard hydrocarbon test fluid⁷, at a temperature of $23 \pm 2^\circ\text{C}$.
- 7.2.4.3 *Hot Synthetic Sea Water* — Following immersion in the standard test fluid, totally immerse the panels for 2 h in hot synthetic sea water at 80°C .
- 7.2.4.4 *Hot Synthetic Sea Water Spray* — Following the immersion in hot synthetic sea water, place each panel within a suitably closed metal box. At a distance of 0.8 m from the panel face, set a 5.5 mm spray nozzle (e.g. Binks Gun Model 170, with a nozzle set-up of 51-6 and 51-24 or equivalent). Using air pressure of 170 kPa, adjust the gun so that a 100 mm maximum spray pattern is produced on the panel face. Spray each panel with synthetic sea water at 80°C for a period of 10 s. The operations listed in par. 7.2.4.1 to 7.2.4.4 constitute one complete cycle. This cycle shall be repeated 20 times, and the deterioration shall be reported after each cycle.
- 7.2.4.5 *Recoating After Exposure* — If the coating is still satisfactory after 20 cycles, wipe it lightly with a soft cloth dampened with fresh water. After drying 48 h, recoat the central upper third of one side of each panel (a portion from the edge to 15 mm inward first being masked) to provide a dry film thickness of $65 \pm 10 \mu\text{m}$ **with one of the coating systems (or primer and finish coat as appropriate)**. Allow the panels to dry one week and subject them to five complete additional test cycles in accordance with par. 7.2.4.1 to 7.2.4.4. Then inspect them for compliance with the requirements of par. 5.13.
- 7.2.5 *Applicability and Appearance*
- 7.2.5.1 *Apparatus* — The spray gun shall be of the pressure-feed type as specified by the manufacturer.
- 7.2.5.2 *Procedure* — Vertically mount a 0.3×0.5 m smooth clean steel panel in accordance with CGSB standard 1-GP-71, Method 100.1. With the gun held 200 mm from the surface, spray sufficient material on the panel within 15 s to provide a dry film thickness of $65 \pm 10 \mu\text{m}$. Allow the panel to dry, in accordance with CGSB standard 1-GP-71, Method 103.1 for 6 h, in a vertical position and examine for sagging, ridges or other evidence of poor flow-out or levelling properties not attributable to spraying technique.
- 7.2.6 *Cathodic Protection* — Using $100 \times 150 \times 3$ mm grit-blasted panels in accordance with CGSB standard 1-GP-71, Method 100.2, mask a 60 mm diameter circle in the centre of the face of each panel with a circular magnet. Then apply the coating, remove the magnet and cure the coating as outlined in par. 7.2.1. In accordance with CGSB standard 1-GP-71, Method 113.2, immerse the panel upright in 1.2 L of synthetic sea-water contained in a 1.5 L borosilicate glass beaker. Keep the water level constant during the test by the addition of distilled water and maintain the temperature at $23 \pm 2^\circ\text{C}$. At the end of 30 d, examine the immersion panel for corrosion. Repeat the test three times, using a separate beaker and panel for each trial, and report the results on all three samples. At least two must pass the requirements of par. 5.14.

8. NOTES

- 8.1 **Options** — The following options must be specified in the application of this standard:
- Type and class of coating (par. 3.1)
 - Packing, marking and cautionary labelling details (par. 6.1 and 6.2.3).
- 8.2 **Recommended Practices**
- 8.2.1 This coating is suitable for use as a complete system or as a primer under suitable topcoats. If this coating is used in areas of aggressive environments, coatings conforming to CGSB standard 1-GP-184M and CGSB 1-GP-193M or a topcoat recommended by the manufacturer should be used. When a topcoat is desired for less severe environments, alkyds are suitable in accordance with par. 8.2.2.
- 8.2.2 When alkyds are used, materials conforming to CAN/CGSB-1.121 vinyl wash primer should be used as a tie-coat. When epoxies or other topcoats are used, a tie-coat such as CAN/CGSB-1.121, CAN/CGSB-1.212 or CAN/CGSB-1.213 may be required as recommended by the manufacturer.

⁷ Composition of hydrocarbon test fluid (% by volume): iso-octane — 60, toluene — 25, xylene — 15.

- 8.2.3 Unless otherwise specified by the manufacturer, the dry film thickness of the coating shall be $65 \pm 10 \mu\text{m}$.
- 8.2.4 The coated steel is intended to withstand exposure up to a temperature of 400°C . Because the coating contains zinc, it is not resistant to acids and alkalis, but may be used as a tank liner for hydrocarbon solvents and under conditions of continuous wetting.
- 8.2.5 Selection of topcoats and the method of application should be in accordance with the manufacturer's recommendations.
- 8.3 **Climatic Conditions**
- 8.3.1 Climatic conditions at time of application will determine whether Type 1 or Type 2 coating will be used.
- 8.3.2 The coating may be applied at temperatures between -20° and 30°C . However, when applying the coating, particularly at lower temperatures, the surface must be dry and the temperature-to-relative humidity relationship must be at least 3°C above the dew point. When the coating is applied in confined quarters that require air circulation, precautions should be taken to ensure that the surfaces remain free of condensation.
- 8.4 **Cautionary Statement**
- 8.4.1 Both Class A and B coatings may be used on superstructures and in open areas. In restricted spaces Class A coating should be used to reduce the fire hazard.
- 8.5 **Surface Preparation**
- 8.5.1 Metal surfaces should be clean, dry and free from oil, grease and corrosion products. For immersion service, the surface should be blast cleaned to white metal in accordance with standard SSPC-SP5/NACE No.1, and the resultant surface appearance should be as outlined in Pictorial Standard A, B, C or D Sa 3 of SSPC - Vis-1 or ASTM D 2200. For less critical exposures, the surface should be blast cleaned to near-white metal in accordance with standard SSPC-SP 10/NACE No. 2 as a minimum, and the resultant surface appearance should be as outlined in Pictorial Standard A, B, C or D Sa 2-1/2 of SSPC -Vis-1. For commercial use exposures, use standard SSPC-SP 6/NACE 3.
- 8.6 **Related Publications**
- 8.6.1 Canadian General Standards Board (CGSB)
 CAN/CGSB-1.121 — Vinyl Pretreatment Coating for Metals (Vinyl Wash Primer)
 1-GP-184 — Coating, Coal Tar-Epoxy
 1-GP-193 — Coating, High-Build Epoxy, Marine
 CAN/CGSB-1.197 — Thinner for Epoxy Coatings
 CAN/CGSB-1.212 — Chromate and Lead Free Marine Primer for Steel and Light Alloy Surfaces
 CAN/CGSB-1.213 — Etch Primer (Pretreatment Coating) for Steel and Aluminum.
- 8.6.2 American Society for Testing and Materials (ASTM)
 D 2200 — Pictorial Surface Preparation Standards for Painting Steel Surfaces.
- 8.6.3 Society for Protective Coatings (SSPC)
 SSPC - Vis 1 — Visual Standard for Abrasive Blast Cleaned Steel.
- 8.6.4 Society for Protective Coatings (SSPC)/National Association of Corrosion Engineers (NACE)
 SSPC-SP 5/NACE No. 1 — White Metal Blast Cleaning
 SSPC-SP 6/NACE No. 3 — Commercial Blast Cleaning
 SSPC-SP 10/NACE No. 2 — Near-White Blast Cleaning.

8.7 Sources of Referenced Publications

- 8.7.1 The publications referred to in par. 2.1.1 and 8.6.1 may be obtained from the Canadian General Standards Board, Sales Centre, Ottawa, Canada K1A 1G6. Telephone (819) 956-0425 or 1-800-665-CGSB (Canada only). Fax (819) 956-5644.
- 8.7.2 The publication referred to in par. 2.1.2 may be obtained from Health Canada, Products Safety Bureau, Statistics Canada Main Building, Room 1000, Tunney's Pasture, Ottawa, Ontario K1A 0K9. Telephone (613) 957-9545.
- 8.7.3 The publications referred to in par. 2.1.3 and 8.6.2 may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, U.S.A. Telephone (610) 832-9585. Fax (610) 832-9555, or from the Global Info Centre Canada, 240 Catherine Street, Suite 305, Ottawa, Ontario K2P 2G8. Telephone (613) 237-4250 or (800) 854-7179. Fax (613) 237-4251.
- 8.7.4 The publications referred to in par. 2.1.4, 8.6.3 and 8.6.4 may be obtained from the Society for Protective Coatings, 40, 24th Street, Pittsburgh, PA 15222, U.S.A. Telephone (412) 281-2331.
- 8.7.5 The publications referred to in par. 8.6.4 may be obtained from NACE Publication Sales, PO Box 218340, Houston, TX, 77218-8340, U.S.A. Telephone (281) 228-6200. Fax (281) 228-6300.
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