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Standards Board

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générales du Canada

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These CGSB standards and National Standards of Canada are hereby withdrawn due to limited use and support for their revision.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

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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 polyuréthannes (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-1.183-99

Supersedes CAN/CGSB-1.183-92

Zinc-Rich Epoxy 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.

A National Standard of Canada is a standard which has been approved by the Standards Council of Canada and one which reflects a reasonable agreement among the views of a number of capable individuals whose collective interests provide, to the greatest practicable extent, a balance of representation of producers, users, consumers and others with relevant interests, as may be appropriate to the subject in hand. It normally is a standard that is capable of making a significant and timely contribution to the national interest.

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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ZINC-RICH EPOXY COATING

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CANADIAN GENERAL STANDARDS BOARD

ZINC-RICH EPOXY COATING

1. SCOPE

- 1.1 This standard applies to a cold-curing two- or three-component epoxy polyamide, zinc-rich coating for use as a primer or as a system for new construction and maintenance.
- 1.2 The coating is intended for use on ferrous metals as a primer under suitable topcoats or as a single or double-coat system by itself.
- 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-1.146 — Cold Curing, Gloss Epoxy Coating
CAN/CGSB-8.2 — Sieves, Testing, Woven Wire, Metric.
- 2.1.2 Health Canada
Hazardous Products (Liquid Coating Materials Regulations) Act.
- 2.1.3 American Society for Testing and Materials (ASTM)
D 185 — Standard Test Methods for Coarse Particles in Pigments, Pastes, and Paints
D 521 — Standard Test Methods for Chemical Analysis of Zinc Dust (Metallic Zinc Powder)
D 1664 — Standard Test Method for Coating and Stripping of Bitumen-Aggregate Mixtures
D 3359 — Standard Test Methods for Measuring Adhesion by Tape Test.
- 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. GENERAL REQUIREMENTS

- 3.1 The coating shall be supplied in two or three components:
- Component A** — A solution of alpha-epoxide resin
- Component B** — Fine-particle-size zinc dust pigment¹
- Component C** — A polyamide curing agent.

¹ In a two-component system, the zinc-dust pigment may be dispersed in either the resin (component A) or the curing agent (component C).

- 3.2 When the components are adequately mixed together and allowed to stand (to allow for induction) in accordance with the manufacturer's instructions, the mixture shall be suitable for application by either brush or spray in accordance with the manufacturer's instructions. The mixture, when prepared and used, shall produce a smooth, uniform matte finish with good levelling and no sagging.
- 3.3 At temperatures between 5 and 30°C, the mixed components shall be suitable for application with or without the addition of thinner as recommended by the manufacturer.
- 3.4 When stored in their respective original unopened containers for one year from date of shipment at temperatures between 5 and 40°C, the components shall be readily mixed to a uniform condition by stirring. In addition, the container of the component that contains the zinc shall not display gassing, which is indicated by a bulged condition. When mixed as outlined in par. 3.2, the coating shall meet the requirements for drying time (par. 4.3) and for applicability and appearance (par. 4.15).
- 3.5 **Toxic Elements** — The coating shall be manufactured to conform to the requirements of the *Hazardous Products (Liquid Coating Materials Regulations) Act* for designated toxic elements.

4. DETAILED REQUIREMENTS

When prepared according to par. 3.2 and tested or applied within 1/2 to 3 h after mixing, the primer coating shall comply with the following detailed requirements:

		Min.	Max.	Test Method	
				CGSB 1-GP-71	ASTM
4.1	Flash point, Pensky-Martens closed cup, °C	23	—	3.1	—
4.2	Consistency, Krebs units	80	100	4.5	—
4.3	Drying time, dry hard, h	—	8	5.1	—
4.4	Coarse particles in pigment component retained on a 45 µm (No. 325) sieve ² , % by mass	—	1.0	—	D 185
4.5	Pigment content, % by mass ³	75	—	21.1	—
4.6	Metallic content as zinc, % by mass of non-volatile solids ⁴	83	—	(Par 6.2.2)	—
4.7	Non-volatile vehicle, % by mass	5.0	7.0	19.1	—
4.8	Volatile matter of material for use, % by mass	—	16.0	(Par. 6.2.3)	—
4.9	Pressure Buildup — When the pigment-containing component is tested in accordance with CGSB standard 1-GP-71, Method 87.2, the pressure shall not exceed 2.9 kPa.				
4.10	Pot Life — When held at a temperature of 30°C, the mixed components shall remain of a consistency suitable for application for a minimum period of 6 h, and when thinned with a maximum of 10% by volume of thinner, shall remain lump-free and brushable.				
4.11	Adhesion — The coating film, applied as in par. 6.2.1 and cured for 7 d, shall have an adhesion rating of not less than 5A when subjected to the X-cut tape test as specified in ASTM D 3359, Method A.				
4.12	Impact Resistance, Direct — When applied in accordance with par. 6.2.1, the cured coating film shall show no cracking, flaking or loss of adhesion at the point of direct impact after the application of 4.5 J when tested in accordance with CGSB standard 1-GP-71, Method 147.1.				

² See CAN/CGSB-8.2.

³ The pigment may be determined directly on the zinc-dust component or the zinc-pigmented component and then calculated as a percentage of the mixed material.

⁴ The metallic content may be determined directly on the zinc dust component or the zinc-pigmented component and then calculated as a percentage of the non-volatile solids.

- 4.13 **Salt Spray Resistance** — When a film of the coating is applied in accordance with par. 6.2.1, scored and unscored panels shall withstand an exposure period of 720 h in the salt spray cabinet when tested in accordance with CGSB standard 1-GP-71, Method 129.2. Unscored panels shall show no corrosion, visible or under the film, and no blistering; scored panels shall not show more than 2 mm undercreepage.
- 4.14 **Behaviour Towards Topcoats** — After curing 24 h under standard conditions, the film shall be sufficiently cured to accept application of epoxy coating conforming to CAN/CGSB-1.146 without blistering, wrinkling, softening or showing other defects when examined 24 h after application as specified in par. 6.2.4 and CGSB standard 1-GP-71, Method 130.3.
- 4.15 **Applicability and Appearance** — When the components are mixed and allowed to stand according to the manufacturer's instructions and then sprayed to a dry film thickness of $65 \pm 15 \mu\text{m}$, the coating shall produce a uniform matte finish with good flow-out and levelling and no sagging as specified in par. 6.2.5.
- 4.16 **Cathodic Protection** — When immersed in synthetic sea water for 30 d, the coating shall prevent corrosion in the 40 mm circular bare area as specified in par. 6.2.6.

5. PREPARATION FOR DELIVERY

- 5.1 Unless otherwise specified (par. 7.1), normal commercial packaging and marking shall be acceptable.
- 5.2 **Packing** — The supplier is required to fill the containers so that when the total contents of two or three containers (as applicable) are mixed together, the resulting mixture shall constitute one unit. Unless otherwise specified (par. 7.1), all components shall be packed together in one carton.

5.3 Labelling

- 5.3.1 **Toxic Elements** — This coating shall be labelled to conform to the requirements of the *Hazardous Products (Liquid Coating Materials Regulations) Act* for designated toxic elements.

- 5.3.2 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-1.183-99

NATO stock number (when required)

Manufacturer's name and address

Manufacturer's batch number

Manufacturer's code number

Date of manufacture

Instructions for use:

- Induction period
- Pot life
- Application conditions (See par. 7.2.6.2 and 7.2.6.3.)

Cautionary Notes:

- In addition to any special markings specified (par. 7.1), each container shall have affixed a lithographed or stencilled warning label of appropriate size, stating the hazards concerning 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 the requirements of the *Transport of Dangerous Goods Regulations* concerning the flammability of the ingredients. Mixing instructions shall also be provided on an instruction sheet supplied with each shipment.

6. INSPECTION

- 6.1 **Sampling** — Sampling shall be carried out in accordance with CGSB standard 1-GP-71, Method 1.1.

6.2 Testing

6.2.1 Preparation of Panels

6.2.1.1 Coat grit-blasted panels (CGSB 1-GP-71, Method 100.2) to a dry film thickness of $75 \pm 10 \mu\text{m}$. For salt spray resistance and cathodic protection, coat the back and edges of the panel with the material under test or with some other suitable anticorrosive coating.

6.2.1.2 Cure all films, except those tested for behaviour towards topcoats (par. 4.14), for 7 d before testing; hence, disregard drying times in the methods specified.

6.2.2 **Metallic Content of Non-volatile Solids** — Where necessary, carry out the pigment separation of the sample in accordance with CGSB standard 1-GP-71, Method 21.1. Determine the total zinc in accordance with ASTM D 521 and calculate the zinc present (Z) based on the mixed coating. Finally, calculate the percentage of total zinc based on non-volatile solids as follows:

$$\text{metallic content, Zn, \%} = \frac{Z}{\text{NV}} \times 100$$

where:

Z = % of total zinc based on mixed coating

NV = % of non-volatile matter of the mixed coating

6.2.3 **Volatile Matter** — Determine the volatile matter of each component separately, using CGSB standard 1-GP-71, Method 17.1 for the resin component and ASTM D 1664, Method A, for the curing agent. Calculate the volatile matter of the mixture when the components are combined in the proportions recommended by the manufacturer.

6.2.4 **Behaviour Towards Topcoats** — Prepare panels as outlined in par. 6.2.1 and cure for 24 h under standard conditions in accordance with CGSB standard 1-GP-71, Method 103.1. Apply a coat of epoxy at a dry film thickness of $125 \pm 25 \mu\text{m}$. Examine for irregularities after curing for 24 h.

6.2.5 Applicability and Appearance

6.2.5.1 **Application Equipment** — Use the application equipment in accordance with manufacturer's instructions.

6.2.5.2 **Procedure** — Vertically mount a $0.5 \times 1 \text{ m}$ smooth, clean steel panel. Thin the material as specified in the instructions. Spray sufficient material on the panel to produce a continuous wet film to the specified dry film thickness. Allow the material to dry for 6 h in a vertical position and examine for sagging, ridges or other evidence of poor flowout or levelling.

6.2.6 **Cathodic Protection for Qualification Purposes** — Using $100 \times 150 \times 3 \text{ mm}$ grit-blasted panels (CGSB standard 1-GP-71, Method 100.2), mask a 40 mm diameter circle in the centre of the face of each panel with a circular magnet; then apply the material as outlined in par. 6.2.1. Remove the magnet from the masked area prior to drying the panels. Immerse the panels upright in 1.2 L of synthetic sea water (prepared as outlined in CGSB standard 1-GP-71, Method 113.2) contained in a 1.5 L borosilicate glass beaker. Keep the water level constant during the test by the addition of reagent water and maintain the temperature at $23 \pm 2^\circ\text{C}$. At the end of 30 d, examine for corrosion.

7. NOTES

7.1 **Options** — The following options must be specified in the application of this standard:

- Packaging and marking details, if normal commercial practice is not suitable (par. 5.1)
- Packing, if other than as specified (par. 5.2).
- Special markings, if required (par. 5.3.2).

7.2 Recommended Practice

7.2.1 When used as the sole protection, at least two coats are required to yield a minimum dry film thickness of $125 \mu\text{m}$.

- 7.2.2 When used as a weldable primer, a coating thickness of 15 to 20 µm (dry) is required. This coating is not recommended as a weldable primer on high tensile steel.
- 7.2.3 When used as a primer, under suitable topcoats, one application of the coating is required to yield a minimum dry film thickness of 65 µm. One of the following topcoats or topcoat systems may then be applied: CAN/CGSB-1.61 (see par. 7.2.4), CAN/CGSB-1.123, CAN/CGSB-1.146, CAN/CGSB-1.184 (non-immersion service applications only), CAN/CGSB-1.193, CAN/CGSB-1.199, 1-GP-200, CAN/CGSB-1.213.
- 7.2.4 Oil and alkyd paints are not recommended for use directly over this coating. When an oil or alkyd paint is required as a topcoat, tie coat (such as CAN/CGSB-1.213) should be used.
- 7.2.5 This zinc-rich coating is not suitable for use where appreciable amounts of acids or alkalis are likely to be encountered.
- 7.2.6 **Instructions for Use**
- 7.2.6.1 These coatings shall be used as the units defined in par. 5.2, with only sufficient material being prepared that can be used within the manufacturer's stated pot life. Regardless of stated pot life, fresh material should not be mixed with previously mixed material.
- 7.2.6.2 The coating may be applied by brushing or by spraying in accordance with the manufacturer's instructions. It is important to agitate the mixed material slowly during application to prevent settling of the zinc pigment.
- 7.2.6.3 During application, the temperature should be between 5 and 30°C and the relative humidity below 80% as atmospheric conditions affect curing time, pot life and appearance.
- 7.2.6.4 The coating should be applied under conditions of adequate ventilation and hygiene to protect the worker's skin and health. The manufacturer's instructions should be strictly followed.
- 7.2.6.5 The coating contains volatile flammable solvents, and proper precautions should therefore be taken to eliminate the possibility of sparks or open flame being present during application and while the material is drying. Good ventilation is essential.
- 7.2.7 **Surface Preparation** — 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 SSPC-SP 5/NACE 1 No. 1, and the resultant surface appearance shall be as shown in Pictorial Standard A, B, C or D Sa 3 of SSPC-VIS 1. For less critical exposures, the surface should be blast cleaned to near-white metal in accordance with SSPC-SP 10/NACE No. 2 as a minimum, and the resultant surface appearance should be as shown in Pictorial Standard A, B, C or D Sa 2-1/2 of SSPC-VIS 1. However, for less critical exposures and where circumstances do not permit blasting, it is permissible to power-disc sand general areas to bright metal and power brush bolt heads, nuts and rivets to bright metal if agreed to, by the contracting parties. For more information about surface preparation, see CAN/CGSB-85.10.
- 7.2.8 **Storage** — The individual components of this coating should be stored between 5 and 40°C.
- 7.3 **Equipment**
- 7.3.1 Natural bristle brushes as specified in CGSB Specification 22.1 are recommended since most synthetic materials are attacked by the solvents used in this coating.
- 7.3.2 Care should be taken to clean equipment thoroughly at regular intervals and immediately after use with thinner.
- 7.4 **Related Publications**
- 7.4.1 Canadian General Standards Board (CGSB)
 CAN/CGSB-1.61 — Exterior and Interior Marine Alkyd Enamel
 CAN/CGSB-1.123 — Vinyl Antifouling Paint for Ships' Bottoms
 CAN/CGSB-1.184 — Coal-Tar Epoxy Coating
 CAN/CGSB-1.193 — High-Build Epoxy, Marine Coating

CAN/CGSB-1.199 — High-Build Vinyl Coating

1-GP-200 — Deck Coating, Nonslip, Polyurethane

CAN/CGSB-1.213 — Etch Primer (Pretreatment Coating) for Steel and Aluminum

22.1 — Flat Hog-Bristle Brushes for Paint, Varnish, Enamel and Lacquer

CAN/CGSB-85.10 — Protective Coatings for Metals.

7.4.2 American Society for Testing and Materials (ASTM)

D 2200 — Pictorial Surface Preparation Standards for Painting Steel Surfaces.

7.4.3 Society for Protective Coatings (SSPC)

Surface Preparation Specification

SSPC-VIS 1 — Visual Standard for Abrasive Blast Cleaned Steel (Standard Reference Photographs).

7.4.4 Society for Protective Coatings (SSPC)/National Association of Corrosion Engineers (NACE)

Surface Preparation Specifications

SSPC-SP 5/NACE No.1 — White Metal Blast Cleaning

SSPC-SP 10/NACE No. 2 — Near-White Blast Cleaning.

7.5 Sources of Referenced Publications

7.5.1 The publications referred to in par. 2.1.1 and 7.4.1 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.

7.5.2 The publication referred to in par. 2.1.2 may be obtained from Health Canada, Product Safety Bureau, Jeanne Mance Building, 12th floor, Tunney's Pasture, Ottawa, Canada K1A 0K9. Telephone (613) 957-4467. Fax (613) 952-3039.

7.5.3 The publications referred to in par. 2.1.3 and 7.4.2 may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA, 19428-2959, U.S.A. or from the Global Info Centre Canada, 240 Catherine Street, Suite 305, Ottawa, Ontario K1P 2G8. Telephone (613) 237-4250 or 1-800-854-7179.

7.5.4 The publications referred to in par. 7.4.3 and 7.4.4 may be obtained from the Society for Protective Coatings, 40 24th Street-6th Floor, Pittsburgh, PA 15222-4643, U.S.A.
