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Canadian General
Standards Board

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These CGSB standards and National Standards of Canada are hereby withdrawn due to limited use and support for their revision.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

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.

Des copies archivées des normes retirées peuvent être obtenues à des fins historiques ou archivistiques auprès du Centre des ventes de l'ONGC. Il suffit d'en faire la demande par téléphone au 819-956-0425 ou 1-800-665-2472, par télécopieur au 819-956-5740, par Internet à : www.tpsgc-pwgsc.gc.ca/ongc-cgsb/, par courriel à ncr.CGSB-ONGC@tpsgc-pwgsc.gc.ca, ou par courrier adressé au Centre des ventes, Office des normes générales du Canada, 11, rue Laurier, Gatineau, Canada K1A 1G6.

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 repeinture 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)

NATIONAL STANDARD OF CANADA

CAN/CGSB-1.177-M91

Supersedes 1-GP-177M

**Two-Component
Polyurethane Coating,
Resistant to Chalking and
Yellowing**



QUALITY

Canadian General Standards Board

CGSB

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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-writing 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:

Standards Council of Canada
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TWO-COMPONENT POLYURETHANE COATING, RESISTANT TO CHALKING AND YELLOWING

This new edition supersedes CGSB standard 1-GP-177M, November 1977. There are no substantial technical changes.

The Canadian General Standards Board administers a Qualification Listing Program for products conforming to the requirements of this standard. Further information on the listing program is available from the Qualification and Certification Listing Branch of CGSB.

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CANADIAN GENERAL STANDARDS BOARD

**TWO-COMPONENT POLYURETHANE COATING, RESISTANT TO
CHALKING AND YELLOWING****1. SCOPE**

- 1.1 This standard applies to a two-component, pigmented polyurethane coating for interior and exterior use on metal, wood, fibreglass reinforced plastic and concrete where enhanced durability and resistance to chemicals, abrasion, impact, water, corrosion, yellowing and chalking are desired.
- 1.2 For more detailed information on intended uses, application and limitations, see par. 7.2.
- 1.3 Where a polyurethane coating that may exhibit some yellowing and chalking is acceptable, see CGSB standard 1-GP-180M.
- 1.4 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 existing applicable regulatory requirements prior to its use.

2. APPLICABLE PUBLICATIONS

- 2.1 The following publications are applicable to this standard:
- 2.1.1 Canadian General Standards Board (CGSB)
- 1-GP-12 — Standard Paint Colors
 - 1-GP-71 — Methods of Testing Paints and Pigments
 - 1-GP-100M — Paint, Interior, Latex Type, Flat
 - 1-GP-121M — Coating, Vinyl, Pretreatment, for Metals (Vinyl Wash Primer).
- 2.1.2 ASTM
- D 1210 — Test Method for Fineness of Dispersion of Pigment-Vehicle Systems
 - D 3432 — Test Method for Free Toluene Diisocyanates in Urethane Prepolymers and Coating Solutions by Gas Chromatography.
- 2.2 Reference to the above publications and other related standards is to the latest issues unless otherwise specified by the authority applying this standard. The sources for these publications are shown in the Notes section.

3. GENERAL REQUIREMENTS

- 3.1 Two-component polyurethane coating complying with this standard shall consist of:
- isocyanate component
 - reactant.
- 3.2 When the two components are mixed together and thinned, if required, in accordance with the manufacturer's instructions, the coating shall be suitable for application primarily by spraying. The mixture so prepared shall produce a smooth, uniform finish. The mixed coating may also be applied by brush, roller or applicator (par. 7.3.2); but such applications are not as satisfactory because of the short set-up time.

- 3.3 When held at temperatures between 5 and 30°C, the mixed coating shall remain suitable for application for a minimum period of 8 h.
- 3.4 The components, when stored in their respective original unopened containers for one year from date of shipment and at temperatures not exceeding 40°C, shall be capable of being readily mixed to a uniform condition by stirring. When the components are mixed together as described in par. 3.2 the coating shall meet the applicability and appearance requirement (par. 4.19).
- 3.5 **Colour** — Any of the gloss colours in CGSB standard 1-GP-12 are applicable to this standard when the coating is used for architectural purposes. When colour stability in the presence of acids and alkalis is required, this should be so stipulated (par. 7.1). The following colours are applicable: Grey 501-106 and 101-126, Blue 502-105, Green 503-103, 503-108 and 503-113, Brown 204-105, Yellow 505-110, Orange 508-101 "International Orange," Red 509-101, Black 512-101 and White 513-101.

4. DETAILED REQUIREMENTS

Polyurethane coating to this standard, when prepared according to par. 3.2, shall comply with the following detailed requirements when tested in accordance with the specified test methods:

		Test Method			
		Min.	Max.	CGSB 1-GP-71	ASTM Other
4.1	Flash point, Pensky-Martens Closed Cup, °C	27	—	3.1	—
4.2	Consistency, initial (15 min after mixing), Krebs units	60	80	—	Par. 6.4
4.3	Pot life consistency, 4 h after mixing, Krebs units	—	95	—	Par. 6.4
4.4	Volatile matter, % by mass	—	45	17.1 (Note 1)	—
4.5	Drying time			5.1	—
	Set-to-touch, h	—	1		
	Dry hard, h	—	18		
4.6	60° gloss, units	85	—	13.2	—
4.7	Fineness of grind, Hegman	6	—	—	D 1210
4.8	Impact resistance direct and reverse, J	4.5	—	—	Par. 6.3.2
4.9	Abrasion resistance, g	3000	—	—	Par. 6.3.3
4.10	Free monomeric N-C-O, % by mass	—	1.0	—	D 3432
4.11	Hiding Power — When the coating is applied with a draw blade at a wet film thickness of 125 µm or 150 µm (± 10%) as applicable, the black-and-white or black-and-grey squares of the specified hiding power chart shall not be visible under the dried film. A 150 µm wet film thickness draw-down shall be used for colours: Yellow 505-101, 505-102, 505-109 and 505-111; Orange 508-101, 508-102 and 508-103; Red 209-101, 509-102, 509-103 and 509-104, and a 125 µm wet film draw-down for all other colours when tested in accordance with CGSB standard 1-GP-71, Method 14.1.				

Note 1: The volatile matter may be determined on each component separately (CGSB 1-GP-71, Method 17.1). The volatile matter of the material ready for use is then calculated for the mixture obtained when the components are combined in the proportions recommended by the manufacturer.

- 4.12 **Flexibility** — The cured film shall not crack nor peel when subjected to the bending test using a 3.2 mm diameter mandrel in accordance with par. 6.2 and CGSB standard 1-GP-71, Method 119.5.
- 4.13 **Water Resistance**
- 4.13.1 The coating shall show no blistering, peeling, wrinkling, cracking nor lifting when immersed in water as follows:
— 72 h at $23 \pm 2^{\circ}\text{C}$
— 1 h at 100°C
Separate specimens shall be used for each test.
- 4.13.2 After subsequent drying for 2 h, the finish shall show no whitening, dulling, softening, loss of adhesion nor other visible defects when tested in accordance with par. 6.3 and CGSB standard 1-GP-71, Method 110.1.
- 4.14 **Acid Resistance** — The cured film shall withstand the action of 5% sulfuric acid for 16 h without softening, blistering, wrinkling or loss of adhesion; colour change and dulling shall be disregarded. No colour change shall be permitted for the acid and alkali resistant colours listed in par. 3.5 when tested in accordance with par. 6.3 and CGSB standard 1-GP-71, Method 105.2.
- 4.15 **Alkali Resistance** — The cured film shall withstand the action of 20% sodium hydroxide for 24 h without softening, blistering, wrinkling or loss of adhesion. Only slight colour change shall be permitted for the acid and alkali resistant colours listed in par. 3.5 when tested in accordance with par. 6.3 and CGSB standard 1-GP-71, Method 106.1.
- 4.16 **Alcohol Resistance** — When cured on glass (CGSB 1-GP-71, Method 102.1), the film shall withstand the action of 50% (by volume) ethyl alcohol for 4 h without blistering, peeling, wrinkling or lifting. After drying for 2 h, the finish shall show no evidence of damage, dulling or whitening that cannot be removed by rubbing lightly with a clean cloth when tested in accordance with par. 6.3 and CGSB standard 1-GP-71, Method 146.1.
- 4.17 **Scrubbability** — The cured film shall withstand 5000 cycles in the washability machine without showing more than a slight difference between the scrubbed and unscrubbed portions when tested in accordance with par. 6.2 and CGSB standard 1-GP-71, Method 125.1.
- 4.18 **Accelerated Weathering** — When tested in accordance with par. 6.3 and CGSB standard 1-GP-71, Method 122.6, the cured film shall withstand an exposure period of thirty, 24 h cycles in an accelerated weathering machine without showing evidence of blistering, cracking, flaking, peeling or chalking. The gloss after exposure shall not be less than 60 units. White 513-101 coatings shall not show a total colour change (ΔE), greater than 2. Other colours shall not show more than a slight colour change.
- 4.19 **Applicability and Appearance** — When spray-applied, the material shall dry to a film having a smooth, glossy, uniform finish free from lifting, sags, runs and pinholes. In addition, the material shall have good levelling properties, a satisfactory recoat time and shall show good hiding properties.

5. PREPARATION FOR DELIVERY

- 5.1 Unless otherwise specified (par. 7.1), preparation for delivery shall conform to normal commercial practice provided that the requirements of par. 5.3 are met.
- 5.2 **Labelling** — In addition to complying with the labelling requirements of any relevant Acts or Regulations, each container shall be suitably labelled to show the following information together with any markings that may be specified (par. 7.1):

Name of material

Standard number: CAN/CGSB-1.177-M91

CGSB standard 1-GP-12 colour

Manufacturer's name and address

Manufacturer's batch number

Manufacturer's code number

Date of manufacture
Mixing ratio by volume
Mixing instructions
Pot life
Thinning instructions
Application conditions (temperature and humidity conditions).

5.3 **Toxic Elements** — The material shall be labelled to conform to the requirements of the Hazardous Products Act in respect to designated toxic elements.

5.4 When required, the supplier shall fill the containers in such a manner that the total contents of the resin component, when mixed with the total contents of the curing agent, shall constitute one unit.

6. INSPECTION

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

6.2 **Testing** — The procedure for rating the effects of change in CGSB standard 1-GP-71, Method 143.1 shall be used, as applicable, for evaluating performance.

6.3 Panel Preparation

6.3.1 **Panel Preparation — General** — In testing for the detailed requirements in Section 4, all the tests shall be done on the type of panel called for in the applicable CGSB standard 1-GP-71 or ASTM Method, except that the film thickness shall be $30 \pm 5 \mu\text{m}$ and only one coat shall be applied (except for par. 4.11, 4.18 and 4.19). Before testing, all films shall be cured 7 d at $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ RH (CGSB 1-GP-71, Method 103.1); hence the drying times in the methods are to be disregarded.

6.3.2 **Panel Preparation for Impact Test** — Select and clean a minimum of three 100 x 150 mm steel panels in accordance with CGSB standard 1-GP-71, Method 100.1. Apply a coat of vinyl wash primer conforming to CGSB standard 1-GP-121M by spray (CGSB 1-GP-71, Method 98.2) to provide a dry film $8 \pm 1 \mu\text{m}$ thick and allow to dry (CGSB 1-GP-71, Method 103.1) 30 min. Apply (CGSB 1-GP-71, Method 98.1) one coat of the material under test to provide a dry film $30 \pm 4 \mu\text{m}$ thick and allow to dry for 7 d (CGSB 1-GP-71, Method 103.1). Carry out the direct and reverse impact on the above prepared panels in accordance with CGSB standard 1-GP-71, Method 147.1. A minimum of ten runs shall be made for both the direct and reverse impact. The material under test is judged to pass when a minimum of 7 of the 10 runs shows no evidence of cracking, flaking or lifting.

6.3.3 **Panel Preparation for Abrasion Resistance Test** — Apply (CGSB 1-GP-71, Method 98.1) one coat of the polyurethane coating to 100 x 150 mm zinc phosphated steel panels (CGSB 1-GP-71, Method 100.3) to provide a dry film $30 \pm 5 \mu\text{m}$ thick. Allow the film to dry 7 d (CGSB 1-GP-71, Method 103.1). Subject the prepared panel to the abrasion resistance test (CGSB 1-GP-71, Method 104.1).

6.4 **Pot Life Test** — Mix the two components together according to the manufacturer's instructions in sufficient quantity to fill a 250 mL container. Close the container for 15 min, then open it and measure the consistency of the material by CGSB standard 1-GP-71, Method 4.5. Seal the container again and keep it under standard conditions (CGSB 1-GP-71, Method 103.1) for the specified time. At the end of this time again measure the consistency as outlined above.

6.5 **Applicability and Appearance** — Mount vertically a 0.6 x 0.9 m smooth steel panel. Thoroughly clean the panel free of residual solvent or oil. Brush on a coat of CGSB standard 1-GP-100M type satin black latex paint to form an X from corner to corner, with arms approximately 100 mm wide and edges staggered and feathered. Allow to dry at least 24 h. Mix the components of the coating under test as directed in par. 3.2 and allow to stand for the specified induction period. After thinning in accordance with the manufacturer's instructions, spray the mixed material using a spray gun (Note 2) of the pressure feed type with an external mix cap and a fluid nozzle 1.8 mm inside diameter.

Note 2: The following combination meets this requirement — DeVillbis — MBC gun, E Fluid tip and 78 air cap Binks — Model 18 gun, 66 fluid tip and 63 PB air cap. Equivalent guns may be used.

Hold the gun 150 - 200 mm from the panel using horizontal strokes and lapping 50%. Control the speed of the gun and feed pressure to produce a smooth uniform finish of dry film thickness $15 \pm 3 \mu\text{m}$. After 6 h drying apply a second coat in the same manner such that the total dry film thickness is $30 \pm 5 \mu\text{m}$. Allow the panel to dry for 24 h in a vertical position and examine. To determine if the black "X" is discernible, view the panel in normal daylight from a distance of 1.5 m (CGSB 1-GP-71, Method 134.19).

7. NOTES

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

- a. Colour of coating and whether acid or alkali resistance is required (par. 3.5)
- b. Preparation for delivery, if other than as specified (par. 5.1 and 5.3).

7.2 **Intended Uses** — This coating is intended primarily for spray application to practically any properly prepared surface such as wood, metal, concrete blocks, bricks, and fibreglass reinforced plastic where a durable water, abrasion, impact and corrosion resistant finish is required. It is most suitable for exterior use in view of its excellent weatherability and resistance to chalking and yellowing.

7.3 Instructions for Use

7.3.1 Only sufficient material for one day's use should be mixed at one time. Regardless of stated pot life, fresh material should not be mixed with material that has stood for more than 4 h.

7.3.2 Normally two topcoats of the material should be applied for architectural purposes. The second coat should be applied within 24 h; if this is not possible, the first coat should be given a light sanding prior to coating. Where these polyurethane coatings are to be applied over aged or weathered polyurethane finishes, special care should be taken concerning cleaning and sanding of the finish to obtain maximum adhesion of the new coatings. The coating may be applied by brush, roller or applicator where small areas are involved.

7.3.3 Material to this standard should be applied only when the relative humidity is under 80% and at temperatures ranging between 5 and 30°C as atmospheric conditions affect pot life, curing time and appearance.

7.3.4 This coating may be used over surfaces that have been previously finished with varnishes and paints, but before such application a small area should always be tested to determine if lifting, wrinkling or discolouration will occur. The surface must be properly sanded and must always be free from dust, greases, oil or wax.

7.3.5 **Wood Surfaces** — When wood filling is necessary, follow the coating manufacturer's recommendations.

7.3.6 **Metal Surfaces** — Metal surfaces should be clean, dry and free from oil, grease and corrosion products. They should then be primed with epoxy primer conforming to CGSB standard 1-GP-165M or other suitable anticorrosive primer in accordance with the manufacturer's instructions.

7.3.7 Masonry Surfaces

7.3.7.1 All loose material should be removed from concrete block, concrete and brick and any large holes or cracks should be filled with a suitable block filler such as filler conforming to CGSB standard 1-GP-188M.

7.3.7.2 New concrete should have cured for 28 d and should be thoroughly dry before application of the polyurethane coating. If the surface is extremely smooth and nonporous, an acid-etch is recommended and should be carried out according to manufacturer's instructions.

7.3.8 **Glass (Fibre) Reinforced Plastic** — These surfaces should be sanded and given a solvent wash according to the manufacturer's instructions.

7.3.9 **Storage** — Material to this standard should be stored at temperatures between 5 and 30°C and under no circumstances should they be subjected to temperatures above 40°C.

7.4 **Equipment** — Care should be taken to clean equipment thoroughly at regular intervals and immediately after use with thinner as recommended by the manufacturer. Do not place equipment in water since this will accelerate the hardening of the residual polyurethane material.

7.5 **Related Publication** — CGSB 1-GP-180M, Coating, Polyurethane, Two-Package, General Purpose.

7.6 **Sources of Referenced Publications**

- 7.6.1 The publications referred to in par. 2.1.1, 7.3 and 7.5 may be obtained from the Canadian General Standards Board, Sales Unit, Ottawa, Canada K1A 1G6. Telephone (819) 956-0425 or 956-0426. Fax (819) 956-5644.
- 7.6.2 The publications referred to in par. 2.1.2 may be obtained from ASTM, 1916 Race Street, Philadelphia, PA 19103, U.S.A. or from the Standards Council of Canada, Standards Sales Branch, 350 Sparks Street, Suite 1200, Ottawa, Ontario K1P 6N7. Telephone 1-800-267-8220.
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