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These CGSB standards and National Standards of Canada are hereby withdrawn due to limited use and support for their revision.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

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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 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-1.176-2000

Supersedes CAN/CGSB-1.176-M91

Interior Clear Moisture-Curing Polyurethane 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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INTERIOR CLEAR MOISTURE-CURING POLYURETHANE COATING

Prepared by the
Canadian General Standards Board 

Approved by the
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INTERIOR CLEAR MOISTURE-CURING POLYURETHANE COATING

1. SCOPE

- 1.1 This standard applies to a clear, oil-free, polyurethane coating containing an isocyanate-terminated polymer that is cured or hardened by reaction with atmospheric moisture.
- 1.2 This coating is intended for interior applications on concrete and wood where enhanced resistance to physical and chemical attack is required.
- 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.
- 2.1.2 Health Canada
Hazardous Products (Liquid Coating Materials Regulations) Act.
- 2.1.3 American Society for Testing and Materials (ASTM)
D 1545 — Standard Test Method for Viscosity of Transparent Liquids by Bubble Time Method
D 1644 — Standard Test Methods for Nonvolatile Content of Varnishes¹
D 3432 — Standard Test Method for Unreacted Toluene Diisocyanates in Urethane Prepolymers and Coating Solutions by Gas Chromatography.
- 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, as specified (par. 8.1):
- 3.1.1 **Types**
Type 1 — General Purpose
Type 2 — Non-yellowing.

4. GENERAL REQUIREMENTS

- 4.1 Type 2 coating shall be formulated with a non-yellowing type of resin.

¹ASTM D 1644 was withdrawn in 1998, but copies of it shall still be referenced until a replacement method is designated.

- 4.2 The coating shall be free from sediment and suspended matter. When applied to glass, the film shall be clear, glossy and free from specks.
- 4.3 The coating shall be suitable for application by brush, spray, or lamb's wool roller or applicator when used in accordance with the manufacturer's instructions. Thinning, if necessary, should be done in accordance with the manufacturer's instructions.
- 4.4 The coating shall not skin or thicken excessively when stored in the original unopened container for six months from the date of shipment at temperatures between 5 and 40°C. At the end of this time it shall be readily mixed to a uniform condition by stirring and shall meet the requirements for drying time (par. 5.4) and applicability and appearance (par. 5.16).
- 4.5 **Toxic Elements** — The coating shall be manufactured in accordance with the requirements of the *Hazardous Products (Liquid Coating Materials Regulations) Act* for designated toxic elements.

5. DETAILED REQUIREMENTS

The coating shall comply with the following detailed requirements when tested in accordance with the specified test method. When these requirements involve testing of the dry film, the coating shall be applied and cured in accordance with the requirements of par. 7.2.1.

		Test Method			
		Min.	Max.	CGSB 1-GP-71	ASTM
5.1	Flash Point, Pensky-Martens Closed Cup, °C	27	—	3.1	—
5.2	Viscosity at 25°C, mm ² /s Gardner Holdt ²	65 B	200 H	—	D 1545
5.3	Non-volatile matter, % by mass	35	—	—	D 1644
5.4	Drying time				
	Dry hard, h	—	5	5, Method A	—
	Complete cure, d	—	7	5, Method C ³	—
5.5	Free diisocyanate (as TDI), %	—	1.0	—	D 3432
5.6	60° gloss, units	85	—	13.2	—
5.7	Abrasion resistance, g	4000	—	104.1 ⁴	—
5.8	Impact Resistance — When subjected to a direct and reverse impacts of 11.3 J, the film in the impact area shall show no cracking, flaking or loosening when tested in accordance with CGSB standard 1-GP-71, Method 147.1.				
5.9	Colour of the Dried Film — The cured polyurethane film shall be a pale colour so that the total colour difference ΔE between readings taken before and 24 h after the application to white Carrara glass of a dry film 22 ± 3 μm shall not exceed 2.0 when tested in accordance with CGSB standard 1-GP-71, Method 12.1.				
5.10	Colour Stability (Type 2 only) — The cured film shall withstand an exposure period of 96 h in the Fade-Ometer without showing a colour change ΔE greater than 4.0 between the initial film and the film after exposure when tested in accordance with CGSB standard 1-GP-71, Method 120.3.				
5.11	Acid Resistance — The cured film shall withstand the action of 5% by mass aqueous hydrochloric, nitric and sulphuric acids for 4 h without softening, blistering, wrinkling, loss of adhesion, appreciable colour change or appreciable loss of gloss when tested in accordance with CGSB standard 1-GP-71, Method 105.2.				

²To convert stokes to mm²/s multiply by 100. See ASTM D 1645 for info on Gardner Holdt and values B and H.

³Xylene and a 15 min test time shall be used.

⁴Except that zinc-phosphated steel panels (CGSB 1-GP-71, Method 100.3) shall be used.

- 5.12 **Alkali Resistance** — The cured film shall withstand the action of 20% by mass sodium hydroxide for 4 h without softening, blistering, wrinkling, loss of adhesion or colour change when tested in accordance with CGSB standard 1-GP-71, Method 106.1.
- 5.13 **Water Resistance**
- 5.13.1 The coating shall show no blistering, peeling, wrinkling, cracking or lifting when immersed in water as follows:
— 72 h at $23 \pm 2^\circ\text{C}$
— 1 h at 100°C
Separate panels shall be used for each test.
- 5.13.2 After subsequent drying for 2 h, the finish shall show no whitening, dulling, softening, loss of adhesion or other visible defects when tested in accordance with CGSB standard 1-GP-71, Method 110.1.
- 5.14 **Flexibility** — The cured film shall show no cracking or peeling when bent over a 3.2 mm mandrel in accordance with CGSB standard 1-GP-71, Method 119.5.
- 5.15 **Scrubbability** — The cured film shall withstand 5000 cycles in the washability machine with no whitening, not more than a trace of brush marks and 5% loss in gloss, and only a slight difference between the scrubbed and unscrubbed portions when tested in accordance with CGSB standard 1-GP-71, Method 125.1 (using black Carrara glass).
- 5.16 **Applicability and Appearance**
- 5.16.1 **After 4 h Pot Life** — When the coating is allowed to remain in contact with air at room temperature and 50% RH for 4 h, as outlined in par. 7.2.2, and applied as the first coat of the system, it shall have a consistency suitable for good brushing properties. The dried film shall be uniform in appearance and gloss and shall show no ridges, sagging, brush marks or gelled particles. The coating shall not have an objectionable odour after curing.
- 5.16.2 **Recoatability** — At the end of 18 h of drying, the first coat shall be capable of being recoated with a second coat of the material, applied as received, without evidence of lifting, wrinkling, lack of uniformity or other visible defects when tested in accordance with CGSB standard 1-GP-71, Method 134.13.

6. PREPARATION FOR DELIVERY

- 6.1 Unless otherwise specified (par. 8.1), preparation for delivery shall conform to normal commercial practice.
- 6.2 **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:
- Name and type of material
Standard number: CAN/CGSB-1.176-2000
Manufacturer's name and address
Manufacturer's batch number
Manufacturer's code number
Date of manufacture
Instructions for use:
— Pot life
— Thinning
— Application conditions
Cautionary notes:
a. Type 2 only should be used in areas exposed to daylight or other light sources equally high in ultraviolet radiation;

- b. only the recommended thinner shall be used and that other thinners such as mineral spirits, turpentine, etc. shall not be used;
- c. equipment shall be clean to avoid contamination;
- d. new brushes shall be cleaned with the recommended thinner, to remove oil;
- e. this coating is not recommended for application over lacquers or shellacs;
- f. the coating shall be stored at temperatures between 5 and 35°C;
- g. the coating shall be kept away from heat and open flame;
- h. prolonged breathing of spray or mist shall be avoided;
- i. the container shall be closed after using;
- j. if stored in glass, residual alkalinity may cause gelation or an increase in viscosity.

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** — Carry out all tests using the type of panel called for in the applicable CGSB standard or ASTM method. Use a dry film thickness of $22 \pm 3 \mu\text{m}$ for the test in par. 5.9 and $30 \pm 5 \mu\text{m}$ for all other tests. For all tests, apply only one coat. Prior to testing, cure all films for 7 d.

7.2.2 **Pot Life** — Fill a container with approximately 250 mL of the material and allow it to remain in contact with air in a conditioned room (CGSB standard 1-GP-71, Method 103.1) for 4 h. Apply the coating as the first coat of the system and assess for applicability and appearance characteristics.

8. NOTES

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

- a. Type (par. 3.1)
- b. Preparation for delivery, if other than as specified (par. 6.1).

8.2 The polyurethane coating is produced when monomeric diisocyanate or low molecular weight polyisocyanate reacts with other materials containing reactive hydrogen atoms. The coating cures or hardens when unreacted isocyanate groups react with atmospheric moisture.

8.3 Recommended Practice

8.3.1 Wood Surfaces

8.3.1.1 Normal solvent-based or water-based wood fillers or those containing stearates are not recommended for wood surfaces, since they may impair adhesion. The coating manufacturer's recommendations should be obtained regarding suitable fillers.

8.3.1.2 Non-porous woods such as maple or pine should be sealed with a coat of polyurethane (CAN/CGSB-1.176) that has been reduced with the urethane thinner recommended by the manufacturer. Subsequent topcoats should be applied as received.

8.3.2 Because Type 1 coating will yellow if exposed to daylight or other light sources equally high in ultraviolet radiation, Type 2 should be used where resistance to yellowing is required.

8.4 Instructions for Use

8.4.1 The coating should be used as directed by the manufacturer. Since this product cures or hardens by reaction with atmospheric moisture, coating sufficient for the immediate job should be poured into a separate container, and then the original can should be resealed tightly. Regardless of the stated pot life, unused coating should not be returned to

the original container, nor should fresh coating be mixed with coating that has been exposed to air for any length of time.

8.4.2 To reduce the coating, thin only as much as is required just prior to use, to minimize trace moisture effects in the solvents or atmosphere during mixing.

8.4.3 The coating should be applied to a wet film thickness of 75 to 125 µm per coat at temperatures between 15 and 35°C and a minimum relative humidity of 30%. (Atmospheric conditions will affect the curing time, pot life and appearance, where increased relative humidity will shorten the curing time).

8.4.4 To protect the worker's skin and health the polyurethane coating should be applied under conditions of adequate ventilation and hygienic measures strictly according to the manufacturer's instructions.

8.4.5 Because these materials contain volatile flammable solvents, proper precautions should be taken to eliminate the possibility of sparks or open flame being present during application and drying. Good ventilation is essential.

8.4.6 When applying this coating by brush, care must be taken to avoid air entrapment.

8.4.7 **Storage** — The polyurethane coating should be stored between 5 and 40°C.

8.5 Equipment

8.5.1 Hog bristle brushes (CGSB specification 22.1) and lamb's wool rollers are recommended since most synthetic materials are attacked by the solvents used in the polyurethane coatings.

8.5.2 Clean equipment thoroughly at regular intervals and immediately after use with thinner as recommended by the manufacturer. Do not place equipment or brushes in water since this will accelerate hardening of the residual polyurethane material.

8.6 Related Publications

8.6.1 Canadian General Standards Board (CGSB)

CAN/CGSB-1.175 — Polyurethane, Interior Coating

1-GP-180M — Coating, Polyurethane, Two Package, General Purpose (Type 1)

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

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, Product Safety Bureau, Jeanne Mance Building, 12th floor, Tunney's Pasture, Ottawa, Canada K1A 0K9. Telephone (613) 957-4467. Fax (613) 952-3039.

8.7.3 The publications referred to in par. 2.1.3 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 K2P 2G8. Telephone (613) 237-4250 or 1-800-854-7179. Fax (613) 237-4251.