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Canadian General Standards Board | Office des normes générales du Canada

Series 2

Série des 2

WITHDRAWAL

February 2012

Selected standards in the series Soaps and detergents

These National Standards of Canada are hereby withdrawn due to limited use and support for their revision.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

Février 2012

Sélection de normes de la série Savons et détergents

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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the date on this withdrawal notice.

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CAN/CGSB-2.1-96

Skin Cleaning Lotion (ICS 71.100.70)

CAN/CGSB-2.5-93

Toilet Soap (ICS 71.100.70)

CAN/CGSB-2.9-97

Scouring Powder (ICS 71.100.40)

CAN/CGSB-2.11-94

Methods of Sampling and Testing Soaps and Detergents (ICS 71.040.40)

CAN/CGSB-2.16-94

Waterless Hand Cleaner (ICS 71.100.70)

CAN/CGSB-2.19-96

Hand Dishwashing Compound (ICS 71.100.40)

CAN/CGSB-2.20-94

Machine Dishwashing Compound (ICS 71.100.40)

CAN/CGSB-2.22-97

Concentrated Dishwashing Rinse Additive (ICS 71.100.40)

CAN/CGSB-2.34-95

Guide to the Selection and Use of Soaps and Detergents (ICS 71.100.40)

seulement puisque leur contenu a été révoqué à la date du présent avis de retrait.

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CAN/CGSB-2.1-96

Lotion nettoyante pour la peau (ICS 71.100.70)

CAN/CGSB-2.5-93

Savon de toilette (ICS 71.100.70)

CAN/CGSB-2.9-97

Poudre à récurer (ICS 71.100.40)

CAN/CGSB-2.11-94

Méthodes d'échantillonnage et d'essai des savons et détergents (ICS 71.040.40)

CAN/CGSB-2.16-94

Nettoie-mains employé sans eau (ICS 71.100.70)

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Détergent pour lavage de la vaisselle à la main (ICS 71.100.40)

CAN/CGSB-2.20-94

Détergent pour lave-vaisselle (ICS 71.100.40)

CAN/CGSB-2.22-97

Agent de rinçage concentré pour lave-vaisselle (ICS 71.100.40)

CAN/CGSB-2.34-95

Guide pour le choix et l'utilisation des savons et détergents (ICS 71.100.40)

CAN/CGSB-2.42-97

Stain Remover for Tableware (ICS 71.100.40)

CAN/CGSB-2.43-93

Scale-Removing Compound for Lime Deposits (ICS 71.100.40)

CAN/CGSB-2.46-95

Toilet Bowl and Urinal Cleaning Compound (ICS 71.100.40)

CAN/CGSB-2.47-94

Toilet Bowl Cleaning Compound (Granular or Crystalline) (ICS 71.100.40)

CAN/CGSB-2.49-94

Alkali Drain Cleaner (ICS 71.100.40)

CAN/CGSB-2.112-92

Remover for Water-Emulsion Floor Polish (ICS 71.100.40)

CAN/CGSB-2.141-92

General-Purpose Powder Cleaning Compound (ICS 71.100.40)

CAN/CGSB-2.175-93

Concentrated Nonionic, Unbuilt Liquid Detergent (ICS 71.100.40)

CAN/CGSB-2.180-94

Carpet and Upholstery Shampoo (ICS 71.100.40)

CAN/CGSB-2.42-97

Détachant pour vaisselle (ICS 71.100.40)

CAN/CGSB-2.43-93

Décapants pour dépôts calcaires (ICS 71.100.40)

CAN/CGSB-2.46-95

Produit de nettoyage pour cuvette de toilette et urinoir (ICS 71.100.40)

CAN/CGSB-2.47-94

Produit de nettoyage pour cuvette de toilette (Granules ou cristaux) (ICS 71.100.40)

CAN/CGSB-2.49-94

Produit de nettoyage alcalin pour tuyaux d'écoulement (ICS 71.100.40)

CAN/CGSB-2.112-92

Décapant pour planchers revêtus de cire de type émulsion aqueuse (ICS 71.100.40)

CAN/CGSB-2.141-92

Poudre de nettoyage, d'usage général (ICS 71.100.40)

CAN/CGSB-2.175-93

Détergent liquide concentré non ionique, sans additifs (ICS 71.100.40)

CAN/CGSB-2.180-94

Shampooing pour tapis et tissus d'ameublement (ICS 71.100.40)

CGSB ONGC

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CAN/CGSB-2.20-94

Supersedes CAN/CGSB-2.20-M87
and CAN/CGSB-2.21-92

Machine Dishwashing Compound

Withdrawn/Retirée



National Standard of Canada

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NATIONAL STANDARD OF CANADA

CAN/CGSB-2.20-94

Supersedes CAN/CGSB-2.20-M87
and CAN/CGSB-2.21-92

MACHINE DISHWASHING COMPOUND

The Canadian General Standards Board administers a Qualification Listing for products conforming to this standard. Further information on the listing program is available from the Conformity Assessment Directorate of CGSB.

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Supersedes CAN/CGSB-2.20-M87
and CAN/CGSB-2.21-92

CANADIAN GENERAL STANDARDS BOARD

MACHINE DISHWASHING COMPOUND

1. SCOPE

1.1 This standard specifies the requirements for a material consisting of alkaline salts and chlorine- or nonchlorine-bearing compounds suitable for use in mechanical dishwashing equipment.

1.2 Material produced in accordance with this standard is intended for use in mechanical dishwashing machines with soft or hard water. The material is suitable for use in the cleaning of plasticware, china, glassware and cutlery. Type 2 material should not be used on silver or silver-plated articles.

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 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)

CAN-CGSB-2.11 — Methods of Sampling and Testing Soaps and Detergents

CAN/CGSB-2.34 — Guide to the Selection and Use of Soaps and Detergents

CAN/CGSB-8.2 — Sieves, Testing, Woven Wire, Metric.

2.1.2 Canadian Standards Association (CSA)

HA Series-M — CSA Standards for Aluminum and Aluminum Alloys.

2.1.3 Department of Consumer and Corporate Affairs (CCA)

Principles and Guidelines for Environmental Labelling and Advertising.

2.2 Reference to the above publications is to the latest issues unless otherwise specified by the authority applying this standard. The sources of these publications are shown in the Notes section.

3. CLASSIFICATION

3.1 The machine dishwashing compound shall be supplied in the following types, as specified (par. 8.1):

3.1.1 ***Types***

Type 1 — Nonchlorinated dishwashing compound

Type 2 — Chlorinated dishwashing compound.

4. GENERAL REQUIREMENTS

4.1 The dishwashing compound shall be a uniform product in powder or granular form as specified (par. 8.1), free from foreign matter.

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4.2 When used in accordance with the manufacturer's instructions, the compound shall have satisfactory water-softening and detergent properties, control staining on crockery and plasticware and prevent the deposition of scale in the machine. It shall be free-rinsing and not give rise to excessive foaming.

4.3 The compound shall not be injurious to plastic tableware and utensils, crockery, and glassware normally used for the cooking and serving of foodstuffs.

4.4 The compound shall be noncorrosive to metal tableware and utensils normally used for the cooking and serving of foodstuffs.

4.5 Traces of the compound that may be left on the tableware or utensils after washing shall not constitute a health hazard when the compound is used as directed.

4.6 There shall be no segregation of the ingredients during shipping and handling.

4.7 The dishwashing compound shall be free from objectionable odour, either in the dry form or in solution.

4.8 The surfactant used in the compound shall be of the low-foaming nonionic type, having a depressant action on foams caused by proteinaceous materials such as eggs, milk, flour, etc., and shall improve rinsability. Additionally the surfactant used for Type 2 products shall be chlorine stable.

4.9 The complex polyphosphates used in the compound shall be crystalline tripolyphosphate or vitreous sodium phosphate or a mixture of both. The vitreous sodium phosphate shall have a P_2O_5 content of 62 to 68% and the crystalline tripolyphosphate shall have a P_2O_5 content of 57 to 59%. The compound shall not contain trisodium phosphate.

4.10 The dishwashing compound shall comply with any relevant Government Acts or Regulations.

5. DETAILED REQUIREMENTS

The dishwashing compound shall comply with the following detailed requirements:

		Type 1		Type 2		Test Method
		Min.	Max.	Min.	Max.	
5.1	Volatile matter, % by mass	—	25.0	—	25.0	Par. 7.4.1
5.2	Water-insoluble matter, % by mass	—	1.0	—	1.0	Par. 7.4.3
5.3	Silicates (as SiO_2), % by mass	13.0	—	13.0	—	Par. 7.4.4
5.4	Phosphates (as P_2O_5), % by mass	23.0	—	23.0	—	Par. 7.4.5
5.5	Carbonates (as CO_2), % by mass	—	6.0	—	6.0	CAN/CGSB-2.11 Method 26.1
5.6	Surfactant (acetone soluble), % by mass	1.9	—	1.9	—	Par. 7.4.2
5.7	Available chlorine, % by mass	—	Nil	1.8	—	Par. 7.4.6
5.8	Chlorine stability (solution), % loss of available chlorine	—	N/A	—	20.0	Par. 7.4.7
5.9	Active alkalinity (as Na_2O), % by mass	28.3	32.4	28.3	32.4	Par. 7.4.8
5.10	Total alkalinity (as Na_2O), % by mass	38.0	42.4	38.0	42.4	Par. 7.4.9
5.11	Foam height, mm	—	15	—	15	Par. 7.4.10

5.12 **Condition and Particle Size**

5.12.1 Whether supplied in powder or granular form, the dishwashing compound shall be free-flowing and free from caking.

5.12.2 As received, when Type 1 dishwashing compound is tested in accordance with CAN/CGSB-2.11, Method 16.2, 95% shall pass through a 2000 µm sieve (CAN/CGSB-8.2).

Withdrawn/Retirée

5.12.3 As received, when Type 2 dishwashing compound is tested in accordance with CAN/CGSB-2.11, Method 16.2, 95% shall pass through a 2800 µm sieve (CAN/CGSB-8.2).

5.13 **pH and Buffering Capacity** — When tested in accordance with par. 7.4.11, a 0.5% solution of the dishwashing compound shall have an initial pH not lower than 11.0 and not higher than 12.5. The addition of an equivalent of 10.0 mL of 0.1 mol/L hydrochloric acid to 50 mL of 0.5% solution of the dishwashing compound shall not reduce the pH of the solution to less than 9.5.

5.14 **Corrosion**

5.14.1 When tested in accordance with par. 7.4.12 at concentrations of 2% and 0.2% (m/v) for 5 h at 80 ± 2°C, the dishwashing compound shall not cause an average loss in mass of the aluminum panels in excess of 10 mg/dm^2 in the 2% solution, and of 5 mg/dm^2 in the 0.2% solution. There shall be no appreciable discolouration of the panels, and the pH of the test solution shall not drop below 11.0.

6. PREPARATION FOR DELIVERY

6.1 **Packaging and Packing** — Unless otherwise specified (par. 8.1), normal commercial packaging and packing shall be acceptable.

6.2 **Labelling** — The labelling shall comply with the requirements of any relevant Government Acts and Regulations.

6.2.1 Environmental claims and/or representations shall follow the Department of Consumer and Corporate Affairs' "Principles and Guidelines for Environmental Labelling and Advertising."

6.2.2 The supplier shall provide instructions covering the use of the compound, and these shall be permanently affixed to the outside of each container. The instructions shall include the amount of compound to be used for various ranges of water hardness in relation to tank capacities (metric measure).

6.2.3 In addition to complying with the labelling requirements of any government Acts and Regulations, each individual container and shipping container shall be suitably labelled to show the following additional information printed in boldface type and securely affixed to the container:

Date packaged

Type (1 or 2)

Unit size (mass)

Standard number: CAN/CGSB-2.20-94

WARNING: This product shall not be mixed with acids or other chemicals. This product is not recommended as a dip destainer for dinnerware nor for cleaning of coffee urns.

7. INSPECTION

7.1 **Sampling** — Sampling shall be carried out in accordance with CAN/CGSB-2.11, Method 1.6.

7.2 **Preparation of Samples** — Preparation of samples in the laboratory shall be carried out in accordance with CAN/CGSB-2.11, Method 2.

7.3 **Disclosure of Ingredients** — Upon request, the supplier shall provide proof to the testing authority that the surface-active agent (surfactant) used is of the type and amount specified in par. 4.8 and 5.6, and that complex phosphates, as specified in par. 4.9 and 5.4, have been used in the finished product. All proof on disclosure of ingredients shall be valid within a year of issue.

7.4 **Testing**

7.4.1 ***Volatile Matter*** — To the nearest 0.1 mg, determine the mass of 5 g of compound into a porcelain or glass dish 60 to 80 mm in diameter and 20 to 40 mm deep. Dry to a constant mass in an oven at 105 ± 2°C. Calculate the mass loss in percent and report as moisture.

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7.4.2 ***Surface-Active Agent (Surfactant)*** — To the nearest 0.1 mg, determine the mass of 20 g of the product (M_s) and transfer it into a 250 mL beaker. Add 50 mL of acetone (reagent grade) and stir well to dissolve soluble matter. Allow to settle and decant the supernatant liquid through a tared medium-porosity sintered-glass crucible into a 250 mL Erlenmeyer flask, using suction, retaining as much of the residue as possible in the beaker. Repeat this extraction twice with 50 mL portions of acetone, decanting each time through the crucible. Wash the beaker and crucible with two 25 mL portions of acetone. Retain the residue in the beaker and crucible for the determination of water-insoluble matter, silicates and phosphates. Combine the acetone filtrate and washings, and evaporate the bulk of the acetone using a gentle stream of clean, dry air, the container being partly immersed in a water bath at 30 to 35°C. Quantitatively transfer the residue to a small tared beaker, using acetone, and similarly evaporate off the bulk of the acetone. Determine the constant mass in a vacuum of at least 95 kPa at room temperature. Calculate the dry mass of the residue as percent surface-active agent.

7.4.3 ***Water-Insoluble Matter*** — To the beaker containing the acetone-insoluble matter (par. 7.4.2) add 150 mL of distilled water at room temperature and stir to dissolve. Note presence of any suspended floc. Filter through the tared sintered-glass crucible (par. 7.4.2), washing thoroughly with distilled water. Retain the combined filtrate and washings for the determination of silicates and phosphates. Dry the crucible and contents to constant mass at 105 ± 2°C. Calculate the percentage of water-insoluble matter as follows:

$$\% \text{ water-insoluble matter} = \frac{M_2 - M_1}{M_s} \times 100$$

where:

M_2 = mass of the dried sintered-glass crucible and residue, in grams

M_1 = mass of sintered-glass crucible, in grams

M_s = mass of specimen, in grams

7.4.4 ***Silicates*** — Transfer the combined filtrate and washings (par. 7.4.3) to a 1 L volumetric flask, dilute to volume with distilled water and mix thoroughly. Pipet 20 mL of the solution into a 250 mL beaker and dilute to 60 mL with distilled water. Add 25 mL of concentrated hydrochloric acid and evaporate to dryness on a steam bath. Bake the residue for 1 h at 105 to 110°C. Add 5 mL of concentrated hydrochloric acid, 50 mL of distilled water, and heat on a steam bath to dissolve soluble salts. Filter through a No. 40 Whatman filter paper and wash the residue thoroughly with hot dilute (1:20) hydrochloric acid, transferring the residue quantitatively to the filter. Transfer the filter paper and silica residue to a tared crucible and ignite to constant mass at approximately 1100°C. Cool to room temperature and calculate the percentage of SiO_2 contained in the specimen as follows:

$$\% \ SiO_2 = \frac{M_2 - M_1}{M_s} \times 100$$

where:

M_2 = mass of ignited residue and crucible, in grams

M_1 = mass of crucible, in grams

M_s = mass of specimen, in grams

7.4.5 ***Phosphates*** — Taking the combined filtrate and washings (par. 7.4.3), add 5 g of NH_4Cl, 25 mL of magnesia mixture reagent (Note 1), 1 or 2 drops of methyl red indicator, and cool the solution to 0 to 10°C in an ice bath. Slowly add dilute ammonium hydroxide (1:1) while stirring vigorously with a rubber-tipped stirring rod, in such a manner that the rubber tip contacts the bottom or side of the beaker. When the precipitate of magnesium ammonium phosphate begins to appear, reduce the rate of addition of ammonium hydroxide and continue at such a rate until a crystalline precipitate is formed and precipitation appears to be complete. Further add an excess of 15 mL of dilute (1:1) ammonium hydroxide and permit the mixture to stand for 4 h in an ice bath, or overnight at room temperature. Filter, without attempting to transfer the precipitate to the filter, and wash the precipitate in the beaker a few times with dilute (1:20) ammonium hydroxide each time pouring the liquid phase through the filter. Dissolve the precipitate by passing 25 mL of dilute (1:1) hydrochloric acid through the filter and catching the filtrate in the

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Note 1: Magnesia mixture Reagent — Dissolve 50 g *of magnesium chloride ($MgCl_2 \cdot 6H_2O$) and* 100 g *of ammonium chloride (NH_4Cl) in* 500 mL *of distilled water. Add ammonium hydroxide in slight excess, allow the solution to stand overnight, and filter. Make the solution just acid with hydrochloric acid, dilute to* 1 L, *and reserve for use in a stoppered bottle or other suitable container.*

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original beaker containing the bulk of the precipitate. Wash the filter thoroughly with dilute (1:20) hydrochloric acid catching all washings in the original beaker. Dilute the solution to 100 mL, add 2 mL of magnesia mixture reagent and reprecipitate, filter and wash as previously. Transfer the precipitate and filter to a tared platinum or porcelain crucible and dry. Burn off the carbon at the lowest possible temperature. Raise the temperature gradually to 950 to 1000°C, and ignite to constant mass. Cool the ignited precipitate in a desiccator and weigh as magnesium pyrophosphate ($Mg_2P_2O_7$). Calculate the percentage of P_2O_5 in the specimen as follows:

$$\% \ P_2O_5 = \frac{M_r \times 0.6379 \times 50 \times 100}{M_s}$$

where:

M_r = mass of the residue, in grams

M_s = mass of the specimen, in grams

7.4.6 ***Available Chlorine in Detergents*** — Weigh 10.0 g of the product to be tested and transfer into a suitable flask or beaker. Add 50 mL of distilled water, 3 g of potassium iodide (KI), 10 mL of dilute (1:2) sulphuric acid and mix, but do not wait to dissolve as chlorine will be lost. Titrate with 0.4 mol/L sodium thiosulphate ($Na_2S_2O_3$) until the solution is pale yellow, then add 1 mL of starch indicator (turns bluish black) and continue titrating until the blue disappears. Record the volume of sodium thiosulphate and calculate the percentage of chlorine as follows:

$$\% \text{ available chlorine} = \frac{v \times c \times 35.5 \times 100}{\text{mass of specimen} \times 1000}$$

where:

v = volume of $Na_2S_2O_3$, in millilitres

c= concentration, in mol/L of $Na_2S_2O_3$ solution (Note 2)

7.4.7 ***Chlorine Stability*** — Weigh 10.0 g of the product to be tested and transfer into a 250 mL volumetric flask. Dilute to mark with distilled water. Place the unstoppered flask in a water bath maintained at 66°C. Check the available chlorine after 4 h by the method outlined in par. 7.4.6. Calculate the loss of available chlorine from the initial specimen as percent by mass Cl_2 loss.

7.4.8 ***Active Alkalinity*** — Prepare a 1% solution of the compound to be tested. Pipette 10 mL of the 1% solution into a 50 mL flask. Add 3 to 4 drops of 30% hydrogen peroxide (H_2O_2) and mix. (If this is not done, the chlorine will destroy the indicators). Add 1 to 2 drops of phenolphthalein indicator and titrate with 0.1 mol/L hydrochloric acid until the solution is colourless. Retain the solution for an additional determination as outlined in par. 7.4.9. Record the volume of acid used and calculate the active alkalinity as follows:

$$\% \ Na_2O = v \times c \times 31$$

where:

v = volume of HCl, in millilitres

c = concentration, in mol/L of HCl solution

7.4.9 ***Total Titratable Alkalinity*** — Add 1 drop of methyl orange indicator to the same 10 mL of a 1% solution of the compound to be tested that was titrated (par. 7.4.8), and continue to titrate until the colour changes to a salmon pink colour. Record the total volume used and calculate the total alkalinity as follows:

$$\% \ Na_2O = v \times c \times 31$$

where:

v = total volume of HCl required to reach the methyl orange end point, in millilitres

c = concentration, in mol/L of HCl solution

Note 2: If the product is low in chlorine so that an accurate titration and burette reading is not possible, do not increase the sample size, but use 0.1 mol/L $Na_2S_2O_3$ for titrating. If the product is so high in chlorine that too much solution is used, decrease the sample size to 5 g. *Do not use less than* 5 g *as detergents are too heterogeneous to obtain a good sample.*

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7.4.10 ***Determination of Foam Height***

7.4.10.1 *Equipment*

Stirring Motor — The stirring motor shall be a Hamilton Beach Model No. 936 Mixer or its equivalent, with the stirring blade attached. Remove the motor with the stirring blade attached from its original stand and support it on a ring stand by means of a 250 mL beaker clamp.

Test Cell — The test cell shall be a glass cylinder sealed at one end to provide a flat bottom with a 70 mm inside diameter and a 185 mm height.

Baffle — The baffle used shall be a cage constructed as shown in Figure 1.

Water Bath — The water bath shall be capable of maintaining a temperature of 66 ± 0.5°C in the test cell.

7.4.10.2 *Procedure* — Place 200 mL of 0.01% test solution of the dishwashing compound (using distilled or deionized water) in the test cell and allow to equilibrate in a 66°C bath. Centre the stirrer between the four baffles and clamp it in position so that the liquid level shall be midway between the two blades on the stirrer. Measure the liquid height from the bottom of the test cell. Run the stirring motor for 3 min ± 2 s at approximately 19 000 r/min to allow the foam to reach maximum height, then stop the motor and measure the foam height after 5 s. Determine the foam height by measuring the total height, in millimetres, of the combined foam and liquid (from the bottom of the test cell), and subtracting the initial height of the liquid measured prior to agitation. The difference is proportional to the volume of entrapped air and designated as the foam height. Make two complete determinations of foam height and report both values.

7.4.11 ***pH and Buffering Capacity***

7.4.11.1 *Apparatus* — Make the test at 25 ± 1°C with a pH meter having a precision of 0.05 pH unit. Use a glass electrode specially designed for high pH ranges in conjunction with a potassium chloride-calomel reference electrode. Calibrate the pH meter before use by checking against a standard buffer solution of pH 10.

7.4.11.2 *Procedure* — Prepare the 0.5% solution of the dishwashing compound by dissolving 5 g of the product in 500 mL of distilled water, transfer to a 1 L volumetric flask and bring to the mark with distilled water. Take an aliquot and determine the pH. Pipet 50 mL of the 0.5% solution into a beaker, add 10.0 mL of 0.1 mol/L hydrochloric acid to the beaker, stir the solution well, and determine its pH. An equivalent amount of stronger acid may be used, in which case sufficient distilled water shall be added to ensure the total volume of water and acid equals 10 mL.

7.4.12 ***Corrosion***

7.4.12.1 *Materials*

Aluminum panels — CSA-HA4-M.1100, H14 Temper, 1.6 mm thick, size 70 × 20 mm

Volumetric flasks (2) — 1 L

Test tubes — 38 × 200 mm

Soft-fibre brush.

7.4.12.2 *Preparation of Panels* — Clean the aluminum panels on both sides by buffing on a fine buffing wheel using fine-grain emery; then wash with soapy water, using the soft-fibre brush. Rinse with distilled water, and then with clean acetone. Allow panels to dry. Care must be exercised in handling the cleaned panels to keep the surface free from contamination. The use of forceps is recommended.

7.4.12.3 *Preparation of Test Solutions*

2% Solution — Prepare a 1 L of 2% solution by dissolving 20 g of the product to be tested in distilled water and making up to 1 L in a volumetric flask.

0.2% Solution — Prepare 1 L of 0.2% solution by diluting 100 mL of the 2% solution to 1 L with distilled water in the second volumetric flask.

7.4.12.4 *Procedure* — Make three tests for each concentration specified above. To the nearest 1 mg, determine the mass of each panel. Measure 150 mL of each solution into each of the three test tubes and immerse them in a constant temperature bath at 80°C. Loosely stopper the tubes and allow them to come to the temperature of the bath. Insert an

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aluminum panel into each test tube and note the time. At the end of 5 h remove the panels, wash free from panels any loose corrosion products by means of the soft-bristle brush, rinse thoroughly with distilled water and acetone, dry and determine the mass of each panel in milligrams. Calculate the corrosion loss in milligrams per square decimetre of area. The mass losses of the three panels tested at each concentration should be within ±10% of each other. Report the average mass loss per panel. Examine the panels for discolouration. Determine the final pH of each test solution according to par. 7.4.11 and report the average value for each dilution of the compound.

8. NOTES

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

a. Compound to be supplied in powder or granular form (par. 4.1)

b. Packaging, packing and marking details, if normal commercial practice is not suitable (par. 6.1).

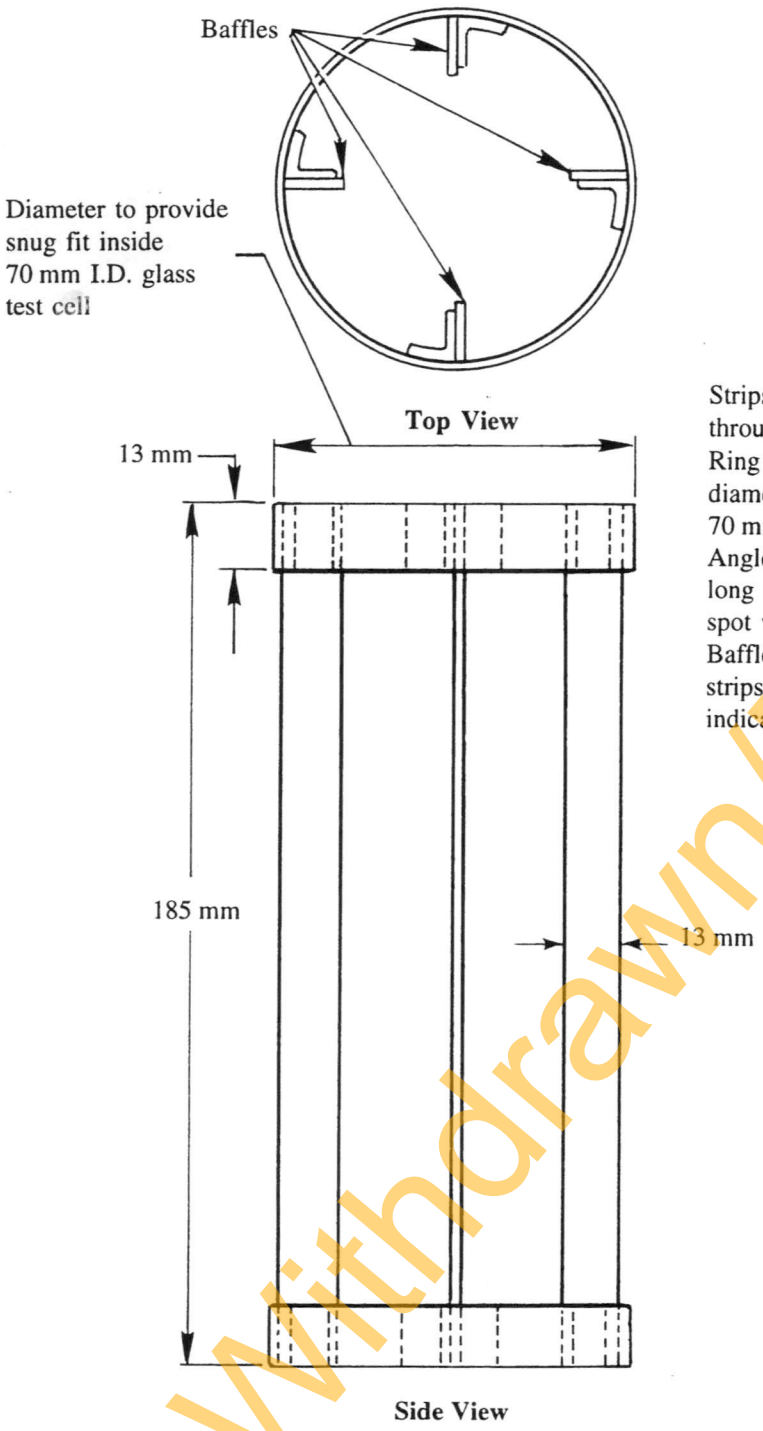
8.3 **Sources of Referenced Publications**

8.3.1 The publications referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Ottawa, Canada K1A 1G6. Telephone (613) 941-8703 or 1-800-665-CGSB (Canada only). Fax (613) 941-8705.

8.3.2 The publication referred to in par. 2.1.2 may be obtained from the Canadian Standards Association, Standards Sales, 178 Rexdale Blvd., Rexdale (Toronto) Ontario M9W 1R3.

8.3.3 The publication referred to in par. 2.1.3 may be obtained from the Department of Consumer and Corporate Affairs, Consumer Packaging and Labelling Section, Ottawa, Canada K1A 0C9.

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Strips of 160 mm (16 gauge) stainless steel are used throughout the assembly.
Ring joints are lapped, spot welded and feathered in a diameter capable of providing a snug fit inside the 70 mm I.D. glass tubing.
Angles are formed by using 13 mm wide by 25 mm long strips, bent in the centre of the long direction and spot welded to the formed rings.
Baffles are formed using 13 mm wide by 185 mm long strips, spot welded to the angles in the positions indicated on the diagram.

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FIGURE 1
Baffle Cage for Foam Height Determination



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