Canadian General Standards Board

Office des normes générales du Canada

CGSB

ONGC

136-GP-Series
Série des 136-GP

CANCELLATION

April 1983

CANADIAN GENERAL
STANDARDS BOARD

Standard for

POLICE EQUIPMENT

All fourteen provisional standards in this series are hereby cancelled due to a lack of interest. These standards are listed on the following pages.

ANNULATION

Avril 1983

OFFICE DES NORMES
GÉNÉRALES DU CANADA

Norme

MATÉRIEL POLICIER

Les quatorze normes provisoires de cette série sont annulées par la présente parce qu'elles ne suscitent plus aucun intérêt. Ces normes sont énumérées aux pages suivantes.

Ottawa, Canada K1A 1G6

Canada

Standard No. Nº de norme	Title Titre	Date of Issue Date de parution
*136-GP-1P	Silica, Colloidal, Synthetic Silice colloïdal synthétique	May 75 Mai 75
*136-GP-2P	Chemical Agent, CS Agent chimique, CS	May 75 Mai 75
*136-GP-3P	Chemical Agent, CS 1 Agent chimique, CS 1	October 75 Octobre 75
*136-GP-4P	Chemical Agent, CS 2 Agent chimique, CS 2	October 75 Octobre 75
*136-GP-5P	Chemical Agent, CR Agent chimique, CR	October 75 Octobre 75
136-GP-10MP	Grenades, Tear Gas, Pyrotechnic Type, for Open Area Use Grenades lacrymogènes de type pyrotechnique utilisées en milieu ouvert	March 79 Mars 79
136-GP-12MP	Grenades, Tear Gas, Pyrotechnic Type, for Enclosed Space Use Grenades lacrymogènes de type pyrotechnique utilisées en milieu fermé	March 79 Mars 79

*Unilingual Standard
Norme unilingue

Standard No. Nº de norme	Title Titre	Date of Issue Date de parution
136-GP-14MP	Cartridges, Tear Gas, 12 Gauge, for Enclosed Space Use Cartouches, gaz lacrymogène, calibre 12, utilisées en milieu fermé	March 79 Mars 79
136-GP-18MP	Grenades, Smoke, White Grenades à fumée blanche	March 79 Mars 79
*136-GP-25P	Highway Fusees, Red Torches à flamme rouge, pour autoroutes	October 75 Octobre 75
136-GP-26MP	Thunderflashes Pétards	May 77 Mai 77
136-GP-27MP	Paraflares, Hand-Held Fusées éclairantes à parachute, à main	March 79 Mars 79
136-GP-85MP	Sunglasses, for Police Use Lunettes de soleil pour policiers	June 77 Juin 77
136-GP-90MP	Ink, Fingerprint Encre, empreintes digitales	April 77 Avril 77

*Unilingual Standard
Norme unilingue

Specifications Board
Supply and Services Canada

Office des Normes
Approvisionnements et Services Canada

Provisional Standard for: Chemical Agent, CS 1

This provisional standard applies to one type of riot control agent, the active ingredient of which is o-chlorobenzalmalononitrile.

Withdrawn/Retirée

136-GP-3P

October 1975

Price Code A

Pour l'édition française commander (F)136-GP-3P

This provisional standard has been issued to meet a procurement need. It has not been ratified by the Board.

Standards Officer - H.E. Mitton, CGSB

Withdrawn/Retirée

FOREWORD

The CANADIAN GOVERNMENT SPECIFICATIONS BOARD under whose auspices this standard has been developed is a federal government agency engaged in the production of voluntary standards in a wide range of subject areas through the medium of technical committees and the consensus process. The technical committees are representative of relevant interests including producers, consumers and other users, retailers, governments, educational institutions, technical, professional and trade societies, and research and testing organizations. The CGSB has been accredited by the Standards Council of Canada as a national standards writing organization. The standards that it develops and offers as National Standards of Canada conform to the criteria and procedures established for this purpose by the Standards Council of Canada. In addition to standards it publishes as National Standards, CGSB produces standards to meet particular needs, in response to requests from a variety of sources in both the public and private sectors.

Although the intended primary application of each standard is stated in its Definition or Scope clause, it is important to note that it remains the responsibility of the user of the standard to judge its suitability for his particular purpose.

CGSB standards are subject to periodic review to ensure that they keep abreast of technological progress. Suggestions for their improvement, which are always welcome, are brought to the notice of the technical committees concerned. Changes to standards are issued either as separate amendment sheets or in revised editions of the standards.

An up-to-date listing of CGSB standards, including details on latest issues and amendments, and ordering instructions, will be found in the Catalogue of Standards which is published annually with cumulative supplements, and is available without charge upon request.

Further information on the CGSB and its services and standards may be obtained from:

Canadian Government Specifications Board
6th Floor, 88 Metcalfe Street
Ottawa, Ontario
Canada
K1A 0S5

Withdrawn/Retiree

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Provisional Standard
for

CHEMICAL AGENT, CS1

1. DEFINITION

1.1 This provisional standard applies to one type of riot control agent, the active ingredient of which is o-chlorobenzalmalononitrile.

1.2 For uses see par. 6.2.

2. APPLICABLE PUBLICATIONS

2.1 The following publications are applicable to this standard.

2.1.1 American Society for Testing Materials (ASTM)

E 29 Recommended Practice for Indicating which Places of Figures are to be Considered Significant in Specified Limiting Values.

E 300 Recommended Practice for Sampling Industrial Chemicals

2.1.2 Canadian Transport Commission (CTC)

Regulations for the Transportation of Dangerous Commodities by Rail.

2.1.3 Code of Federal Regulations (CFR)

49-CFR 171-179 Department of Transport Transportation Rules and Regulations for the Transportation of Explosives and other Dangerous Articles.

2.2 Reference to the above publications and to test methods therein, is to the latest issues, unless otherwise specified.

3. DETAIL REQUIREMENTS

NOTICE: The CS1 shall comply with the detail requirements below, the limits of which are absolute, and not subject to correction for tolerances of test methods (par. 5.4).

3.1 Composition - When tested in accordance with par. 5.3.1 the homogeneous mixture shall consist of 95 ± 1.0% by mass of Chemical Agent, CS conforming to CGSB 136-GP-2 and 5 ± 1.0% by mass of colloidal silica conforming to CGSB 136-GP-1.

3.2 Ultimate Particle Size - The ultimate particle size of the CS1 shall be no greater than 9 µm at 50% by mass cumulative and not greater than 12 µm at 80% by mass cumulative when tested as prescribed in par. 5.3.2.

3.3 Container Leakage - Containers of the product shall not show evidence of leakage when subjected to a 24 inch drop test as prescribed in par. 5.3.3.

4. PREPARATION FOR DELIVERY

4.1 Packaging - The CS1 shall be packaged in quantities of 8 pounds ± 2 ounces (3625 ± 50 g) in plastic bottles of 3 gallon (13 litres) capacity. Each filled bottle shall be closed by tightening its properly engaged screw cap onto the threaded neck with a torque of 40 ± 5 inch-pounds (4.5 ± 0.5 N.m). Each filled and closed bottle shall subject to the leakage test specified in par. 5.3.3. If there is no leakage the tightened screw cap shall be further secured to the neck of the bottle with weather resistant preservation and sealing pressure sensitive adhesive tape at least 2 inches (5 cm) in width. The tape shall be tightly wound around the neck of the bottle and the cap for a minimum of two complete turns. The tape shall extend from the top of the cap to a circumferential line around the bottle spout no less than 3/4 inch (20 mm) below the bottom of the tightened cap. The plastic bottle and closure shall be free of CS1 contamination.

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4.2 Packing - The plastic bottles of CS1, packaged as specified in par. 4.1 shall be packed side by side, in an upright position, with pouring spouts facing in alternate directions in a close-fitting fibreboard box. The box shall be regular slotted style (RSC) constructed from single wall domestic class, grade 125 or better corrugated fiberboard. Separators of the same material shall separate the plastic bottles and assure a tight pack. A flat fiberboard pad of the same material extending the full length of the box shall be placed on top of the handles and between the spouts and shall have sufficient thickness to extend 1/4 inch (5 to 7 mm) above the spout closures. The fiberboard box shall be closed, sealed and enclosed in a heat-sealed bag formed from plastic and nonwoven barrier material. The fiberboard box, in its bag, shall be placed in a nailed wooden box, the inside dimensions of which shall be sufficient to permit pads of weather resistant corrugated or solid fiberboard to be inserted between the heat-sealed bag and all six interior surfaces of the wooden box. The wooden box shall be closed and strapped with galvanized steel strapping. The empty box or the finished wood parts thereof shall have been immersed for no less than 3 minutes in a water repellent wood preservative.

4.3 Marking - In addition to any special markings required by the purchaser, the exterior package shall be marked in compliance with the rules and regulations applicable to the mode of transport. In addition, the center of diagonally opposite vertical edges of the exterior package shall be color coded with one red stripe on a grey background and marked with the symbol CS1 (Figure 1).

5. INSPECTION

5.1 General - Unless otherwise stipulated in the contract, it is the prime contractor's responsibility to satisfy the inspection authority that the commodity conforms to this standard. This may be accomplished either by performing the tests specified in this standard or by demonstrating to the satisfaction of the inspection authority that manufacturing processes and techniques are so controlled that conformity to this standard is ensured. The contractor may, for this purpose, utilize his own facilities or other testing establishment acceptable to the inspection authority.

5.2 Sampling - A representative sample shall be taken for inspection tests in accordance with good sampling practice. ASTM E 300 provides guidance on sampling solids (powders).

5.3 Testing

5.3.1 *Composition* - Weigh approximately 10 g of the sample to the nearest mg and transfer to a tared crucible. Ignite the crucible and contents at 700° ± 10°C until a constant weight is achieved. Cool in a desiccator and reweigh. Calculate the percent silica aerogel present as follows:

$$\text{Percent silica aerogel} = \frac{100A}{B}$$

Where: A = Weight of the residue (g)

B = Weight of the specimen (g)

Calculate the percentage of CS as follows:

$$\text{Percent CS} = 100 - C$$

Where: C = Percent silica aerogel calculated above.

5.3.2 *Ultimate Particle Size*

5.3.2.1 *Apparatus* - Use a microscope with the following equipment:

(1) Ten power compensating eyepiece.

(2) Forty-three power (4 mm) apochromatic objective with a 0.95 numerical aperture and a correction collar for cover glass thickness variation.

(3) Aplanatic apochromatic sub-stage condenser of high numerical aperture.

(4) Stage micrometer, consisting of a reticle with a millimetre scale divided into 100 divisions, mounted on a standard 1 x 3 inch (25 x 75 mm) glass slide.

(5) Projection equipment consisting of a right-angled eye-piece lens and a projection screen or a ground glass screen. The distance between the microscope and the screen must be capable of being varied.

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5.3.2.2 *Calibration* - Place the micrometer scale slide on the stage of the microscope in normal position. Project the image onto the screen. Adjust the distance between the microscope and projection screen so that 10 divisions of the image (on the screen) measure 67 mm with a graduated transparent ruler placed against the screen. Each division of the ruler (1 mm) corresponds to 1.5 µm on the microscope slide.

5.3.2.3 *Slide Preparation* - Weigh 0.100 g of specimen into each of two 200 ml tall form beakers. Add 20 ml of light mineral oil to the first beaker and mix for 5 ± 1/2 min with an electric stirrer having twin blades totaling no more than 1.7 in. (42 mm) in diameter and operating at a speed of 1650 ± 150 rpm. While continuing to stir the mixture, withdraw a portion of the mixture with an eye-dropper, taking it from a point just above the stirrer blades and approximately one-fourth the diameter of the beaker away from the inside wall. Immediately wipe the outside of the eyedropper. Place one drop of the mixture on a clean, dry microscope slide and cover with a No. 1, 3/4 in. (19 mm) diameter cover glass. In the same manner, prepare a second slide from the first beaker. Then, following the same procedure with the second beaker, prepare a second pair of slides. Label the four slides to identify the beakers and specimen represented.

5.3.2.4 *Measurements* - Mount the first slide on the microscope stage and project the image onto the screen. Place the transparent ruler horizontally across the image so that the field is approximately bisected. Measure to the nearest millimetre the maximum length of the horizontal projection of each particle successively encountered. Disregard the orientation of the particles and exclude clusters or agglomerates. When the edge of the field of vision is reached, continue measuring particles parallel to those already measured but sufficiently distant from them so that none of the previous particles are re-measured. As the particles are measured, tabulate them into class intervals as illustrated in table 1. Measure the particles until no less than 200 particles having a length over 1.5 µm are counted. A hand magnifying glass may be used to aid the measurement. If one-fourth or more of the field of vision is occupied by clusters or agglomerates, discard both slides from the beaker represented, disregard the results from these slides, and prepare two replacement slides from a new beaker. Photomicrograph techniques or direct size measurement by means of an eyepiece calibrated grating may be used in lieu of screen projection for particle counting.

TABLE 1

Frequency Distribution

Class interval (mm)* (Projection Screen)	Midpoint of class in micrometres*	Number of particles in class (Data shown are examples)
0.0 to 0.5	------	Disregard
0.6 to 1.5	1.5	87
1.6 to 2.5	3.0	115
2.6 to 3.5	4.5	59
3.6 to 4.5	6.0	26
4.6 to 5.5	7.5	14
5.6 to 6.5	9.0	6
6.6 to 7.5	10.5	1
7.6 to 8.5	12.0	1
8.6 to 9.5	13.5	0
9.6 to 10.5	15.0	0
10.6 to 11.5	16.5	0
11.6 to 12.5	18.0	0

* Invariable data

5.3.2.5 *Calculation of ultimate particle size* - Prepare a frequency distribution similar to table 1 for each of the four slides. After recording the total number of particles in each class interval, prepare a tabulation as shown in table II (which is a sample recording of typical data) for each slide. Use the following formula to calculate the percent by mass cumulative:

$$\text{Percent by mass cumulative} = \frac{nd^3 \text{ cumulative} \times 100}{\text{total } nd^3}$$

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Using logarithmic graph paper, plot the data from each slide separately with the class size in µm plotted along the logarithmic scale and the percent by mass cumulative plotted along the nonlogarithmic scale. From the curve produced, determine the particle size, in micrometres at the 50% by mass cumulative intercept and at the 80% by mass cumulative intercept. Average the four results.

TABLE II

Sample Data					
d	n	d^3	nd^3	nd^3 cumulative	Percent by mass cumulative
1.5	87	3.375	294	294	1.1
3.0	115	27.00	3,105	3,399	12.3
4.5	59	91.12	5,376	8,775	31.8
6.0	26	216.0	5,616	14,391	52.2
7.5	14	421.9	5,906	20,297	73.7
9.0	6	729.0	4,374	24,671	89.5
10.5	1	1,158	1,158	25,829	93.7
12.0	1	1,728	1,728	27,557	100.0
13.5	-----	2,460	-----	------	------
15.0	-----	3,375	-----	------	------
16.5	-----	4,492	-----	------	------
18.0	-----	5,832	-----	------	------

d = midpoint of class in micrometres
n = number of particles tallied in class interval.

A plot of the sample data shows that the particle size equals 5.5 µm at 50% by mass cumulative and 8.3 µm at 80% by mass cumulative.

5.3.3 *Leakage of Plastic Bottles* - Conduct the test in a well-ventilated hood. Lift the sample plastic bottle until the bottom of the bottle is 24 ± 2 in. (60 ± 5 cm) above a horizontal surface. Hold the bottle in the normal upright position with the cap at the top and drop onto the horizontal surface. Examine for visible emission of CS1 from the bottle during or after impact.

5.4 Assessment of Conformance to the Standard - For tests carried out by the inspecting laboratory, average results will be used if multiple determinations are made. For those test methods where repeatability data are given, the average value derived from the individual results that agree within the repeatability limits may be used at the discretion of the Inspection Authority, provided an indication is given of the total number of results obtained and of the number falling outside the repeatability limits. To determine conformance with each requirement, an observed value or calculated value shall be rounded off to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding-off procedure given in ASTM E 29.

6. NOTES

6.1 Ordering Data - Procurement documents for Chemical agent to this standard should specify the following:

(a) Title, number and date of this standard.
(b) Quantity required
(c) Special marking, if any, required (par. 4.3)

6.2 Intended Use - CS1 is intended for riot control agent dispensers.

6.3 Precaution - CS1 produces irritating physiological effects, such as stinging sensations to moist skin, running nose, sneezing, coughing, and burning of the eyes accompanied by a copious flow of tears. It should be handled with care. Surgical rubber gloves and goggles should be worn and tests should be performed under a hood.

6.4 The publications listed in par. 2.1.1 may be obtained from the American Society for Testing and Materials, 1916 Race St., Philadelphia, Pa. U.S.A.

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6.5 The publication listed in par. 2.1.2 may be obtained from Information Canada, 171 Slater Street, Ottawa, Ontario, K1A 0S9. For interpretation consult the Canadian Transport Commission, 275 Slater Street, Ottawa, Ontario, K1A 0N9.

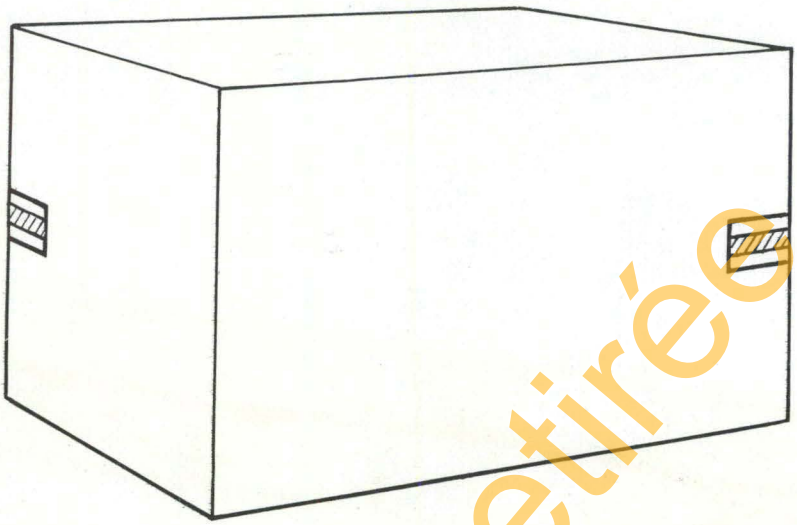
6.6 The publication listed in par. 2.1.3 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, Orders should cite "49 CFR 171-179".

6.7 Acknowledgement - This provisional standard is technically similar to U.S. Military Specification MIL-R-50090D and acknowledgement is made of assistance received from this source.

6.8 Système International (Metric) Units - The SI (Metric) equivalents for customary yard/pound units are shown in this standard. Since the equivalents are not exact, the SI values are provided for information only to familiarize readers with metric units. Readers are cautioned that the multiples and sub-multiples of the units used in this standard may not be the same as those eventually established as a result of deliberations by the Metric Commission. This is NOT a soft conversion.

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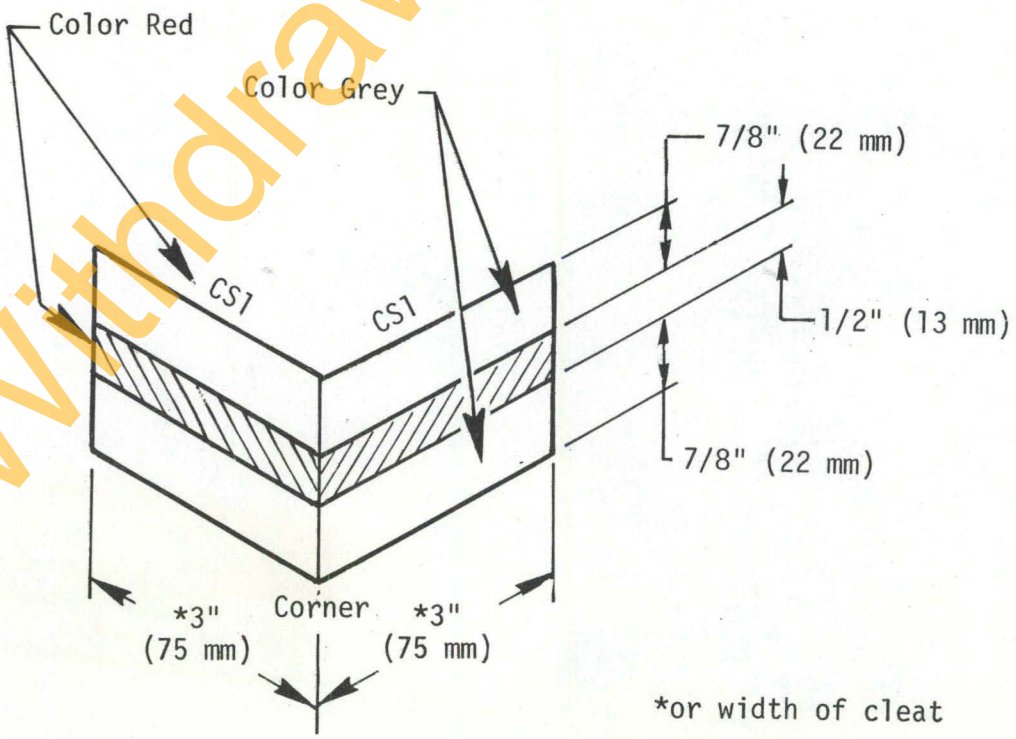


FIGURE 1

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