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CAN/CGSB-3.0
No./N° 105.3-2004

ICS 71.040.40

WITHDRAWAL

December 2009

Methods of Testing Petroleum and Associated Products

Sulphates in Uninhibited Ethylene Glycol

This CGSB method is hereby withdrawn due to limited use and support for its revision.

RETRAIT

Décembre 2009

Méthodes d'essai des produits pétroliers et produits connexes

Sulfates dans l'éthylène glycol non inhibé

Cette méthode de l'ONGC est retirée par le présent avis en raison de son utilisation limitée et du manque de support pour sa révision.

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CAN/CGSB-3.0
No. 105.3-2004

Supersedes CAN/CGSB-3.0
No. 105.3-95

Methods of Testing Petroleum and Associated Products

Sulphates in Uninhibited Ethylene Glycol

ICS 71.040.40

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NATIONAL STANDARD OF CANADA

CAN/CGSB-3.0
No. 105.3-2004

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No. 105.3-95

METHODS OF TESTING PETROLEUM AND ASSOCIATED PRODUCTS

SULPHATES IN UNINHIBITED ETHYLENE GLYCOL

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Acknowledgment is made for the translation of this National Standard of Canada by the Translation Bureau of Public Works and Government Services Canada.

National Standard of Canada

CGSB Gatineau Canada K1A 1G6	**METHODS OF TESTING PETROLEUM AND ASSOCIATED PRODUCTS**	**CAN/CGSB-3.0**
	Sulphates in Uninhibited Ethylene Glycol	**No. 105.3-2004**

Supersedes CAN/CGSB-3.0
No. 105.3-95

1. SCOPE

1.1 This method is used to determine the amount of sulphate in uninhibited ethylene glycol coolants.

1.2 The testing and evaluation of a product against this method 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 method 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 PUBLICATION

2.1 The following publication is referenced in this method:

2.1.1 Canadian General Standards Board (CGSB)

CAN/CGSB-3.0 — Methods of Testing Petroleum and Associated Products:

No. 0 — Prologue to the Petroleum Test Methods and Table of Contents.

2.2 A dated reference in this method is to the issue specified. An undated reference in this method is to the latest issue, unless otherwise specified by the authority applying this method. The sources are given in the Notes section.

3. SUMMARY OF METHOD

3.1 Barium chloride is used to precipitate the sulphate, and the mixture is diluted with distilled water to 100 mL in a Nessler tube. A sodium sulphate solution is similarly prepared for comparison. Both solutions are then compared for turbidity.

4. APPARATUS

4.1 **Nessler tubes:** 100 mL.

5. REAGENTS AND MATERIALS

Reagent grade chemicals are required for this test.

5.1 **Barium chloride solution:** 10% by mass.

5.2 **Hydrochloric acid:** 2 mol/L. Note: DANGER — Poison. Corrosive. May be fatal if swallowed. Liquid and vapour cause severe burns. Harmful if inhaled. See CAN/CGSB-3.0 No. 0.

5.3 **Sodium sulphate solution:** containing 0.0148 g of Na_2SO_4 per 100 mL (equivalent to 0.01% by mass of SO_4).

6. PROCEDURE

6.1 Dilute 5 mL of the uninhibited ethylene glycol sample in a 100 mL beaker to 80 mL with distilled water.

6.2 Add 2 mL of 2 mol/L hydrochloric acid to the solution, bring to a boil and precipitate any sulphate present by adding 10% by mass, barium chloride solution, drop by drop, while stirring continuously. Boil gently for 1 min, cool and make up with the hydrochloric solution or distilled water to 100 mL in a Nessler tube.

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6.3 Prepare a standard for comparison by diluting 5 mL of sodium sulphate solution (0.01% by mass of SO_4) to 80 mL with distilled water. Add 2 mL of 2 mol/L hydrochloric acid, bring to a boil and precipitate the sulphate by adding barium chloride as described in par. 6.2. Cool and make up with distilled water to 100 mL in a Nessler tube.

6.4 After the two solutions have stood for about 5 min, compare their turbidity.

7. REPORT

7.1 Report the amount of SO_4 as greater than, equal to, or less than 0.01% by mass of SO_4 in uninhibited ethylene glycol sample, according to the results of comparison.

8. NOTES

8.1 Source of Referenced Publication

8.1.1 The publication referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone (819) 956-0425 or 1-800-665-2472. Fax (819) 956-5644.

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