

**Flameproof non-rail-bound diesel
powered machines for use in gassy
underground coal mines**



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Preface

This is the second edition of CSA M424.1, *Flameproof non-rail-bound diesel-powered machines for use in gassy underground coal mines*. This edition supersedes the previous edition published in 1988.

Changes to this edition include the following:

- a) The reference fuel used for the tests has been changed to comply with US CFR 40 1065.703.
- b) The term “diesel particulate matter” is used in lieu of the term “particulate matter” and this term also replaces the term “respirable combustible dust concentration” in the EQI formula.
- c) Emissions toxicity criterion has been updated to reflect current test practices.
- d) Dynamometer emissions test has been revised to reflect current testing practices.
- e) Assessing ventilation has been revised to replace EQI factor with the dilution ratio.
- f) To comply with current administrative requirements, various Clauses throughout the standard have either been updated or renumbered.

CSA Group acknowledges that the development of this Standard was made possible, in part, by the financial support of MDEC (Mining Diesel Emissions Council) and Catalytic Exhaust Products Ltd.

This Standard was prepared by the Technical Committee on Underground Diesel Equipment under the jurisdiction of the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee

Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *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.*
- 3) *This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in agreement with all clauses of this Standard.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include “Request for interpretation” in the subject line:*
 - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - b) *provide an explanation of circumstances surrounding the actual field condition; and*
 - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

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 - a) *Standard designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

CSA M424.1:16

Flameproof non-rail-bound diesel-powered machines for use in gassy underground coal mines

1 Scope

1.1

This Standard describes the technical requirements and procedures necessary for the design, performance, and testing of new or unused flameproof, non-rail-bound diesel-powered, self-propelled machines for use in gassy underground mines.

Note: *The working environment of gassy mines is characterized by the presence of methane gas and combustible dust.*

1.2

This Standard applies to machines of 45 000 kg mass or less, which are designed to operate on level ground at a maximum speed of 32 km/h or less.

1.3

Braking system performance requirements and proof tests are not included in the Scope of this Standard, except from the standpoint of the reduction of fire and explosion hazards.

Note: *See CAN/CSA-M424.3 for brake construction, stopping performance, and test requirements.*

1.4

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.