CSA GROUP™

CSA M424.4:22
National Standard of Canada

Self-propelled, electrically driven, non-rail-bound mobile machines for use in non-gassy underground mines

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Preface

This is the first edition of CSA M424.4, *Self-propelled, electrically driven, non-rail-bound mobile machines for use in non-gassy underground mines*.

CSA group acknowledges that the development of this Standard was made possible, in part, by the financial support of CanmetMINING, Lands and Minerals Sector, Department of Natural Resources Canada.

This Standard was developed by CSA Group with funding support provided by the Canadian Association of Administrators of Labour Law — Occupational Safety and Health (CAALL-OSH), including provincial and territorial governments, as well as the Government of Canada. CSA Group is solely responsible for the content of this Standard, and CSA Group and the funding bodies disclaim any liability in connection with the use of the information contained herein.

This Standard was prepared by the Subcommittee on Electrically Powered Machines for Use in Underground Mines, under the jurisdiction of the Technical Committee on Underground Mining Mobile Equipment and the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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 full agreement with all clauses of this Standard.*
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   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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   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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Self-propelled, electrically driven, non-rail-bound mobile machines for use in non-gassy underground mines

1 Scope

1.1
This Standard applies to self-propelled, electrically driven, non-rail-bound mobile machines for use in non-gassy underground mines. It provides requirements for such machines and is intended to be used in conjunction with CSA M424.0, CSA M424.1, CSA M424.2, and CSA M424.3, each as applicable.

1.2
This Standard considers battery-electric as the base system configuration. Hydrogen-fuel-cell-electric and diesel-electric systems are also considered as on-board sources of electrical energy supply and are addressed by this Standard with additional specific requirements. Additionally, other energy storage technologies are considered by this Standard for application as possible sources for electric propulsion.

1.3
This Standard applies to those self-propelled machines using on-board voltages in the ranges of 50 V-1.5 kV AC at any frequency and 75 V-2.1 kV DC, including any repetition rate of pulsating DC. Voltages contained within on-board devices are not considered in this Standard.

1.4
This Standard addresses hazards relevant to the voltage range for underground mobile machines within its scope when the machinery is used as intended. It specifies appropriate technical measures for eliminating or reducing risks arising from significant hazards during commissioning, operation, and maintenance. The safety of operators, technicians, service and maintenance personnel, and bystanders is addressed in this Standard.

1.5
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 (nonmandatory) to define their application.