



CSA M421:23
National Standard of Canada



Use of electricity in mines



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Preface

This is the sixth edition of CSA M421, *Use of electricity in mines*, one of a series of Standards on mine safety. It supersedes the previous editions published in 2016, 2011, 2000, 1993, and 1985.

The following significant revisions have been made to this edition:

- a) New Clause [4.3.1.5](#) introduces the requirements for protection of cables and conductors.
- b) New Clause [4.3.1.6](#) introduces the requirements for cable restraint.
- c) Clause [4.3.3.4.2](#) from the previous edition was revised and relocated to Clause [4.3.1.7](#) in this edition. The cable protection requirements of this clause now apply to all cables, not just portable power cables.
- d) Clause [4.3.3.2](#) from the previous edition was revised and relocated to Clause [4.3.1.8](#) in this edition. The splicing requirements are now made more general and apply to all cables, not just portable power cables.
- e) New Clause [4.3.4](#) introduces the requirements for armoured cables.
- f) Clause 4.4.1 from the previous edition has been reorganized and it is now presented as Table [4](#).
- g) New Clause [4.5.7](#) introduces an exception to the limit for ground-fault voltage.
- h) Clause [4.10](#) from previous edition was relocated to Clause [4.2.8](#) in this edition for clarity.
- i) New Clause [4.6.5](#) consolidates the requirements for transfer of potential from Clauses 5.3.3.3 and 6.8.3 from the previous edition.
- j) New Clause [6.2.2](#) introduces the consolidated requirements for pressurized gas insulated systems from transformer and switchgear sections.
- k) Clause [6.4.5](#) has been revised to remove gas-filled transformer requirements covered by the new Clause [6.2.2](#) for pressurized gas insulated equipment.
- l) Clause [6.6.2](#) has been revised to allow fluid at 275 °C or greater.
- m) Clause [7.6.2](#) has been revised to include a note to use test methods in IEEE 400.

This Standard, used in conjunction with the *Canadian Electrical Code, Part I*, establishes minimum safety standards for the installation and maintenance of electrical equipment in mines or other mining applications requiring special consideration beyond the requirements of the *Canadian Electrical Code, Part I*.

This Standard is not intended as a design specification nor as an instruction manual.

In the preparation of this Standard, consideration has been given to the prevention of fire hazards and injury to persons and property, and to proper maintenance and operation. Due regard has been given to recognized codes and standards now in force.

This Standard was developed by CSA Group with the 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.

This Standard was prepared by the Technical Committee on Use of Electricity in Mines, under the jurisdiction of 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.*