



Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 3208

Chair: R.E. Edwards

Date: January 24, 2005

Title: Ampacity of MI Cables, Rules 4-008(1) and (3)

Submitted by: B. O'Connell of Tyco Thermal Controls (Pyrotenax Cables Ltd.), 250 West Street, Trenton, Ontario, K8V 5S2, Tel: (613) 392-6571 X2221, Fax: (613) 392-1023 on October 25, 2004.

Proposal: Amend Rule 4-008 as follows:

Add 4-008(3)

4-008(3): Where single conductor Mineral Insulated cables are used, all current carrying conductors shall be grouped together to minimize induced voltage on the sheath.

Change 4-008(1) as follows: add words "stainless steel"

4-008(1) Where sheath currents in single conductor cables having continuous sheaths of lead, aluminum, *stainless steel* or copper are likely to cause the insulation of the conductors to be subjected to temperatures in excess of the insulation ratings....(following sub-rules (a), (b) and (c) unchanged)

Reasons for Request:

1. This wording will harmonize with the 2002 NEC, and with manufacturer's instructions, in relation to grouping of MI cables.
2. To recognize stainless steel sheaths

Chair's Comments: The inclusion of stainless steel in the rule is consistent with the CSA standard C22.2.No.124, Mineral-Insulated Cables, which recognizes the use of stainless steel.

It should be recognized by the subcommittee members that this proposal would put MI cables on a different footing than other products, in that there would be no deratings or maintained separation of sheaths in single conductor cables. The sheaths will generate significant losses which increase exponentially with conductor size. The cables will be able to withstand the increased temperatures arising from the increased losses in the sheaths. The members should determine whether the increased temperatures pose a significant risk to other components in the same location as the cables. (For example, cable trays, clamps, ties, other cables, etc.)

Subcommittee Deliberations: There were five members in favour of the proposal without comment and two in favour with comment. The first commentator was in agreement with the proposed Rule 4-008(1), but did not see the need for the proposed Rule 4-008(3). There was a comment from the second commentator, who requested a technical change. There were no recorded negatives.

The comment from the second commentator asked for a change which would require a derating for cables with metal sheaths in contact, in accordance with 4-004(9). However, there is nothing in the proposal which would change the effect of Rule 4-004(9), so the suggestion appears redundant.

Subcommittee Recommendation:

The proposal has consensus and should proceed to letter ballot.