

**UNITED STATES PATENT AND TRADEMARK OFFICE (USPTO)**  
**OFFICE ACTION (OFFICIAL LETTER) ABOUT APPLICANT'S TRADEMARK APPLICATION**

U.S. APPLICATION SERIAL NO. 79250464

MARK: MINERAL CABLE SIMPLEX UK

**\*79250464\***

**CORRESPONDENT ADDRESS:**

Trade Mark Wizards Limited  
54 Hillbury Avenue  
Harrow, Middlesex HA3 8EW  
UNITED KINGDOM

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**APPLICANT:** Burn Cable Management Systems Limited

**CORRESPONDENT'S REFERENCE/DOCKET NO:**

N/A

**CORRESPONDENT E-MAIL ADDRESS:**

**OFFICE ACTION**

**INTERNATIONAL REGISTRATION NO. 1446304**

**STRICT DEADLINE TO RESPOND TO THIS NOTIFICATION:** TO AVOID ABANDONMENT OF THE REQUEST FOR EXTENSION OF PROTECTION OF THE INTERNATIONAL REGISTRATION, THE USPTO MUST RECEIVE A COMPLETE RESPONSE TO THIS PROVISIONAL FULL REFUSAL NOTIFICATION **WITHIN 6 MONTHS** OF THE "DATE ON WHICH THE NOTIFICATION WAS SENT TO WIPO (MAILING DATE)" LOCATED ON THE WIPO COVER LETTER ACCOMPANYING THIS NOTIFICATION.

In addition to the Mailing Date appearing on the WIPO cover letter, a holder (hereafter "applicant") may confirm this Mailing Date using the USPTO's Trademark Status and Document Retrieval (TSDR) system at <http://tsdr.uspto.gov/>. To do so, enter the U.S. application serial number for this application and then select "Documents." The Mailing Date used to calculate the response deadline for this provisional full refusal is the "Create/Mail Date" of the "IB-1st Refusal Note."

This is a **PROVISIONAL FULL REFUSAL** of the request for extension of protection of the mark in the above-referenced U.S. application. See 15 U.S.C. §1141h(c). See below in this notification (hereafter "Office action") for details regarding the provisional full refusal.

The referenced application has been reviewed by the assigned trademark examining attorney. Applicant must respond timely and completely to the issue(s) below. 15 U.S.C. §1062(b); 37 C.F.R. §§2.62(a), 2.65(a); TMEP §§711, 718.03.

**SUMMARY OF ISSUES**

In response to this Office action, applicant must address the following issues:

- (1) Section 2(d) Refusal – Likelihood of Confusion;
- (2) Disclaimer; and
- (3) Identification of Goods.

**SECTION 2(d) REFUSAL – LIKELIHOOD OF CONFUSION**

Registration of the applied-for mark is refused because of a likelihood of confusion with the mark in U.S. Registration No(s). 2230018 and 2231449. Trademark Act Section 2(d), 15 U.S.C. §1052(d); see TMEP §§1207.01 *et seq.* See the attached registration(s).

**Standard of Analysis for Section 2(d) Refusal**

Trademark Act Section 2(d) bars registration of an applied-for mark that is so similar to a registered mark that it is likely consumers would be confused, mistaken, or deceived as to the commercial source of the goods of the parties. See 15 U.S.C. § 1052(d). Likelihood of confusion is determined on a case-by-case basis by applying the factors set forth in *In re E. I. du Pont de Nemours & Co.*, 476 F.2d 1357, 1361, 177 USPQ 563, 567 (C.C.P.A. 1973) (called the “*du Pont* factors”). *In re i.am.symbolic, llc*, 866 F.3d 1315, 1322, 123 USPQ2d 1744, 1747 (Fed. Cir. 2017). Only those factors that are “relevant and of record” need be considered. *M2 Software, Inc. v. M2 Commc’ns, Inc.*, 450 F.3d 1378, 1382, 78 USPQ2d 1944, 1947 (Fed. Cir. 2006) (citing *Shen Mfg. Co. v. Ritz Hotel Ltd.*, 393 F.3d 1238, 1241, 73 USPQ2d 1350, 1353 (Fed. Cir. 2004)); see *In re Im at St. John’s, LLC*, 126 USPQ2d 1742, 1744 (TTAB 2018).

Although not all *du Pont* factors may be relevant, there are generally two key considerations in any likelihood of confusion analysis: (1) the similarities between the compared marks and (2) the relatedness of the compared goods. See *In re i.am.symbolic, llc*, 866 F.3d at 1322, 123 USPQ2d at 1747 (quoting *Herbko Int’l, Inc. v. Kappa Books, Inc.*, 308 F.3d 1156, 1164-65, 64 USPQ2d 1375, 1380 (Fed. Cir. 2002)); *Federated Foods, Inc. v. Fort Howard Paper Co.*, 544 F.2d 1098, 1103, 192 USPQ 24, 29 (C.C.P.A. 1976) (“The fundamental inquiry mandated by [Section] 2(d) goes to the cumulative effect of differences in the essential characteristics of the goods [or services] and differences in the marks.”); TMEP § 1207.01.

## Facts

Applicant has applied to register the mark MINERAL CABLE SIMPLEX UK for use on “cables; electrical cables; electrical cables namely, mineral cables, mineral insulating cables,” in International Class 9.

U.S. Registration No. 2230018 for the mark SIMPLEX is used in connection with “fire detection, monitoring and alarm systems and accompanying accessories, namely, network systems, multiplex systems, stand alone systems, voice communication systems and fire alarm emergency phone systems, comprising, graphical command centers, manual stations, smoke detectors and sensors, flame detectors, heat detectors and sensors, water flow switches, sprinkler supervisory switches, door holders and/or closures, modems, fiber optic line drivers, alarm communicator transmitters and receivers, remote station receivers, audible and visible notification appliances, annunciators, intercoms, CRT monitors and printers, batteries and charges and transient suppressors; sound and communication systems and accompanying accessories, namely, audio, intercom,” in International Class 9.

U.S. Registration No. 2231449 for the mark SIMPLEX with stylized design is used in connection with “fire detection, monitoring and alarm systems and accompanying accessories, namely, network systems, multiplex systems, stand alone systems, voice communication systems and fire alarm emergency phone systems, comprising, graphical command centers, manual stations, smoke detectors and sensors, flame detectors, heat detectors and sensors, water flow switches, sprinkler supervisory switches, door holders and/or closures, modems, fiber optic line drivers, alarm communicator transmitters and receivers, remote station receivers, audible and visible notification appliances, annunciators, intercoms, CRT monitors and printers, batteries and charges and transient suppressors.” in International Class 9.

## Similarity of the Marks

Marks are compared in their entirety for similarities in appearance, sound, connotation, and commercial impression. *Stone Lion Capital Partners, LP v. Lion Capital LLP*, 746 F.3d 1317, 1321, 110 USPQ2d 1157, 1160 (Fed. Cir. 2014) (quoting *Palm Bay Imps., Inc. v. Veuve Clicquot Ponsardin Maison Fondee En 1772*, 396 F.3d 1369, 1371, 73 USPQ2d 1689, 1691 (Fed. Cir. 2005)); TMEP § 1207.01(b)-(b)(v). “Similarity in any one of these elements may be sufficient to find the marks confusingly similar.” *In re Im at St. John’s, LLC*, 126 USPQ2d 1742, 1746 (TTAB 2018) (citing *In re Davia*, 110 USPQ2d 1810, 1812 (TTAB 2014)); TMEP § 1207.01(b).

In this case, applicant’s mark, MINERAL CABLE SIMPLEX UK, is confusingly similar to registrant’s mark(s), SIMPLEX and SIMPLEX with stylized design, because the marks are highly similar in sound, appearance, connotation, and commercial impression. Specifically, the marks share the term SIMPLEX, and this term(s) would be pronounced and displayed identically, thereby creating similarities in sound and appearance.

Although marks are compared in their entirety, one feature of a mark may be more significant or dominant in creating a commercial impression. See *In re Detroit Athletic Co.*, 903 F.3d 1297, 1305, 128 USPQ2d 1047, 1050 (Fed. Cir. 2018) (citing *In re Dixie Rests.*, 105 F.3d 1405, 1407, 41 USPQ2d 1531, 1533-34 (Fed. Cir. 1997)); TMEP § 1207.01(b)(viii), (c)(ii). Greater weight is often given to this dominant feature when determining whether marks are confusingly similar. See *In re Detroit Athletic Co.*, 903 F.3d at 1305, 128 USPQ2d at 1050 (citing *In re Dixie Rests.*, 105 F.3d at 1407, 41 USPQ2d at 1533-34).

The applied-for mark and/or registered mark(s) contain(s) the additional term(s) MINERAL CABLE and UK; however, the presence of these additional term(s) does not obviate the similarities between the marks. Specifically, matter that is descriptive of or generic for a party’s goods is typically less significant or less dominant in relation to other wording in a mark. See *Anheuser-Busch, LLC v. Innvopak Sys. Pty Ltd.*, 115 USPQ2d 1816, 1824-25 (TTAB 2015) (citing *In re Chatam Int’l Inc.*, 380 F.3d 1340, 1342-43, 71 USPQ2d 1944, 1946 (Fed. Cir. 2004)). In the present case, and as explained in the *Disclaimer Required* section below, the wording MINERAL CABLE and UK in the applied-for mark is merely descriptive of or generic for applicant’s goods. As previously explained, the marks are virtually identical with respect to this dominant feature; thus, the presence of the additional terms does not obviate the similarities between the marks.

One of the registered marks (i.e., U.S. Registration No. 2231449) also contains design elements; however, the presence of this design elements does not obviate the similarities between the marks. When evaluating a composite mark consisting of words and a design, the word portion is normally accorded greater weight because it is likely to make a greater impression upon purchasers, be remembered by them, and be used by them to refer to or request the goods. *In re Aquitaine Wine USA, LLC*, 126 USPQ2d 1181, 1184 (TTAB 2018) (citing *In re Viterro Inc.*, 671 F.3d 1358, 1362, 101 USPQ2d 1905, 1908 (Fed. Cir. 2012)); TMEP § 1207.01(c)(ii). Thus, although marks must be compared in their entirety, the word portion is often considered the dominant feature and is accorded greater weight in determining whether marks are confusingly similar, even where the word portion has been

disclaimed. *In re Vittera Inc.*, 671 F.3d at 1366-67, 101 USPQ2d at 1911 (citing *Giant Food, Inc. v. Nation's Foodservice, Inc.*, 710 F.2d 1565, 1570-71, 218 USPQ2d 390, 395 (Fed. Cir. 1983)).

In the present case, the dominant word portions of the marks are identical in appearance, sound, connotation, and commercial impression; therefore, the addition of a design element does not obviate the similarity of the marks in this case. See *In re Shell Oil Co.*, 992 F.2d 1204, 1206, 26 USPQ2d 1687, 1688 (Fed. Cir. 1993); TMEP §1207.01(c)(ii).

Ultimately, applicant's mark is likely to cause confusion with registrant's mark(s) because the similarities in sound, appearance, and connotation create the same overall commercial impression in the minds of consumers. Thus the marks are confusingly similar.

### **Relatedness of Goods**

The compared goods need not be identical or even competitive to find a likelihood of confusion. See *On-line Careline Inc. v. Am. Online Inc.*, 229 F.3d 1080, 1086, 56 USPQ2d 1471, 1475 (Fed. Cir. 2000); *Recot, Inc. v. Becton*, 214 F.3d 1322, 1329, 54 USPQ2d 1894, 1898 (Fed. Cir. 2000); TMEP §1207.01(a)(i). They need only be "related in some manner and/or if the circumstances surrounding their marketing are such that they could give rise to the mistaken belief that [the goods] emanate from the same source." *Coach Servs., Inc. v. Triumph Learning LLC*, 668 F.3d 1356, 1369, 101 USPQ2d 1713, 1722 (Fed. Cir. 2012) (quoting *7-Eleven Inc. v. Wechsler*, 83 USPQ2d 1715, 1724 (TTAB 2007)); TMEP §1207.01(a)(i).

The application identifies "Cables; electrical cables; electrical cables namely, mineral cables, mineral insulating cables," in International Class 9.

U.S. Registration No. 2230018 for the mark SIMPLEX is used in connection with "fire detection, monitoring and alarm systems and accompanying accessories, namely, network systems, multiplex systems, stand alone systems, voice communication systems and fire alarm emergency phone systems, comprising graphical command centers, manual stations, smoke detectors and sensors, flame detectors, heat detectors and sensors, water flow switches, sprinkler supervisory switches, door holders and/or closures, modems, fiber optic line drivers, alarm communicator transmitters and receivers, remote station receivers, audible and visible notification appliances, annunciators, intercoms, CRT monitors and printers, batteries and charges and transient suppressors; sound and communication systems and accompanying accessories, namely, audio, intercom," in International Class 9.

U.S. Registration No. 2231449 for the mark SIMPLEX with stylized design is used in connection with "fire detection, monitoring and alarm systems and accompanying accessories, namely, network systems, multiplex systems, stand alone systems, voice communication systems and fire alarm emergency phone systems, comprising graphical command centers, manual stations, smoke detectors and sensors, flame detectors, heat detectors and sensors, water flow switches, sprinkler supervisory switches, door holders and/or closures, modems, fiber optic line drivers, alarm communicator transmitters and receivers, remote station receivers, audible and visible notification appliances, annunciators, intercoms, CRT monitors and printers, batteries and charges and transient suppressors," in International Class 9.

In the present case, applicant's goods are related to registrant's goods because the same entity that provides cables also commonly provides voice communication systems and fiber optic line drivers amongst other goods, and these goods are all marketed together to consumers under a common mark. Moreover, these goods are sold through the same channels of trade and used by the same class of consumers in the same fields of use.

The attached Internet evidence, consisting of websites for third-party providers of goods related to telecommunications, establishes that the same entity commonly provides the relevant goods and markets the goods under the same mark, that the relevant goods are sold or provided through the same trade channels and used by the same classes of consumers in the same fields of use, and that the goods are similar or complementary in terms of purpose or function. Thus, applicant's and registrant's goods are considered related for likelihood of confusion purposes. See, e.g., *In re Davey Prods. Pty Ltd.*, 92 USPQ2d 1198, 1202-04 (TTAB 2009); *In re Toshiba Med. Sys. Corp.*, 91 USPQ2d 1266, 1268-69, 1271-72 (TTAB 2009).

Therefore, because the marks are confusingly similar and the goods are closely related, purchasers encountering these goods are likely to believe, mistakenly, that they emanate from a common source. Accordingly, there is a likelihood of confusion and registration is refused pursuant to Section 2(d) of the Trademark Act.

### **Response to Section 2(d) Likelihood of Confusion Refusal**

Although applicant's mark has been refused registration, applicant may respond to the refusal(s) by submitting evidence and arguments in support of registration. However, if applicant responds to the refusal(s), applicant must also respond to the requirement(s) set forth below.

### **DISCLAIMER REQUIRED**

Applicant must provide a disclaimer of the unregistrable part(s) of the applied-for mark even though the mark as a whole appears to be registrable. See 15 U.S.C. §1056(a); TMEP §§1213, 1213.03(a). A disclaimer of an unregistrable part of a mark will not affect the mark's appearance. See *Schwarzkopf v. John H. Breck, Inc.*, 340 F.2d 978, 979-80, 144 USPQ 433, 433 (C.C.P.A. 1965).

In this case, applicant must disclaim “MINERAL CABLE” and “UK” because the language is not inherently distinctive. These unregistrable term(s) are at best merely descriptive and primarily geographically descriptive of applicant’s goods and/or services.

The nondistinctive wording “MINERAL CABLE” merely describes an ingredient, quality, characteristic, function, feature, purpose, or use of applicant’s goods and/or services. See 15 U.S.C. §§1052(e)(1); *DuoProSS Meditech Corp. v. Inviro Med. Devices, Ltd.*, 695 F.3d 1247, 1251, 103 USPQ2d 1753, 1755 (Fed. Cir. 2012).

The attached evidence from an informational/educational website shows the wording “MINERAL CABLE” is commonly used in connection with similar goods and/or services to identify mineral insulated cable. Therefore, this wording merely describes the goods.

In addition, the nondistinctive wording “UK” is primarily geographically descriptive of the origin of applicant’s goods and/or services. See 15 U.S.C. §§1052(e)(2); *In re Societe Generale des Eaux Minerales de Vittel S.A.*, 824 F.2d 957, 959, 3 USPQ2d 1450, 1451-52 (Fed. Cir. 1987); TMEP §§1210.01(a), 1210.06(a), 1213.03(a).

The attached evidence from an online dictionary shows that UK is a generally known geographic place or location. See TMEP §§1210.02 *et seq.* The goods and/or services for which applicant seeks registration originate in this geographic place or location as shown by applicant’s address. See TMEP §1210.03. Because the goods and/or services originate in this place or location, a public association of the goods and/or services with the place is presumed. See *In re Hollywood Lawyers Online*, 110 USPQ2d 1852, 1858 (TTAB 2014) (citing *In re Spirits of New Merced, LLC*, 85 USPQ2d 1614, 1621 (TTAB 2007)); TMEP §§1210.02(a) 1210.04.

Applicant may respond to this issue by submitting a disclaimer in the following format:

**No claim is made to the exclusive right to use “MINERAL CABLE” and “UK” apart from the mark as shown.**

For an overview of disclaimers and instructions on how to satisfy this issue using the Trademark Electronic Application System (TEAS), see the [Disclaimer webpage](#).

#### **AMENDMENT REQUIRED – IDENTIFICATION OF GOODS IS OVER BROAD AND INDEFINITE**

The wording “cables” in the identification of goods for International Class 9 must be clarified because it is over broad and indefinite. See 37 C.F.R. §2.32(a)(6); TMEP §§1402.01, 1402.03. Specifically, the exact nature and purpose of the goods is unclear. Applicant must therefore clarify this wording by further specifying the exact nature or purpose of the goods.

Applicant may substitute the following wording, if accurate:

Class 9 – “fiber optic cables.”

See TMEP §§1402.01, 1402.03.

Applicant’s goods and/or services may be clarified or limited, but may not be expanded beyond those originally itemized in the application or as acceptably amended. See 37 C.F.R. §2.71(a); TMEP §1402.06. Applicant may clarify or limit the identification by inserting qualifying language or deleting items to result in a more specific identification; however, applicant may not substitute different goods and/or services or add goods and/or services not found or encompassed by those in the original application or as acceptably amended. See TMEP §1402.06(a)-(b). The scope of the goods and/or services sets the outer limit for any changes to the identification and is generally determined by the ordinary meaning of the wording in the identification. TMEP §§1402.06(b), 1402.07(a)-(b). Any acceptable changes to the goods and/or services will further limit scope, and once goods and/or services are deleted, they are not permitted to be reinserted. TMEP §1402.07(e).

For assistance with identifying and classifying goods and services in trademark applications, please see the USPTO’s online searchable [U.S. Acceptable Identification of Goods and Services Manual](#). See TMEP §1402.04.

#### **RESPONSE GUIDELINES**

For this application to proceed, applicant must explicitly address each refusal and/or requirement in this Office action. For a refusal, applicant may provide written arguments and evidence against the refusal, and may have other response options if specified above. For a requirement, applicant should set forth the changes or statements. Please see “[Responding to Office Actions](#)” and the informational [video “Response to Office Action”](#) for more information and tips on responding.

Please call or email the assigned trademark examining attorney with questions about this Office action. Although the trademark examining attorney

cannot provide legal advice or statements about applicant's rights, the trademark examining attorney can provide applicant with additional explanation about the refusals or requirements in this Office action. See TMEP §§705.02, 709.06. Although the USPTO does not accept emails as responses to Office actions, emails can be used for informal communications and will be included in the application record. See 37 C.F.R. §§2.62(c), 2.191; TMEP §§304.01-.02, 709.04-.05.

To expedite prosecution of the application, applicant is encouraged to file its response to this Office action online via the Trademark Electronic Application System (TEAS), which is available at <http://www.uspto.gov/trademarks/teas/index.jsp>. If applicant has technical questions about the TEAS response to Office action form, applicant can review the electronic filing tips available online at [http://www.uspto.gov/trademarks/teas/e\\_filing\\_tips.jsp](http://www.uspto.gov/trademarks/teas/e_filing_tips.jsp) and e-mail technical questions to [TEAS@uspto.gov](mailto:TEAS@uspto.gov).

**WHO IS PERMITTED TO RESPOND TO THIS PROVISIONAL FULL REFUSAL:** Any response to this provisional refusal must be personally signed by an individual applicant, all joint applicants, or someone with legal authority to bind a juristic applicant (e.g., a corporate officer or general partner). 37 C.F.R. §§2.62(b), 2.193(e)(2)(ii); TMEP §712.01. If applicant hires a qualified U.S. attorney to respond on his or her behalf, then the attorney must sign the response. 37 C.F.R. §§2.193(e)(2)(i), 11.18(a); TMEP §§611.03(b), 712.01. Qualified U.S. attorneys include those in good standing with a bar of the highest court of any U.S. state, the District of Columbia, Puerto Rico, and other U.S. commonwealths or U.S. territories. See 37 C.F.R. §§2.17(a), 2.62(b), 11.1, 11.14(a); TMEP §§602, 712.01. Additionally, for all responses, the proper signatory must personally sign the document or personally enter his or her electronic signature on the electronic filing. See 37 C.F.R. §2.193(a); TMEP §§611.01(b), 611.02. The name of the signatory must also be printed or typed immediately below or adjacent to the signature, or identified elsewhere in the filing. 37 C.F.R. §2.193(d); TMEP §611.01(b).

In general, foreign attorneys are not permitted to represent applicants before the USPTO (e.g., file written communications, authorize an amendment to an application, or submit legal arguments in response to a requirement or refusal). See 37 C.F.R. §11.14(c), (e); TMEP §§602.03-.03(b), 608.01.

**DESIGNATION OF DOMESTIC REPRESENTATIVE:** The USPTO encourages applicants who do not reside in the United States to designate a domestic representative upon whom any notice or process may be served. TMEP §610; see 15 U.S.C. §§1051(e), 1141h(d); 37 C.F.R. §2.24(a) (1)-(2). Such designations may be filed online at <http://www.uspto.gov/trademarks/teas/correspondence.jsp>.

/CGJ/

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**All informal e-mail communications relevant to this application will be placed in the official application record.**

**WHO MUST SIGN THE RESPONSE:** It must be personally signed by an individual applicant or someone with legal authority to bind an applicant (i.e., a corporate officer, a general partner, all joint applicants). If an applicant is represented by an attorney, the attorney must sign the response.

**PERIODICALLY CHECK THE STATUS OF THE APPLICATION:** To ensure that applicant does not miss crucial deadlines or official notices, check the status of the application every three to four months using the Trademark Status and Document Retrieval (TSDR) system at <http://tsdr.uspto.gov/>. Please keep a copy of the TSDR status screen. If the status shows no change for more than six months, contact the Trademark Assistance Center by e-mail at [TrademarkAssistanceCenter@uspto.gov](mailto:TrademarkAssistanceCenter@uspto.gov) or call 1-800-786-9199. For more information on checking status, see <http://www.uspto.gov/trademarks/process/status/>.

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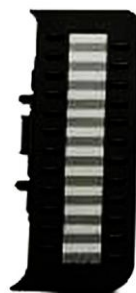
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water flow switches, sprinkler supervisory switches, door holders  
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call systems and accompanying accessories, namely, audio/visual  
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environments, comprising, nurse master stations, bath stations,  
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control systems and accompanying accessories, namely, computer

servers and work stations, security and facilities management software, network software and communication cards, computers, monitors, keyboards, modems and related peripherals, system controllers, door locks, exit requesters, sensors, switches, contacts, relays, security and access cards, card and coders, card readers, pin key pads, biometric recognition apparatus, power supplies, cabinets and batteries; closed circuit television systems and accompanying accessories, namely, cameras and lenses, video monitors, video switching hardware and software, pan and tilt mechanisms and controllers, video recording hardware and software, housing monitoring devices and related hardware, video transmission hardware and software, and power supplies; intrusion detection systems and accompanying accessories, namely, detection control panels, configuration software, keypad controllers, sensors, switches, contacts and relays, telephone dialing equipment, hardwire and cellular connectors and accessories, central intrusion monitoring stations, audio and visual annunciators, namely, sirens, horns, strobes, and lights; detention control systems and accompanying accessories, namely, computer control head end servers and work stations, and detention logic controllers; identification systems and accompanying accessories, namely, identification cards, card production systems and associated supplies; time and attendance recorders and processors, time stamp readers, coders and recorders, identification readers, data collection terminals, job cost recorders and time stamps, attendance calculators and recorders, master time control systems, comprising, master clock interfaces and signal control relays; automated work force management systems, namely, time and attendance computer systems, comprising, time and attendance software, data collection terminals, input devices, namely, badge readers, bar code wand, hand print readers and computer terminals, bar code and magnetic stripe badges and badge accessories, archiving software for time and attendance systems, and scheduling software for time and attendance systems; sound and communication systems and accompanying accessories, namely, audio, intercom, telephone and video receivers and transmitters]. First Use: 1995/01/00. First Use In Commerce: 1995/01/00.

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mineral

DICTIONARY

THE SAURUS



## mineral noun

min-er-əl | ˈmɪn-riəl ⓘ, ˈmi-nē-əl

### Definition of *mineral* (Entry 1 of 2)

- 1 : ORE
- 2 : an inorganic substance (as in the ash of calcined tissue)
- 3 *obsolete* : MINE
- 4 : something neither animal nor vegetable
- 5
  - a : a solid homogeneous crystalline chemical element or compound that results from the inorganic processes of nature  
*broadly* : any of various naturally occurring homogeneous substances (such as stone, coal, salt, sulfur, sand, petroleum, water, or natural gas) obtained usually from the ground
  - b : a synthetic substance having the chemical composition and crystalline form and properties of a naturally occurring mineral
- 6 **minerals** *plural*, *British* : MINERAL WATER

## mineral adjective

### Definition of *mineral* (Entry 2 of 2)

- 1 : of or relating to minerals  
*also* : INORGANIC
- 2 : impregnated with mineral substances

### WORD OF THE DAY

largesse ⓘ

liberal giving or generosity

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Which is a synonym of calamitate?

accidents

authorize

banquet

breed

## Examples of *mineral* in a Sentence

### Noun

// an adequate supply of vitamins and *minerals*

### Recent Examples on the Web: Noun

// Acid helps extract the *mineral* and separate it from silica.

Sandra Rastella And Natalie Otiko Peterson, *chicagotribune.com*, "Town built on asbestos may find new life in by-product of deadly mineral," 20 Mar. 2019

// As Kattan explains in her Instagram Stories, the lightweight, oil-free primer contains 60 percent water, is *mineral*-based, and is formulated with magnesium and potassium to help absorb oil.

—Maciea Mackenzie, *Allure*, "The New Huda Beauty Matte Perfection Primer Is Made Especially for Oily and Acne-Prone Skin," 19 July 2019

These example sentences are selected automatically from various online news sources to reflect current usage of the word 'mineral.' Views expressed in the examples do not represent the opinion of Merriam Webster or its editors. Send us feedback.

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## First Known Use of *mineral*

### Noun

15th century, in the meaning defined at sense 1

### Adjective

15th century, in the meaning defined at sense 1

## History and Etymology for *mineral*

### Noun

Middle English, from Medieval Latin *mineralis*, from neuter of *mineralis*

### Adjective

Middle English, from Medieval Latin *mineralis*, from *minera* mine, ore, from Old French *minere*, *miniere*, from *mine*



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- 3 **assimilation**  
Brokaw apologizes for comm

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miner's worm  
mineragraphy  
**mineral**  
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mineral blister  
mineral black

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## More Definitions for *mineral*

### **mineral** noun



#### English Language Learners Definition of *mineral*

: a substance (such as quartz, coal, petroleum, salt, etc.) that is naturally formed under



the ground

: a chemical substance (such as iron or zinc) that occurs naturally in certain foods and that is important for good health

See the full definition for *mineral* in the English Language Learners Dictionary



## mineral noun

min-er-al | ˈmɪ-n(ə)-rəl ⓘ, ˈmɪn-rəl

### Kids Definition of *mineral* (Entry 1 of 2)

- 1 : a naturally occurring solid substance (as diamond, gold, or quartz) that is not of plant or animal origin
- 2 : a naturally occurring substance (as ore, coal, salt, or petroleum) obtained from the ground usually for humans to use

## mineral adjective

### Kids Definition of *mineral* (Entry 2 of 2)

- 1 : of or relating to minerals  
*// a mineral deposit*
- 2 : containing gases or mineral salts  
*// mineral water*

## mineral noun

min-er-al | ˈmɪn(ə)-rəl ⓘ

### Medical Definition of *mineral* (Entry 1 of 2)

: a solid homogeneous crystalline chemical element or compound that results from the inorganic processes of nature



## mineral adjective

### Medical Definition of *mineral* (Entry 2 of 2)

1 : of or relating to minerals

also : INORGANIC

2 : impregnated with mineral substances

---

### More from Merriam-Webster on *mineral*

Spanish Central: Translation of *mineral*

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The soft and loud of it

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what separates a boot



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Comedian ISMO on the  
complexities of the



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How to use a word that  
(literally) drives some



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The awkward case of  
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DICTIONARY THE SAURUS



## cable noun, often attributive

cable | ˈka-bəl

### Definition of *cable* (Entry 1 of 3)

- a** : a strong rope especially of 10 inches (25 centimeters) or more in circumference

**b** : a cable-laid rope

**c** : a wire rope or metal chain of great tensile strength

**d** : a wire or wire rope by which force is exerted to control or operate a mechanism
- : CABLE LENGTH
- a** : an assembly of electrical conductors insulated from each other but laid up together (as by being twisted around a central core)

**b** : CABLEGRAM

also : a radio message or telegram
- : something resembling or fashioned like a cable  
// a fiber-optic cable
- a** : CABLE TELEVISION

// a house with cable

**b** : a cable infrastructure used to provide services other than television —often used before another noun

// cable Internet

// cable telephony



### WORD OF THE DAY

largesse

liberal giving or generosity

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Challenging Words Quiz



Which is a synonym of calamitate?

## cable verb

cabled; cabling ˈkɑːb(ə-)lɪŋ

### Definition of cable (Entry 2 of 3)

*transitive verb*

- 1 : to fasten with or as if with a cable
- 2 : to provide with a cable or cables
- 3 : to telegraph by submarine cable
- 4 : to make into a cable or into a form resembling a cable

*intransitive verb*

: to communicate by a submarine cable

## Cable biographical name

Cable ˈkɑːbəl

### Definition of Cable (Entry 3 of 3)

George Washington 1844–1925 American novelist

↓ Other Words from cable

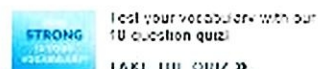
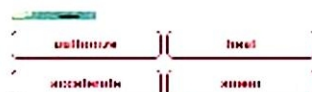
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...



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Snow moves through Northeast
- 2 vortex  
Polar vortex hits Midwest
- 3 assimilation  
Brokaw apologizes for comment

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Verb

**cabler** ˈkɑːb(ə)lɪər *noun*

### Synonyms for *cable*

Synonyms: Noun

cord, lace, lacing, line, rope, string, wire

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### Examples of *cable* in a Sentence

Noun

// The bridge is held up by *cables*.

// Their company supplied *cable* for the project.

[See More](#)

### Recent Examples on the Web: Noun

// Critics howled during the early days of the campaign, when cable news carried Trump's rallies live and uninterrupted.

— Isaac Stanley-Becker, *The Seattle Times*, "Critics demand networks fact-check Trump's live immigration speech," 8 Jan. 2019

// For the third year in a row, NBC has teamed up with Verizon to provide those without a cable TV subscription 360-degree live stream coverage of the parade.

Christa Williams, *Country Living*, "How to Watch and Live Stream the Macy's Thanksgiving Day Parade," 14 Nov. 2018

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### First Known Use of *cable*



#### FIRST KNOWN USE OF *cable*

##### Noun

13th century, in the meaning defined at sense 1a

##### Verb

circa 1500, in the meaning defined at transitive sense 1

#### History and Etymology for *cable*

##### Noun

Middle English, from Anglo-French, from Medieval Latin *capulum* lasso, from Latin *capere* to take — more at HEAVE

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## More Definitions for *cable*

**cable** **noun**



#### English Language Learners Definition of *cable* (Entry 1 of 2)

: a thick, strong rope made of wires that are twisted together

: a wire that moves a part in a machine

: a group of wires, glass fibers, etc., covered in plastic or rubber and used to carry electricity or electrical signals

## **cable** verb

### English Language Learners Definition of *cable* (Entry 2 of 2)

: to send a message by telegraph

See the full definition for *cable* in the English Language Learners Dictionary

## **cable** noun

cable | \ ˈkɑ-bəl |

### Kids Definition of *cable* (Entry 1 of 2)

- 1 : a very strong rope, wire, or chain
- 2 : a bundle of wires to carry electric current
- 3 : TELEGRAM
- 4 : CABLE TELEVISION

## **cable** verb

cabled; cabling

### Kids Definition of *cable* (Entry 2 of 2)

: to send a message by telegraph  
// She *cabled* the news to her parents.



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### Fancy names for common parts



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**"Junk in the Trunk"**

## Comedian ISMO on what separates a boot



### Some Odd Words with ISMO:

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Comedian ISMO on the complexities of the



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How to use a word that  
(literally) drives some



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## The awkward case of 'his or her'

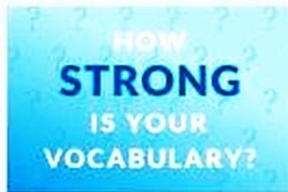
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**UK** abbreviation

### Kids Definition of *UK*

United Kingdom

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powder that is introduced during the manufacturing process.

Type MI cable is permitted in all locations except where the copper sheath can be damaged either mechanically or by corrosion. Specifically, in underground runs, this cable must be protected from physical damage. And there's a need for additional protection when the cable sees conditions that are destructive or corrosive to the copper sheath.

Type MI cable resembles flexible copper water pipe in that it can be carefully bent around obstacles and turned to make angle turns, as long as the minimum-bending radius is observed. According to NEC article 332, which covers this interesting cable, the radius of the inner edge of any bend is to be not less than five times the external diameter of the metallic sheath for cable not more than 0.75 in. in external diameter. For larger cable up to and including one inch in external diameter, this ratio must not be less than ten times the external diameter.

The highly compressed refractory magnesium oxide powder is effective at what it does. But it becomes conductive if moist, and there will be line to line or line to ground short circuits. For this reason, the installation will fail if the copper sheath is corroded or otherwise damaged. Even a pinhole break in the outer copper sheath will compromise the circuit.

By the same token, terminations require special materials and labor-intensive workmanship. The copper sheath is stripped back and a compression gland fitting is attached. Plastic sleeves are used to insulate the individual copper conductors. Then, an epoxy resin is mixed up and poured into the compression gland so as to realize a water-tight seal. If this procedure is not done to perfection, water will infiltrate and cause the circuit to fail.

Prior to installation, in storage, cut ends of the cable must be sealed to keep out moisture. As long as the integrity of the outer sheath and terminations is maintained, Type MI cable may be used in nuclear reactors, hospital operating rooms, high-temperature areas, and most critical applications.

When not exposed to touch and not I/V/C sheathed, Type MI cable may be operated at a continuous temperature of 250 °C. It will withstand an intermittent temperature of close to the melting point of copper, which is 1,083 °C. The refractory magnesium oxide powder is not damaged by that amount of heat.

Finally, never use Type MI cable to supply an electric motor. Vibration would eventually crack the outer copper sheath.

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Can the copper sheath be used as a shield? If so, how would it be connected?

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Languages



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MI cable is made by placing copper rods inside a circular copper tube and filling the intervening spaces with dry **magnesium oxide powder**. The overall assembly is then pressed between rollers to reduce its diameter (and increase its length). Up to seven conductors are often found in an MI cable, with up to 19 available from some manufacturers.

Since MI cables use no organic material as insulation (except at the ends), they are more resistant to fires than plastic-insulated cables. MI cables are used in critical **fire protection** applications such as alarm circuits, fire pumps, and smoke control systems. In process industries handling flammable fluids MI cable is used where small fires would otherwise cause damage to control or power cables. MI cable is also highly resistant to ionizing **radiation** and so finds applications in instrumentation for **nuclear reactors** and nuclear physics apparatus.

MI cables may be covered with a plastic sheath, coloured for identification purposes. The plastic sheath also provides additional corrosion protection for the copper sheath.

The metal tube shields the conductors from **electromagnetic interference**. The metal sheath also physically protects the conductors, most importantly from accidental contact with other energised conductors.

## History [\[ edit \]](#)

The first patent for MI cable was issued to the Swiss inventor Arnold Francois Borel in 1896. Initially the insulating mineral was described in the patent application as pulverised glass, silicious stones, or **asbestos**, in powdered form. Much development ensued by the French company Société Alsacienne de Construction Mécanique.<sup>[1]</sup> Commercial production began in 1932 and much mineral-insulated cable was used on ships such as the **Normandie** and **oil tankers**, and in such critical applications as the **Louvre** museum. In 1937 a British company **Pyrotex**, having purchased patent rights to the product from the French company, began production. During the **Second World War** much of the company's product was used in military equipment.

About 1947 the British Cable Maker's Association investigated the option of manufacturing a mineral-insulated cable that would compete with the Pyrotex product. The manufacturers of the products "Bicalmin" and "Glomin" eventually merged with the Pyrotex company.

The Pyrotex company introduced an aluminum sheathed version of its product in 1964. MI cable is now manufactured in several countries. Pyrotex is now a brand name under nVent (formerly known as **Pentair Thermal Management**).

## Purpose and use [\[ edit \]](#)

MI cables are used for power and control circuits of critical equipment, such as the following examples:

- **Nuclear reactors**
- Exposure to dangerous gases

Electrical switch • Earthing system

V · T · E



PVC-sheathed MICC cable. Conductor cross section area is 1.5 mm<sup>2</sup>; overall diameter is 7.2 mm



Mineral insulated cables at a panel board

- Exposure to dangerous gasses
- Air pressurisation systems for stairwells to enable building egress during a fire
- Hospital operating rooms
- Fire alarm systems
- Emergency power systems
- Emergency lighting systems
- Temperature measurement devices; RTDs and Thermocouples.
- Critical process valves in the petrochemical industry
- Public buildings such as theatres, cinemas, hotels
- Transport hubs (railway stations, airports etc.)
- Mains supply cables within residential apartment blocks
- Tunnels and mines
- Electrical equipment in hazardous areas where flammable gases may be present e.g. oil refineries, petrol stations
- Areas where corrosive chemicals may be present e.g. factories
- Building plant rooms
- Hot areas e.g. power stations, foundries, and close to or even inside industrial furnaces, kilns and ovens

MI cable fulfils the passive fire protection called circuit integrity, which is intended to provide operability of critical electrical circuits during a fire. It is subject to strict listing and approval use and compliance

## Heating cable [\[ edit \]](#)

A similar appearing product is mineral-insulated trace heating cable, in which the conductors are made of a high-resistance alloy. A heating cable is used to protect pipes from freezing, or to maintain temperature of process piping and vessels. An MI resistance heating cable may not be repairable if damaged. Most electric stove and oven heating elements are constructed in a similar manner.

## Typical specifications [\[ edit \]](#)

maximum voltage	600 or 1000 volts
current rating	18 - 450 amperes
conductor area	1.0 – 240 mm <sup>2</sup>
copper sheath area	5 – 70 mm <sup>2</sup> effective

number of cores	1,2,3,4,7,12,19
overall diameter	5 – 26 mm
minimum bend radius	6 x diameter (3 x diameter if bent once only)
weight	100 – 3300 kg/km, 355 - 11708.4 lbs/mi
twists per metre	0, 20 (in many applications NO twist is preferred)
finish	bare copper, standard PVC sheath, low smoke and fume (LSF) polymer sheath, various stainless steels, Inconel, titanium, and some super alloys.
colour	natural (bare stainless, bare copper), white, black, red, orange
maximum operating temperature	continuous - exposed to touch 70 °C continuous - not exposed to touch; PVC-sheathed 90 °C continuous - not exposed to touch; not PVC-sheathed 250 °C intermittent >1000 °C (melting point of copper is 1083 °C)

## Advantages [\[ edit \]](#)

The metal sheath and solid filling of MI cable makes it mechanically robust and resistant to impact; an MI cable may be struck repeatedly with a hammer and still provide adequate insulation resistance for a circuit.<sup>[2]</sup> Copper sheathing is waterproof and resistant to ultraviolet light and many corrosive elements. MI cable is approved by electrical codes for use in areas with hazardous concentrations of flammable gas in air; an MI cable will not allow propagation of an explosion inside the copper tube, and the cable is unlikely to initiate an explosion even during circuit fault conditions. Metal sheathing will not contribute fuel or hazardous combustion products to a fire, and cannot propagate a fire along a cable tray or within a building. The cable is inherently fire-rated without additional coatings, and will survive designated fire tests representative of actual fire conditions longer than the enclosing structure.

When used within a tenanted area, carrying electricity supplied and billed to the landlord, for example for a communal extract system or antenna booster, it provides a supply cable that cannot easily be 'tapped' into to obtain free energy.

Although made from solid copper elements, the finished cable assembly is still pliable due to the malleability of copper. The cable can be bent to follow shapes of buildings or bent around obstacles, allowing for a neat appearance when exposed.

Since the inorganic insulation does not degrade with (moderate) heating, the finished cable assembly can be allowed to rise to higher temperatures than plastic-insulated cables; the limits to temperature rise may be only due to possible contact of the sheath with people or structures. This may also allow a smaller cross-section cable to be used in particular applications.

in particular applications.

Due to **oxidation**, the copper cladding darkens with age and MICC is therefore often used in historic buildings such as **castles** where it blends in with stonework. However, where MICC cables with a bare copper sheath are installed in damp locations, particularly where lime mortar has been used, the water and lime combine to create an electrolytic action with the bare copper. Similarly, electrolytic action may also be caused by installing bare-sheath MICC cables on new oak. The reaction causes the copper to be eaten away, making a hole in the sheath of the cable and letting in water, causing a short-circuit between live, neutral and earth. The appearance of green verdigris on the bare copper sheath may be a sign this has occurred.

## Disadvantages [edit]

- *The termination points:* While the length of the MI cable is very tough, at some point, each run of cabling terminates at a splice or within electrical equipment. These terminations are vulnerable to fire, moisture, or mechanical impact.
- *Vibration:* MICC is not suitable for use where it will be subject to **vibration** or flexing, for example connection to heavy or movable machinery. Vibration will crack the cladding and cores, leading to failure.
- *Labour Cost:* During installation MI cable must not be bent repeatedly as this will cause **work hardening** and cracks in the cladding and cores. A minimum **bend radius** must be observed and the cable must be supported at regular intervals. The magnesium oxide insulation is **hygroscopic** so MICC cable must be protected from moisture until it has been terminated. Termination requires stripping back the copper cladding and attaching a compression gland fitting. Individual conductors are insulated with plastic sleeves. A sealing tape, insulating putty or an **epoxy resin** is then poured into the compression gland fitting to provide a watertight seal. If a termination is faulty due to workmanship or damage then the magnesium oxide will absorb moisture and lose its insulating properties. Depending on the size and number of conductors, a single termination can take between 1 and 2 hours of labour (an electrician should be able to make a termination in 10 to 15 minutes on up to 4 core smaller sizes). Installation of a three-conductor MI cable (size No. 10 AWG — about 5 square mm) takes about 65% more time than installation of a PVC-sheathed armoured cable of the same conductor size.<sup>[9]</sup> Installation of MICC is therefore a costly task. Certain **PTFE**, **silicone** or other **polymer**-insulated cables have been substituted in applications which require similar properties in terms of **flame spread**, which use less labour to terminate. MICC is still used in applications which are particularly suited to its combination of properties.
- *Voltage rating:* MI cable is only manufactured with ratings up to 1000 volts.
- *Moisture absorption:* The magnesium oxide insulation has a high affinity for moisture. Moisture introduced into the cable can cause electrical leakage from the internal conductors to the metal sheath. Moisture absorbed at a cut end of the cable may be driven off by heating the cable.
- *Corrosion:* The copper sheath material is resistant to most chemicals but can be severely damaged by ammonia-bearing compounds and **urine**. A pinhole in the copper sheathing will allow moisture into the insulation, and eventual failure of the circuit. A PVC over jacket or sheaths of other metals may be required where such chemical damage is expected. When MI cable is embedded in concrete as snow melting cable it is subject to physical damage by concrete workers working the concrete into the pour. If the 3-5mil coating is damaged pin holes in the copper jacket develop causing premature failure of the snow melting system.
- *Repair:* If the MI cable jacket has been damaged the magnesium oxide will wick moisture into the cable and it will lose its insulating properties causing shorts to the copper cladding, and thence to earth. It is often necessary to remove 0.5 to 2 metres (1.6 to 6.6 ft) of the MI cable and splice in a new section to accomplish the repair.

....

Depending on the size and number of conductors, a single termination can take between one and two hours of labour.<sup>[9]</sup>

## Alternatives [edit]

Circuit *integrity* for conventional plastic-insulated cables requires additional measures to obtain a *fire-resistance rating* or to lower the *flammability* and *smoke* contributions to a minimum degree acceptable for certain types of construction. Sprayed-on coatings or flexible wraps cover the plastic insulation to protect it from flame and reduce its flame spreading ability. However, since these coatings reduce the heat dissipation of the cables, often they must be rated for less current after application of fire-resistant coatings. This is called current capacity derating. It can be tested through the use of *IEEE 848 Standard Procedure for the Determination of the Ampacity Derating of Fire-Protected Cables* <sup>a</sup>.

## See also [edit]

- Listing and approval use and compliance
- Passive fire protection
- Circuit integrity
- Fireproofing
- Cable tray
- Copper wire and cable

## References [edit]

- ↑ Robert M. Black, *The History of Electric Wires and Cable*, Peter Peregrinus Ltd.London, 1993 ISBN 0-86341-001-4, pgs. 158-159
- ↑ Fire Performance Test for Fire Survivable Cables. http://www.fire-cables.co.uk/fire\_performance.html​
- ↑ <sup>a</sup> <sup>b</sup> R.S. Means Co, *Electrical Cost Data 22nd Annual Edition*, 1999, ISBN 0-87629-504-9

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**Categories:** Power cables Passive fire protection Electrical wiring

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