effect trace heating equipment in Class I, Division 2; Class II, Division 2; or Class III, Division 2 locations for which it is listed.

N **(P) Protection by Electrical Resistance Trace Heating "60079-30-1".** This protection technique shall be permitted for electrical resistance trace heating equipment in Class I, Division 1; Class I, Division 2; Class II, Division 1; Class II, Division 2; Class III, Division 1; or Class III, Division 2 locations for which it is listed.

N **(Q) Protection by Impedance Heating "IEEE 844.3".** This protection technique shall be permitted for impedance heating equipment in Class I, Division 2; Class II, Division 2; or Class III, Division 2 locations for which it is listed.

N **(R) Enclosed-Break.** This protection technique shall be permitted for equipment in Class I, Division 2 locations.

N **(S) Nonsparking.** This protection technique shall be permitted for equipment in Class I, Division 2 locations.

N **(T) Sealed.** This protection technique shall be permitted for equipment in Class I, Division 2; Class II, Division 2; Class III, Division 1; or Class III, Division 2 locations.

Δ **(U) Special Protection Techniques.** Protection techniques not specified in 500.7(A) through (T) shall be permitted for use in equipment listed for use in hazardous (classified) locations.

Informational Note: See ANSI/UL 60079-33, *Explosive Atmospheres — Part 33: Equipment Protection by Special Protection "s"*, for additional information.

Δ **500.8 Equipment.** Explosionproof or dust-ignitionproof equipment shall not be permitted for use at temperatures lower than -25°C (-13°F) unless they are identified for low-temperature service.

Informational Note: At low ambient temperatures, flammable concentrations of vapors might not exist in a location classified as Class I, Division 1 at normal ambient temperature.

Δ **(A) Suitability.** Suitability of identified equipment shall be determined by one of the following:

(1) Equipment listing or labeling
(2) Evidence of equipment evaluation from a qualified testing laboratory or inspection agency concerned with product evaluation
(3) Evidence acceptable to the authority having jurisdiction such as a manufacturer's self-evaluation or an owner's engineering judgment

Informational Note: Additional documentation for equipment might include certificates demonstrating compliance with applicable equipment standards, indicating special conditions of use, and providing other pertinent information.

Several testing and product evaluation agencies list electrical equipment that is suitable for use in hazardous locations. Testing laboratories outside the United States provide listings of equipment for use in hazardous locations, but they might not be testing and investigating the equipment for use in hazardous locations as defined in Article 500. These foreign laboratories certify equipment for installation according to an International Electrotechnical Commission (IEC) classification scheme similar to that in Articles 505 and 506. However, equipment certified to a product standard used in another country might not comply with the *NEC*.

(B) Approval for Class and Properties.

Δ **(1) Equipment Identification.** Equipment shall be identified not only for the class of location but also for the explosive, combustible, or ignitible properties of the specific gas, vapor, dust, or fibers/flyings that will be present. In addition, Class I equipment shall not have any exposed surface that operates at a temperature in excess of the autoignition temperature of the specific gas or vapor. Class II equipment shall not have an external temperature higher than that specified in 500.8(D)(2). Class III equipment shall not exceed the maximum surface temperatures specified in 503.5.

Exception No. 1: Group D equipment shall be permitted to be used for atmospheres containing butadiene if all conduit runs into explosionproof equipment are provided with explosionproof seals installed within 450 mm (18 in.) of the enclosure.

Exception No. 2: Group C equipment shall be permitted to be used for atmospheres containing allyl glycidyl ether, n-butyl glycidyl ether, ethylene oxide, propylene oxide, and acrolein if all conduit runs into explosionproof equipment are provided with explosionproof seals installed within 450 mm (18 in.) of the enclosure.

Informational Note: See 500.8(C)(6)(a) regarding general-purpose equipment. Luminaires and other heat-producing apparatus, switches, circuit breakers, and plugs and receptacles are potential sources of ignition and are investigated for suitability in classified locations. Such types of equipment, as well as cable terminations for entry into explosionproof enclosures, are available as listed for Class I, Division 2 locations. Fixed wiring, however, might use wiring methods that are not evaluated with respect to classified locations. Therefore, wiring products such as cable, raceways, boxes, and fittings are not marked as being suitable for Class I, Division 2 locations.

Where installed in a Class I or Class II location, equipment must be suitable for the specific group indicated on the classification document (see 500.4). An explosionproof enclosure suitable only for Group D, for example, is not acceptable for Group B. Enclosures are often identified for more than one class or group.

Some portable devices — cell phones, multimeters, and flashlights — have the capacity to cause ignition of a hazardous atmosphere. Although such electrical equipment is outside the scope of the *NEC*, all equipment used should be suitable for the specific hazardous location.

Δ **(2) Equipment Application.** Equipment identified for a Division 1 location shall be permitted in a Division 2 location of the same class, group, and temperature class and shall comply with the requirements of 500.8(B)(2)(a) or (B)(2)(b) as applicable.