

Informational Note No. 1: Group IIIA materials are larger particle-size Group IIIB materials and do not include metal dust or metal fibers/flyings. [499:A.3.3.8.2.3]

Informational Note No. 2: Examples of ignitable fibers/flyings include rayon, cotton (including cotton linters and cotton waste), sisal, jute, hemp, cocoa fiber, oakum, and baled waste kapok.

Informational Note No. 3: Combustible fibers/flyings include flat platelet-shaped particulates, such as metal flakes, and fibrous board, such as particle board.

The zone classification system includes both dusts and combustible fibers and flyings. The grouping of material by hazard also differs from the system used in Articles 500, 502, and 503. Commentary Table 506.1 contrasts the classification in the two systems.

COMMENTARY TABLE 506.1 Comparison of Zone and Division Classification Systems

Hazard	Zone Classification	Division Classification
Combustible metal dusts, fibers, and flyings	Group IIIC	Class II, Group E
Coal, coke, and other carbonaceous dusts	Group IIIB	Class II, Group F
Combustible dusts other than combustible metal dust	Group IIIB	Class II, Group G
Combustible fibers and flyings other than metals	Group IIIA	Class III

- **506.7 Special Precaution.** This article shall require equipment construction and installation that ensures safe performance under conditions of proper use and maintenance.

(A) Implementation of Zone Classification System. Classification of areas, engineering and design, selection of equipment and wiring methods, installation, and inspection shall be performed by qualified persons.

(B) Dual Classification. In instances of areas within the same facility classified separately, Zone 22 locations shall be permitted to abut, but not overlap, Class II or Class III, Division 2 locations. Zone 20 or Zone 21 locations shall not abut Class II or Class III, Division 1 or Division 2 locations.

(C) Reclassification Permitted. A Class II or Class III, Division 1 or Division 2 location shall be permitted to be reclassified as a Zone 20, Zone 21, or Zone 22 location if all of the space that is classified because of a single combustible dust, combustible fiber/flying, or ignitable fiber/flying source is reclassified under the requirements of this article.

(D) Simultaneous Presence of Flammable Gases and Combustible Dusts or Fibers/Flyings. Where flammable gases, combustible dusts, combustible fibers/flyings, or ignitable fibers/flyings are or might be present at the same time, the simultaneous presence shall be considered during the selection and installation of the electrical equipment and the wiring methods, including the

determination of the safe operating temperature of the electrical equipment.

506.8 Protection Techniques. Acceptable protection techniques for electrical and electronic equipment in hazardous (classified) locations shall be as described in 506.8(A) through (P).

Informational Note No. 1: See ANSI/UL 120101, *Definitions and Information Pertaining to Electrical Equipment in Hazardous Locations*; and ANSI/UL 60079-0, *Explosive Atmospheres — Part 0: Equipment — General Requirements*, for additional information.

Informational Note No. 2: See Chapter 9, Table 13 for descriptions of subdivisions of protection techniques.

(A) Dust Ignitionproof. This protection technique shall be permitted for equipment in Zone 20, Zone 21, and Zone 22 locations for which it is identified.

(B) Pressurized. This protection technique shall be permitted for equipment in Zone 21 and Zone 22 locations for which it is identified.

(C) Intrinsic Safety. This protection technique shall be permitted for equipment in Zone 20, Zone 21, and Zone 22 locations for which it is identified.

(D) Dusttight. This protection technique shall be permitted for equipment in Zone 22 locations for which it is identified.

(E) Protection by Encapsulation “m”. This protection technique shall be permitted for equipment in Zone 20, Zone 21, and Zone 22 locations for which it is identified.

(F) Nonincendive Equipment. This protection technique shall be permitted for equipment in Zone 22 locations for which it is identified.

(G) Protection by Enclosure “t”. This protection technique shall be permitted for equipment in Zone 20, Zone 21, and Zone 22 locations for which it is identified.

(H) Protection by Pressurized Enclosure “p”. This protection technique shall be permitted for equipment in Zone 21 and Zone 22 locations for which it is identified.

(I) Protection by Intrinsic Safety “i”. This protection technique shall be permitted for equipment in Zone 20, Zone 21, and Zone 22 locations for which it is listed.

(J) Protection by Electrical Resistance Trace Heating “60079-30-1”. This protection technique shall be permitted for electrical resistance trace heating equipment in Zone 21 or Zone 22 for which it is listed.

(K) Inherently Safe Optical Radiation “op is”. This protection technique shall be permitted for equipment in Zone 20, 21, or 22 locations for which the equipment is identified.

(L) Protected Optical Radiation “op pr”. This protection technique shall be permitted for equipment in Zone 21 or 22 locations for which the equipment is identified.