

NFPA®

499

Recommended Practice for the
Classification of Combustible Dusts
and of Hazardous (Classified)
Locations for Electrical Installations
in Chemical Process Areas

2021



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NFPA® 499

Recommended Practice for the

Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

2021 Edition

This edition of NFPA 499, *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, was prepared by the Technical Committee on Electrical Equipment in Chemical Atmospheres. It was issued by the Standards Council on March 15, 2020, with an effective date of April 4, 2020, and supersedes all previous editions.

This edition of NFPA 499 was approved as an American National Standard on April 4, 2020.

Origin and Development of NFPA 499

The Technical Committee on Electrical Equipment in Chemical Atmospheres began the development of NFPA 497B, *Recommended Practice for the Classification of Class II Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, in 1989. The technical committee based the diagrams in this document on various NFPA codes and standards and on accepted practices in the chemical process industries. The first edition of this recommended practice was adopted by the NFPA membership at the 1990 November Technical Meeting, which became the 1991 edition.

In 1993, the technical committee combined the information on group classifications of dusts located in NFPA 497M, *Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations*, and the information in NFPA 497B into an expanded version and renamed the document *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, 1997. The table information on dusts was expanded to include CAS numbers for clarity and user friendliness.

In 2001, the technical committee entered NFPA 499 into the November 2003 revision cycle. The 2004 edition was significantly revised and reorganized to comply with the 2003 NFPA *Manual of Style* for technical committee documents. The organizational and editorial changes enhanced the usability of this recommended practice. In addition, editorial changes were made to harmonize the text with the requirements of NFPA 70®, *National Electrical Code*®.

The 2008 edition of NFPA 499 was the culmination of a revision cycle that began with the document being entered into cycle in January 2006. NFPA 499 is closely tied to the electrical installation requirements for hazardous (classified) locations in NFPA 70. To ensure correlation with revisions to the 2008 edition of NFPA 70, the Technical Committee on Electrical Equipment in Chemical Atmospheres was granted permission by the NFPA Standards Council to enter into a 3-year (Fall 2007) revision cycle. Significant revisions to the 2008 edition included the following:

- (1) Changes to the scope to specify that explosives, pyrotechnics, and blasting agents have unique hazards not addressed by the document
- (2) Revisions to Table 4.5.2 on composition and ignition temperature of combustible materials to correlate with information contained in other industry documents

The 2013 edition was a complete revision to update references and extracted text. As a result of updating ASTM references, the 2010 edition of ASTM E1226, *Standard Test Method for Explosibility of Dust Clouds*, was incorporated, which eliminated the use of the ignition sensitivity (IS) and explosion severity (ES) criteria in NFPA 499. Those criteria were eliminated because ASTM E1226 now has a “Go/No-Go” criterion that assesses the combustibility of a dust. Also, a new Chapter 4, on general criteria for combustible dusts and their ignition characteristics, was added.

The 2017 edition was revised to update consistency between the figures and text regarding a transitional classified location around doorways. Other revisions were made to correlate with revisions to the 2017 edition of NFPA 70. There were also extensive revisions to add the zone classification system from NFPA 70.

The 2021 edition has been revised to update the definition of *combustible flyings* to *combustible fibers/flyings*, and add the definition for *ignitable fibers/flyings*. The classification of combustible fibers/flyings has been clarified. These changes correlate this recommended practice with dust and electrical standards, and ensure that material posing a flash-fire or explosion hazard is evaluated as hazardous (classified) locations regardless of particle size. Classification of portable electronic products (PEPs) has been included to correlate with UL 121203, *Portable Electronic Products Suitable for Use in Class I and II, Division 2, Class I, Zone 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations*. Area electrical classifications have been revised throughout the document to correlate with the NEC® electrical classification.