

Standard for the Manufacture of **Organic Coatings**

2021



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NFPA[®] 35

Standard for the

Manufacture of Organic Coatings

2021 Edition

This edition of NFPA 35, *Standard for the Manufacture of Organic Coatings*, was prepared by the Technical Committee on Manufacture of Organic Coatings. It was issued by the Standards Council on October 5, 2020, with an effective date of October 25, 2020, and supersedes all previous editions.

This edition of NFPA 35 was approved as an American National Standard on October 25, 2020.

Origin and Development of NFPA 35

The first edition of NFPA 35 was developed by the NFPA Manufacturing Hazards Council and published in 1938 as *Suggestions for the Fire Protection of Lacquer Manufacturing Plants*. The second edition of this document was published in 1946. The Manufacturing Hazards Council was subsequently disbanded, and responsibility for NFPA 35 transferred to the new Sectional Committee on Coating Manufacture, which operated under the NFPA Committee on Flammable Liquids. The sectional committee undertook a major revision of NFPA 35, expanding its scope to the manufacture of all organic coatings. A new NFPA 35 was published as a Tentative Recommended Practice in 1961 and was officially adopted by the Association in 1964. The sectional committee subsequently rewrote NFPA 35 as a mandatory standard, which was adopted by the Association in 1970. Revisions to the standard were adopted in 1971, 1976, 1982, and 1987.

In 1993, NFPA's Flammable Liquids Project was reorganized, and the former technical (sectional) committee became an independent committee. The new Technical Committee on Manufacture of Organic Coatings processed a 1995 edition of NFPA 35, which incorporated a significant revision to the requirements for deflagration (explosion) venting as a consequence of a major fire and explosion incident at a coatings manufacturing plant.

After adoption of the 1995 edition of NFPA 35, the Technical Committee on Manufacture of Organic Coatings immediately began a major rewrite of NFPA 35, culminating in the 1999 edition, which included the following amendments:

- (1) Editorial revision and reorganization to effect editorial improvement and simplification of the text, making it more easily understood and interpreted
- (2) New building construction requirements to address the hazards of liquid spill fires and their impact on load-bearing building supports
- (3) Improved requirements for deflagration venting
- (4) Improvements to the requirements for transfer of flammable and combustible liquids within operating areas
- (5) Deletion of text relating to open-fire resin cooking processes, which are no longer used
- (6) Guidance on pressure transfer of liquids by air and inert gas
- (7) Revision and simplification of requirements for special hazards, specifically nitrocellulose, monomers, and organic peroxide formulations, including appendix text on handling procedures for nitrocellulose
- (8) A new chapter, Control of Ignition Sources, with particular attention to static electricity hazards and bonding and grounding requirements
- (9) Another new chapter, Management of Fire Hazards

The 2005 edition of NFPA 35 incorporated the following amendments and improvements:

- (1) Editorial revisions to comply with the Manual of Style for NFPA Technical Committee Documents
- (2) Adoption of preferred definitions from other NFPA technical documents where such adoption did not conflict with the intent and context of NFPA 35
- (3) Clarification of the requirements for process building heating

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- (4) Requirements for "hot box" installations and drum heaters used to heat containers of viscous liquids
- (5) Improved requirements for proper handling of nitrocellulose, including guidance on safe movement using hand trucks and powered industrial trucks
- (6) A requirement that all fires must be investigated to determine their cause
- (7) A new table, Table A.5.6.3, to provide guidance for electrical area classification that is specific to equipment and processes that manufacture organic coatings

The 2011 edition of NFPA 35 incorporated the following major amendments and improvements:

- (1) Definitions for *kettle, thin-down tank, normal vent,* and *emergency relief vent* were added to aid the user in the application of the provisions of this standard and to reflect usage of these terms within the context of the organic coatings industry.
- (2) The specific requirements in 5.1.6 for means of egress were replaced with a direct reference to NFPA 101, Life Safety Code.
- (3) Section 5.4, Ventilation, was completely revised as suggested by the U.S. Chemical Safety and Hazard Investigation Board (CSB), based on their report on the CAI/Arnel explosion and fire that occurred November 22, 2006, in Danvers, MA. The new requirements in this section correlated with the provisions of NFPA 30, *Flammable and Combustible Liquids Code*. Also, these new requirements were applicable to both Class I (flammable) liquids and Class II or Class III (combustible) liquids that are heated up to or above their flash points.
- (4) A new paragraph, 6.6.4.1, required safe operating temperature limit controls for mixing tanks in which contents are heated. This paragraph also was based on suggestions submitted by the CSB as a result of its report on the CAI/Arnel explosion and fire.

The 2016 edition of NFPA 35 incorporated the following amendments and improvements:

- (1) The term *antistatic* was changed to *static dissipating* throughout the standard to remove a term no longer used in the electrostatics community and more accurately describe the property being addressed.
- (2) Building feature requirements, such as walls without unprotected openings and the prohibition of basements, were clarified.
- (3) Exceptions were rewritten as mandatory language as recommended by the Manual of Style for NFPA Technical Committee Documents.

In the 2021 edition of NFPA 35, revisions have been made to clarify construction requirements, including construction type, fire resistance ratings of structural elements and building assemblies, and fire protection ratings for opening protectives. In addition, terminology has been updated to align with NFPA 30 classifications of liquids.

2021 Edition

Technical Committee on Manufacture of Organic Coatings

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This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on the fire and explosion hazards associated with the design, construction, and operation of organic coating manufacturing processes and facilities.

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