

# Complying with NFPA 652 and NFPA 61

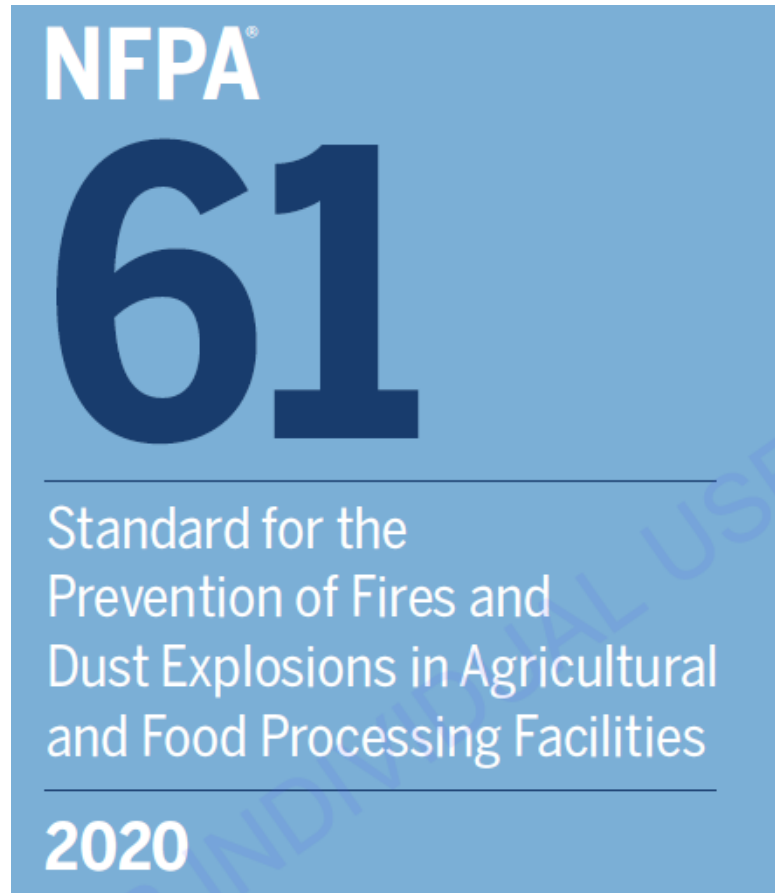
Craig Froehling

# Today's Topics

- ▶ How to use NFPA 61 and NFPA 652 together to comply with both
- ▶ How do the two standards compare in regards to Dust Hazard Analysis, Risk Assessments, and Explosion Protection.
- ▶ Potential upcoming changes to NFPA Combustible Dust Standards



# Combustible Dust Standards



Applies to Ag and Food Industry



Applies to all Industries

# NFPA 61 (2020) and 652 (2019) Chapter Structure

- Chapter 1: Administration
- Chapter 2: Referenced Publications
- Chapter 3: Definitions
- Chapter 4: General Requirements
- Chapter 5: Hazard Identification
- Chapter 6: Performance Based Design
- Chapter 7: Hazard Assessment
- Chapter 8: Management Systems
- Chapter 9: Hazard Prevention / Mitigation



# Understanding the Conflict language

## ► 1.4 Conflicts (from NFPA 652)

**1.4.2** Where a requirement in an industry- or commodity-specific NFPA standard differs from the requirement specified in this standard, the requirement in the industry- or commodity-specific NFPA standard shall be permitted to be used.

**1.4.3** Where an industry- or commodity-specific NFPA standard specifically prohibits a requirement specified in this standard, the prohibition in the industry- or commodity-specific NFPA standard shall be applied.

**1.4.4** Where an industry- or commodity-specific NFPA standard neither prohibits nor provides a requirement, the requirement in this standard shall be applied.

**1.4.5** Where a conflict between a general requirement of this standard and a specific requirement of this standard exists, the specific requirement shall apply.

# How to choose which requirements to use



# How to choose which requirements to use

- ▶ Follow NFPA 61 requirements for common Agricultural Dusts and Processes
  - Processes and Management Systems involving Grain Handling, Dry Milling, Feed Milling, etc
  - Well defined requirements for conveying, storage, grain dryers, dust control, etc for grain and grain products.



# How to choose which requirements to use

- ▶ Follow NFPA 61 requirements for common Agricultural Dusts and Processes
  - Processes and Management Systems involving Grain Handling, Dry Milling, Feed Milling, etc
  - Well defined requirements for conveying, storage, grain dryers, dust control, etc for grain and grain products.
- ▶ Follow NFPA 652 requirements for Sensitive Dusts and Unique Processes
  - Blending powdered sugar and cocoa powder
  - Premixing Vitamins, starches, and other low MIE dusts
  - Handling a new or unknown product that is not a common Ag dust.



# Chapter 7 DHA - Comparison

## NFPA 61 (2020)

### 7.1\* General Requirements.

7.1.2 The owner/operator of a facility where materials determined to be combustible or explosible in accordance with Chapter 5 are present in an enclosure shall be responsible to ensure a DHA is completed in accordance with the requirements of this chapter. [652:7.1.2]

## NFPA 652 (2019)

### 7.1\* General Requirements.

N 7.1.2 The owner/operator of a facility where materials determined to be combustible or explosible in accordance with Chapter 5 are present in an enclosure shall be responsible to ensure a DHA is completed in accordance with the requirements of this chapter.

# Chapter 7 DHA - Comparison

## NFPA 61 (2020)

### 7.1\* General Requirements.

7.1.2 The owner/operator of a facility where materials determined to be combustible or explosible in accordance with Chapter 5 are present in an enclosure shall be responsible to ensure a DHA is completed in accordance with the requirements of this chapter. [652:7.1.2]

7.1.2.1 For new processes that will be constructed and facility processes that are undergoing significant modification, the owner/operator shall complete DHAs as part of the project.

7.1.2.2\* For existing processes and facility compartments that are not undergoing significant modification, the owner/operator shall schedule and complete DHAs of bucket elevators, conveyors, grinding equipment, spray dryer systems, and dust collection systems by January 1, 2022.

## NFPA 652 (2019)

### 7.1\* General Requirements.

N 7.1.2 The owner/operator of a facility where materials determined to be combustible or explosible in accordance with Chapter 5 are present in an enclosure shall be responsible to ensure a DHA is completed in accordance with the requirements of this chapter.

7.1.1.1\* A DHA shall be completed for all new processes and facility compartments.

7.1.1.2\* For existing processes and facility compartments, a DHA shall be completed by September 7, 2020.

# Chapter 9 Hazard Management - Comparison

## NFPA 61 (2020)

### 9.7 Explosion Prevention/Protection.

**Δ 9.7.2 Risk Assessment.** A documented risk assessment shall be permitted to be conducted to determine the level of protection to be provided, including, but not limited to, the measures addressed in Section 9.7.

## NFPA 652 (2019)

### 9.7 Explosion Prevention/Protection.

**9.7.2 Risk Assessment.** A documented risk assessment acceptable to the AHJ shall be permitted to be conducted to determine the level of protection to be provided, including, but not limited to, the measures addressed in Section 9.7.

# Chapter 9 Hazard Management - Comparison

## NFPA 61 (2020)

### 9.7 Explosion Prevention/Protection.

△ **9.7.2 Risk Assessment.** A documented risk assessment shall be permitted to be conducted to determine the level of protection to be provided, including, but not limited to, the measures addressed in Section 9.7.

#### 9.7.3.1\* Equipment Requirements.

△ **9.7.3.1.1** Equipment requiring explosion prevention shall be protected by one of the following:

## NFPA 652 (2019)

### 9.7 Explosion Prevention/Protection.

**9.7.2 Risk Assessment.** A documented risk assessment acceptable to the AHJ shall be permitted to be conducted to determine the level of protection to be provided, including, but not limited to, the measures addressed in Section 9.7.

△ **9.7.3.1\* General.** Where an explosion hazard exists within any operating equipment greater than 8 ft<sup>3</sup> (0.2 m<sup>3</sup>) of containing volume, the equipment shall be protected from the effects of a deflagration.

# Chapter 9 Hazard Management - Comparison

## NFPA 61 (2020)

### 9.7 Explosion Prevention/Protection.

△ **9.7.2 Risk Assessment.** A documented risk assessment shall be permitted to be conducted to determine the level of protection to be provided, including, but not limited to, the measures addressed in Section 9.7.

#### 9.7.3.1\* Equipment Requirements.

△ **9.7.3.1.1** Equipment requiring explosion prevention shall be protected by one of the following:

#### 9.7.4 Equipment Isolation.

##### 9.7.4.1\* Isolation of Equipment.

△ **9.7.4.1.1** Where a DHA has determined that isolation is necessary, isolation shall be provided to prevent deflagration propagation between connected equipment in accordance with NFPA 69.

## NFPA 652 (2019)

### 9.7 Explosion Prevention/Protection.

**9.7.2 Risk Assessment.** A documented risk assessment acceptable to the AHJ shall be permitted to be conducted to determine the level of protection to be provided, including, but not limited to, the measures addressed in Section 9.7.

△ **9.7.3.1\* General.** Where an explosion hazard exists within any operating equipment greater than 8 ft<sup>3</sup> (0.2 m<sup>3</sup>) of containing volume, the equipment shall be protected from the effects of a deflagration.

#### 9.7.4\* Equipment Isolation.

**9.7.4.1** Where a dust explosion hazard exists, isolation devices shall be provided in accordance with NFPA 69 to prevent deflagration propagation between connected equipment.

# Potential changes - Consolidation of the Standards

- ▶ NFPA Standards Council wants to combine all 7 standards into 1 standard
  - 61 - Ag and Food Processing
  - 91 - Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
  - 484 - Metals
  - 652 - Fundamentals of Combustible Dusts
  - 654 - Manufacturing, Processing, Handling of Combustible Particulate Solids
  - 655 - Sulfur
  - 664 - Wood Processing
  
- ▶ The Combined Standard is expected to be NFPA 660

# Proposed Structure of NFPA 660

- ▶ Chapters 1-9 would remain as Fundamental Requirements
  - The contents would be what is fundamental to all industries
- ▶ Chapters 10 would potentially be fire protection
- ▶ Chapters 11 - 16 would each contain industry specific requirements
  - Chapter 11 would encompass all of NFPA 61
- ▶ Each Technical Committee would remain intact
  - The 61 TC owns the content of Chapter 11
  - The 652 TC would own fundamental content of Chapters 1-10
- ▶ Correlating Committee will continue to review all content

# Expected Process

- ▶ Task Groups from each Technical Committee is submitting comments to Correlating Committee on which 652 requirements they believe are / are not fundamental.
- ▶ 652 Technical Committee and Task Groups begin review cycles of the submitted comments to develop a Draft single document (~6 months)
- ▶ Draft 660 submitted to Standards Council in 2021 for approval
- ▶ If approved, the Draft 660 document enters Fall 2023 Revision Cycle and opens for Public Input in 2021
- ▶ Further revisions are completed based on Public Input
- ▶ Standard becomes effective 2024 in replacement of the original 7 documents.





# Thank You !

