Second Correlating Revision No. 4-NFPA 484-2020 [Global Input]

Revert the language from SR 29 back to the First Draft language as shown in the attached file

Supplemental Information

File Name	Description	Approved
484_SCR4_Global.docx	For staff use	
484_SCR-4_Global_for_ballot.docx	For ballot	

Submitter Information Verification

Committee:

Submittal Date: Tue Nov 10 08:33:16 EST 2020

Committee Statement

Committee Statement: The definitions from NFPA 499 2021 are being edited by a TIA, and the TIA on NFPA 70 has not been processed yet, so NFPA 484 should not yet remove the prohibition for zone classification of dusts due to concern that those changes will not have been adopted prior to the publication of NFPA 484 2022. The requirements in this global revision can be revised by a TIA when the other documents have been revised.

This Global SR is being overturned by the CC so all the changes shown are reverting back to FD text. If something is shown as delete, it's new material that is being removed (will not show as crossed out). If something is shown as added, it is original text being restored (will not show as underlined). Individual legislative changes are being rejected (no legislative changes should show with these).

3.3.12* Combustible Dust.

A finely divided combustible particulate solid that presents a flash-fire hazard or explosion hazard when suspended in air or the process-specific oxidizing medium over a range of concentrations. [**652**, 2019]

A.3.3.12 Combustible Dust.

Dusts traditionally were defined as material 420 µm or smaller (i.e., capable of passing through a U.S. No. 40 standard sieve). For consistency with other standards, 500 µm (i.e., capable of passing through a U.S. No. 35 standard sieve) is now considered an appropriate size criterion. Particle surface area-to-volume ratio is a key factor in determining the rate of combustion. Combustible particulate solids with a minimum dimension more than 500 µm generally have a surface-to-volume ratio that is too small to pose a deflagration hazard. Flat platelet-shaped particles, flakes, or fibers with lengths that are large compared to their diameter usually do not pass through a 500 µm sieve, yet could still pose a deflagration hazard. Many particulates accumulate electrostatic charge in handling, causing them to attract each other, forming agglomerates. Often, agglomerates behave as if they were larger particles, yet when they are dispersed they present a significant hazard. Therefore, it can be inferred that any particulate that has a minimum dimension less than or equal to 500 µm could behave as a combustible dust if suspended in air or the process-specific oxidizer. If the minimum dimension of the particulate is greater than 500 µm, it is unlikely that the material would be a combustible dust, as determined by test. The determination of whether a sample of combustible material presents a flash-fire or explosion hazard could be based on a screening test methodology such as provided in ASTM E1226, *Standard Test Method for Explosibility of Dust Clouds*. Alternatively, a standardized test method such as ASTM E1515, *Standard Test Method for Minimum Explosible Concentration of Combustible Dusts*, could be used to determine dust explosibility. Chapter 5 of NFPA 652 has additional information on testing requirements. [**652,** 2019]

There is some possibility that a sample will result in a false positive in the 20 L sphere when tested by the ASTM E1226 screening test or the ASTM E1515 test. This is due to the high energy ignition source overdriving the test. When the lowest ignition energy allowed by either method still results in a positive result, the owner/operator can elect to determine whether the sample is a combustible dust with screening tests performed in a larger scale (≥1 m^3) enclosure, which is less susceptible to overdriving and thus will provide more realistic results. [**652,** 2019]

This possibility for false positives has been known for quite some time and is attributed to "overdriven" conditions that exist in the 20 L chamber due to the use of strong pyrotechnic igniters. For that reason, the reference method for explosibility testing is based on a 1 m^3 chamber, and the 20 L chamber test method is calibrated to produce results comparable to those from the 1 m^3 chamber for most dusts. In fact, the U.S. standard for 20 L testing (ASTM E1226) states, “The objective of this test method is to develop data that can be correlated to those from the 1 m^3 chamber (described in ISO 6184-1 and VDI 3673)...” ASTM E1226 further states, “Because a number of factors (concentration, uniformity of dispersion, turbulence of ignition, sample age, etc.) can affect the test results, the test vessel to be used for routine work must be standardized using dust samples whose K_{St} and P_{max} parameters are known in the 1 m^3 chamber.” [**652,** 2019]

NFPA 68 also recognizes this problem and addresses it stating that “the 20 L test apparatus is designed to simulate results of the 1 m^3 chamber; however, the igniter discharge makes it problematic to determine K_{St} values less than 50 bar-m/sec. Where the material is expected to yield K_{St} values less than 50 bar-m/sec, testing in a 1 m^3 chamber might yield lower values.” [**652,** 2019]

Any time a combustible dust is processed or handled, a potential for deflagration exists. The degree of deflagration hazard varies, depending on the type of combustible dust and the processing methods used. [**652,** 2019]

A dust deflagration has the following four requirements:

(1) Combustible dust

(2) Dust dispersion in air or other oxidant

(3) Sufficient concentration at or exceeding the minimum explosible concentration (MEC)

(4) Sufficiently powerful ignition source such as an electrostatic discharge, an electric current arc, a glowing ember, a hot surface, welding slag, frictional heat, or a flame

[**652,** 2019]

If the deflagration is confined and produces a pressure sufficient to rupture the confining enclosure, the event is, by definition, an “explosion.” [**652,** 2019]

Evaluation of the hazard of a combustible dust should be determined by the means of actual test data. Each situation should be evaluated and applicable tests selected. The following list represents the factors that are sometimes used in determining the deflagration hazard of a dust:

(1) MEC

(2) MIE

(3) Particle size distribution

(4) Moisture content as received and as tested

(5) Maximum explosion pressure at optimum concentration

(6) Maximum rate of pressure rise at optimum concentration

(7) K_{St} (normalized rate of pressure rise) as defined in ASTM E1226

(8) Layer ignition temperature

(9) Dust cloud ignition temperature

(10) Limiting oxidant concentration (LOC) to prevent ignition

(11) Electrical volume resistivity

(12) Charge relaxation time

(13) Chargeability

[**652,** 2019]
It is important to keep in mind that as a particulate is processed, handled, or transported, the particle size generally decreases due to particle attrition. Therefore, it is often necessary to evaluate the explosibility of the particulate at multiple points along the process. Where process conditions dictate the use of oxidizing media other than air, which is nominally taken as 21 percent oxygen and 79 percent nitrogen, the applicable tests should be conducted in the appropriate process-specific medium. [**652,** 2019]

3.3.13.1* Combustible Metal Dust.

A combustible particulate metal that presents a fire or explosion hazard when suspended in air or the process specific oxidizing medium over a range of concentrations, regardless of particle size or shape.

A.3.3.14 Combustible Particulate Solid.

Combustible particulate solids include dusts, fibers, fines, chips, chunks, flakes, or mixtures of these. The term *combustible particulate solid* addresses the attrition of material as it moves within the process equipment. Particle abrasion breaks the material down and produces a mixture of large and small particulates, some of which could be small enough to be classified as dusts. Consequently, the presence of dusts should be anticipated in the process stream, regardless of the starting particle size of the material. [**652,** 2019]

The terms *particulate solid, dust,* and *fines* are interrelated. It is important to recognize that while these terms refer to various size thresholds or ranges, most particulate solids are composed of a range of particle sizes making comparison to a size threshold difficult. For example, a bulk material that is classified as a particulate solid could contain a significant fraction of dust as part of the particle size distribution. [**652,** 2019]

While hazards of bulk material are addressed in this document using the provisions related to particulate solids, it might be necessary to apply the portions of the document relating to dust where there is potential for segregation of the material and accumulation of only the fraction of the material that fits the definition of dust. Furthermore, it is difficult to establish a fractional cutoff for the size threshold, such as 10 percent below the threshold size or median particle size below the threshold size, as the behavior of the material depends on many factors including the nature of the process, the dispersibility of the dust, and the shape of the particles. [**652,** 2019]

For the purposes of this document, the term *particulate solid* does not include an upper size limitation. This is intended to encompass all materials handled as particulates, including golf balls, pellets, wood chunks and chips, and so forth. [**652,** 2019]

The term *particulate solid* is intended to include those materials that are typically processed using bulk material handling techniques such as silo storage, pneumatic or mechanical transfer, etc. While particulate solids can present a fire hazard, they are unlikely to present a dust deflagration hazard unless they contain a significant fraction of dust, which can segregate and accumulate within the process or facility. [**652,** 2019]

Dusts traditionally were defined as material 420 µm or smaller (i.e., capable of passing through a U.S. No. 40 standard sieve). For consistency with other standards, 500 µm (i.e., capable of passing through a U.S. No. 35 standard sieve) is now considered an appropriate size criterion. Particle surface area-to-volume ratio is a key factor in determining the rate of combustion. Combustible particulate solids with a minimum dimension more than 500 µm generally have a surface-to-volume ratio that is too small to pose a deflagration hazard. Flat platelet-shaped particles, flakes, or fibers with lengths that are large compared to their diameters usually do not pass through a 500 µm sieve, yet could still pose a deflagration hazard. Many particulates accumulate electrostatic charges in handling, causing them to attract each other, forming agglomerates. Often, agglomerates behave as if they were larger particles, yet when they are dispersed they present a significant hazard. Consequently, it can be inferred that any particulate that has a minimum dimension less than or equal to 500 µm could behave as a combustible dust if suspended in air or in the process-specific oxidizer. If the minimum dimension of the particulate is greater than 500 µm, it is unlikely that the material would be a combustible dust, as determined by test. [**652,** 2019]

Typically, the term *fines* refers to the fraction of material that is below 75 µm or that will pass through a 200-mesh sieve. Alternatively, fines can be characterized as the material collected from the final dust collector in a process or the material collected from the highest overhead surfaces in a facility. Fines typically represent a greater deflagration hazard than typical dusts of the same composition because they are more likely to remain suspended for an extended period of time and to have more severe explosion properties (higher K_{St}, lower MIE, etc.). [**652,** 2019]

11.7.1.1

Vigorous sweeping or blowing down with compressed air produces dust clouds and shall be permitted only where the following requirements are met:

(1) Electrical equipment not suitable for Class II, Group E locations and other sources of ignition shall be shut down or removed from the area.

(2) Compressed air shall not exceed a gauge pressure of 206 kPa (30 psi), unless otherwise determined to be safe by a documented hazard analysis.

12.4 Electrical Area Classification.

12.4.1*

The classification criteria in *NFPA 70* shall be applied whenever combustible metal particulate meets the definition of combustible metal dust in this standard, not withstanding the definition of combustible dust in *NFPA 70*.

12.4.1.1

The identification of the possible presence and extent of Class II locations shall be made based on the criteria in Article 500.5(C) of *NFPA 70*.

A.12.4.1

The definition of combustible dust in Article 500 of *NFPA 70* limits particle size and conflicts with the definition of combustible metal dust in this standard. Combustible metal dust should be considered Class II, Group E regardless of particle size. *(See NFPA 497 and NFPA 499 for information on electrical area classification.)* Housekeeping can reduce or eliminate the electrical area classification for a location where combustible metal dust is present. Electrical equipment upgrades to meet Article 500 of NFPA 70 can be costly and users might better focus on preventing fugitive dust from escaping equipment and accumulations to minimize the extent of the hazardous (classified) areas.

12.4.1.1.1

All areas designated as hazardous (classified) locations shall be documented, and such documentation shall be maintained and preserved for access at the facility.

12.4.1.2

Electrical equipment and wiring within Class II locations shall comply with Article 500.5(C) of *NFPA 70*.

12.4.1.3*

Preventive maintenance programs for electrical equipment and wiring in Class II locations shall include provisions to verify that dusttight electrical enclosures are not experiencing significant dust ingress.

A.12.4.1.3

Finding combustible metal dust or powder within electrical equipment and components should warrant more frequent inspection and cleaning.

12.4.1.4*

Zone classification for dusts in accordance with Article 506 of *NFPA 70* shall not be permitted.

A.12.8.1.4

NFPA 499 provides guidance for zone classification to clarify that combustible metal dust is Group IIIC, regardless of particle size. However, this clarification has not yet progressed through the *NFPA 70* revision cycle.

A.17.7

(3) Electrical equipment, wiring, and lighting in the area should comply with Article 500 of *NFPA 70*.

18.6.2.2.2*

Wet solvent milling areas or other areas where combustible or flammable liquids are present shall be classified, where applicable, in accordance with Article 500 of *NFPA 70* with the exception of control equipment meeting the requirements of NFPA 496.

Second Correlating Revision No. 5-NFPA 484-2020 [Section No. 1.4]

1.4 Conflicts.

1.4.1

Where a ~~requirement specified in this industry-specific standard differs from a requirement specified in NFPA 652~~ conflict exists between a requirement of NFPA 652 and a requirement of this standard , the requirement ~~in~~ of this standard shall ~~be permitted to be used~~ apply .

1.4.2

Where a requirement specified in this standard specifically prohibits a requirement specified in NFPA 652, the prohibition in this standard shall apply.

1.4.3

Where this standard neither prohibits nor provides a requirement, the requirement in NFPA 652 shall apply.

1.4.4

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

Submitter Information Verification

Committee: CMD-CMM

Submittal Date: Tue Nov 10 09:43:26 EST 2020

Committee Statement

Committee Statement: The Correlating Committee has revised 1.4.1. The revised language is clearer and more straightforward, and can be more easily used in other chapters of the combined dust document NFPA 660. It also provides a model for similar revisions in other dust chapters.

Second Revision No. 2-NFPA 484-2020 [Section No. 1.4]

Second Correlating Revision No. 6-NFPA 484-2020 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work,* 2019 edition.

NFPA 68, *Standard on Explosion Protection by Deflagration Venting,* 2018 edition.

NFPA 69, *Standard on Explosion Prevention Systems,* 2019 edition.

NFPA 70® , *National Electrical Code®* , 2020 edition.

NFPA 77, *Recommended Practice on Static Electricity,* 2019 edition.

NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids,* 2020 edition.

NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls,* ~~2018~~ 2021 edition.

NFPA 652, *Standard on the Fundamentals of Combustible Dust,* 2019 edition.

NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids,* 2020 edition.

NFPA 921, *Guide for Fire and Explosion Investigations,* ~~2017~~ 2021 edition.

NFPA 1250, *Recommended Practice in Fire and Emergency Service Organization Risk Management,* 2020 edition.

NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program,* 2018 edition.

Submitter Information Verification

Committee: CMD-CMM

Submittal Date: Mon Nov 16 15:47:19 EST 2020

Committee Statement

Committee Statement: NFPA 499 is being removed from section 2.4 based on the action of Second Correlating Revision 4, which deletes the material extracted from NFPA 499.

Second Revision No. 1-NFPA 484-2020 [Section No. 2.4]

Second Correlating Revision No. 3-NFPA 484-2020 [Sections 9.2.7, 9.2.8]

9.2.7* Additional Facility Design Requirements for All Metals.

A.9.2.7

These facility design requirements are in addition to those in 16.2 , 17.2 , and 18.2 . Consideration should be given to automatic fire detection systems in ~~metal production plants to ensure life safety~~ facilities handling metals in combustible form .

9.2.7.1 General.

9.2.7.1.1

~~Buildings~~ In addition to the requirements of this chapter, buildings shall comply with the applicable provisions of ~~NFPA *101*~~ locally adopted building and fire safety codes .

9.2.7.1.2

Where local, state, and national building codes require modifications, such modifications shall be permitted for conformance to these codes if a hazard analysis is conducted to ensure the modifications do not create a greater risk.

9.2.7.1.3

Installation of automatic sprinkler protection, where used, shall ~~be in compliance~~ comply with Chapter 10.

9.2.7.1.4

All enclosed passageways that can be occupied and that connect with one or more processing areas shall be provided with means of egress in accordance with ~~NFPA *101*~~ local building codes .

~~**9.2.7.1.5***~~

~~Emergency exits shall be provided in compliance with NFPA *101* .~~

~~**A.9.2.7.1.5**~~

~~See Chapter 28 of *NFPA 101* .~~

9.2.7.1.5

Fuel supply lines shall have an emergency shutoff valve located within easy access outside of the building.

9.2.7.1.6

Emergency shutoff valves shall be clearly identified.

9.2.7.1.7

Fittings used on outlets of compressed air and inert gas lines shall not be interchangeable, so as to prevent potential explosions caused by inadvertently using compressed air in place of low-pressure inert gas.

9.2.7.1.8

One or more remotely located control stations shall be provided to allow the selective shutdown of process equipment in an emergency.

9.2.7.2 Building Location, Separation, and Segregation.

9.2.7.2.1

A hazards analysis shall be conducted to determine the minimum required separation distance for individual buildings and operations within powder, primary production, melting, recycling, and waste management facilities.

9.2.7.2.2

All buildings used for the processing, packing, or loading for shipment of recyclable materials shall be constructed of noncombustible materials throughout and shall have non-load-bearing walls.

9.2.7.2.3

All penetrations of floors, walls, ceilings, or partitions where combustible dust is present shall be dusttight, and where structural assemblies have a fire resistance rating, the seal shall maintain that rating.

9.2.7.2.4

The annulus of all pipe, conduit, and ventilation penetrations shall be sealed.

9.2.7.2.5

All doors in fire-rated walls and partitions shall be listed, self-closing fire doors installed in accordance with NFPA 80.

9.2.7.3 Building Construction.

9.2.7.3.1 Noncombustible Construction.

9.2.7.3.1.1

Paragraph 9.2.7.3 shall apply to buildings or portions of buildings that are dedicated to the handling, processing, or storage of metal in combustible or molten form.

9.2.7.3.1.2

Buildings dedicated to the storage, handling, processing, or use of combustible metals shall be constructed of noncombustible materials, unless a hazard analysis has been performed that shows that noncombustible construction is not required.

9.2.7.3.1.3

Buildings housing furnaces, boring and crushing facilities, and refining operations shall be constructed of noncombustible materials.

9.2.7.3.1.4

Construction of other than noncombustible materials shall be permitted if equivalent protection can be demonstrated.

9.2.7.3.2 Roofs, Ceilings, and Walls.

9.2.7.3.2.1*

Roof decks shall be watertight.

9.2.7.3.2.2

Roofs of buildings that house combustible metal dust-producing operations shall be supported on girders or structural members designed to minimize surfaces on which dust can collect.

9.2.7.3.2.3

Walls and ceilings shall be constructed with noncombustible insulation that has been tested in accordance with ASTM E136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.*

9.2.7.3.2.4

All walls of areas where fugitive dust can be produced shall have a smooth finish and shall be sealed to leave no interior or exterior voids where dust can infiltrate and accumulate.

9.2.7.3.2.5

The requirements of 9.2.7.3.2.4 shall also apply to elevated platforms, balconies, floors, and gratings.

9.2.7.3.3 Floors and Surfaces.

9.2.7.3.3.1

In areas where combustible metals are stored, handled, or processed, floors shall be a solid surface and shall be constructed with materials that are compatible and nonreactive with the metals in use.

9.2.7.3.3.2

The floor shall be capable of providing containment of molten metals resulting from fire.

9.2.7.3.3.3

Floors, elevated platforms, balconies, and gratings shall be made of ~~a~~ noncombustible hard surfaces ~~,~~ and nonslip materials, and shall be installed with a minimum number of joints in which powder can collect.

9.2.7.3.3.4

Floors in reduction, boring, and crushing buildings shall be made of noncombustible materials, such as concrete, brick, or steel plate.

9.2.7.3.3.5

Aisles shall be provided for maneuverability of material-handling equipment, for accessibility, and to facilitate ~~fire-fighting~~ firefighting operations.

9.2.7.3.3.6

The buildings shall be designed so that all internal surfaces are readily accessible to facilitate cleaning.

9.2.7.3.3.7*

Interior surfaces where dust accumulations can occur shall be designed and constructed (and angled greater than the angle of repose) to facilitate cleaning and to minimize combustible dust accumulation.

9.2.7.4* Ventilation, Heating, and Cooling.

9.2.7.4.1

Where hydrogen generation occurs during the process, ventilation shall be provided for the dissipation of hydrogen to the atmosphere.

9.2.7.4.2

Mechanical ventilation systems shall be designed and installed in accordance with the locally adopted building and fire code.

9.2.7.4.3

Where compatible with metal processing operations, buildings shall be permitted to be heated by indirect hot-air heating systems, by bare-pipe heating systems using steam or hot water as the heat transfer medium, or by listed electric heaters.

9.2.7.4.3.1

Indirect hot air shall be permitted if the heating unit is located in a combustible metal dust-free ~~area~~ location adjacent to the room or area where heated air is required.

9.2.7.4.3.2

Fans or blowers used to convey the heated or cooled air shall be located in a combustible metal dust~~-~~ free location.

9.2.7.4.3.3

The air supply shall be taken from outside or from a location that is free of combustible metal dust.

9.2.7.4.3.4

Make-up air for building heating or cooling shall have a dew point low enough to ensure that no free moisture can condense at any point where the air is in contact with combustible metal dust or powder.

9.2.7.4.3.5

The requirements of 9.2.7.4.3.1 through 9.2.7.4.3.4 shall not apply to areas where metal is melted.

9.2.7.5 Explosion Mitigation/Deflagration Venting.

9.2.7.5.1*

Explosion venting in accordance with NFPA 68 shall be required for all buildings or building areas where combustible metal powders or dusts are present, unless a hazard analysis has been performed that shows that explosion venting is not required.

9.2.7.5.2

In accordance with NFPA 68, deflagration vent closures shall be directed toward a personnel-restricted area, and the vent closure shall be restrained to minimize the missile hazard to personnel and equipment.

9.2.7.5.3*

~~Relief valves~~ Deflagration vents shall not be ~~vented~~ directed to ~~a dust hazard area~~ any indoor area where combustible metal powders or dusts are present in quantities that present a potential fire or explosion hazard .

A.9.2.7.5.3

~~High-momentum discharges from relief valves within buildings can disturb dust layers, creating combustible clouds of dust.~~ For further information ~~on restraining vent closures~~ , see NFPA 68.

9.2.7.5.4

Equipment shall be located or arranged in a manner that minimizes combustible dust accumulation~~s~~ on surfaces.

9.2.7.5.5

Deflagration venting shall not be required for areas where combustible metal powder is stored or moved only in covered or sealed containers.

9.2.7.5.6*

Where buildings or process areas are interconnected by enclosed passageways~~,~~ and there is a deflagration hazard, the passageways shall be designed to prevent propagation of an explosion or fire from one unit to another in accordance with NFPA 68.

9.2.7.6* ~~Electrical Installations~~ Grounding and Bonding .

All process equipment and all building steel shall be bonded and grounded in accordance with *NFPA 70*

A.9.2.7.6

For information on static electricity, see NFPA 77.

~~**9.2.7.6.1** Grounding and Lightning Protection.~~

~~**9.2.7.6.1.1***~~

~~All process equipment and all building steel shall be bonded and grounded in accordance with *NFPA 70* .~~

~~**A.9.2.7.6**~~

~~For information on static electricity, see NFPA 77 .~~

~~**9.2.7.6.1.2**~~

~~All buildings shall be provided with a lightning protection system in accordance with NFPA 780 .~~

~~**9.2.7.6.1.3**~~

~~Lightning protection systems shall not be required for office buildings and buildings that are used for storage and handling of closed containers.~~

9.2.7.7 Drying Rooms.

A hazards analysis shall be performed to determine the proper type of drying ~~used~~ necessary for the specific powders being handled, as well as the specific parameters used for drying.

9.2.8 Additional Facility Design Requirements for Legacy Metals.

9.2.8.1 General.

9.2.8.1.1

Individuals or firms designing facilities and/or equipment for the processing of ~~the~~ specific combustible metal shall be briefed by individual(s) or firm(s) knowledgeable in the specific hazards associated with the manufacturing, handling, processing, and storage of the specific combustible metal and this standard.

9.2.8.1.2

In addition to the requirements of this chapter, buildings shall comply with the applicable provisions of locally adopted building and fire safety codes.

9.2.8.1.3

Where local, state, and national building codes require modifications, such modifications shall be permitted for conformance to these codes ~~and where~~ if a hazard analysis is conducted to ensure the modifications do not create a greater risk.

9.2.8.2 Building Location, Separation, and Segregation.

9.2.8.2.1

Separate buildings shall be required where different operations ~~such as~~ , including, but not limited to, atomization, grinding, crushing, screening, blending, or packaging, are performed.

9.2.8.2.2

More than one operation within the same building shall be permitted if the design provides equivalent protection.

9.2.8.2.3

Different production operations, including drying rooms, shall be located in separate but not adjoining buildings that are located at least 15 m (50 ft) from each other.

9.2.8.2.4

Two buildings less than 15 m (50 ft) apart shall be permitted if the wall facing ~~wall of~~ the exposed building is capable of resisting a blast with a gauge pressure of 13.8 kPa (2.0 psi) and is non-load-bearing, noncombustible, and without openings.

9.2.8.2.5

A ~~C~~ c ombustible metal powder production plant~~s~~ shall be located on a site large enough that the buildings in which powder is manufactured are at least 90.9 m (300 ft) from public roads and from any occupied structure, such as public buildings, dwellings, and business or manufacturing establishments, other than those buildings that are a part of the combustible metal powder production plant.

9.2.8.2.6

Interior walls erected for the purpose of limiting fire spread shall have a minimum 1-hour fire resistance rating and shall be designed in accordance with NFPA 221.

9.2.8.2.7

Sealing of penetrations shall not be required when the penetrated barrier is provided for reasons other than to limit the migration of dusts or to control the spread of fire or explosion.

9.2.8.3 Separation from Water.

9.2.8.3.1

Combustible metal winning, refining, and casting operations shall be protected from rain and ~~from~~ other ~~possibilities~~ possible sources of inadvertent contact with water.

9.2.8.3.2

Water leakage inside or into any building where the water can contact water-reactive combustible metal shall be prevented.

9.2.8.3.3*

Water pipes or pipes that can contain water for uses other than process or production support (e.g., sprinkler piping, domestic water pipes, roof drains, and waste pipes) ~~are~~ shall not be permitted in areas containing combustible metals unless a hazards analysis is performed.

9.2.8.3.4

Piping permitted by 9.2.8.3.3 shall be equipped with an emergency shutoff that is identified and located outside the area.

9.2.8.3.5

Sprinkler systems installed in accordance with NFPA 13 shall be permitted in areas where combustibles other than combustible metals create a more severe hazard than the combustible metals and where acceptable to an authority having jurisdiction that is knowledgeable of the hazards associated with the combustible metal.

Submitter Information Verification

Committee: CMD-CMM

Submittal Date: Mon Nov 09 12:16:43 EST 2020

Committee Statement

Committee Statement: The only Correlating Committee change is in 9.2.7.5.3. This additional text was added based on a Technical Committee ballot comment to clarify the undefined term "dust hazard area".

Committee Comment No. 18-NFPA 484-2020 [Sections 9.2.7, 9.2.8]