Public Input No. 12-NFPA 704-2013 [Global Input]

Global change throughout the document: revise text and requirements to be compatible with new OSHA hazard marking system.

Type your content here ...

Statement of Problem and Substantiation for Public Input

Even though the NFPA 704 hazard identification system has been around for decades, has stood the test of time, and is widely accepted and in use by fire departments across the U.S., OSHA has chosen to go a different direction with their “new” hazard marking system. Since OSHA and NFPA 704 are no longer compatible, this creates a new dilemma for firefighters. Even prior to OSHA’s change, the DOT requirements for markings and NFPA 704 were dissimilar. OSHA’s actions exacerbate the situation by creating a third hazard identification / hazard marking system. This is simply too confusing for first responders and the regulated industry. If nothing is done, certain products will have three different sets of markings – DOT, OSHA, and NFPA 704 – depending on where they are in transportation, stored in packaging or shipping containers, or inside a building.

Submitter Information Verification

Submitter Full Name: Doug Hohbein
Organization: Northcentral Fire Code Develop
Street Address:
City:
State:
Zip:
Submittal Date: Tue Oct 15 16:52:17 EDT 2013

Committee Statement

Resolution: The Committee recognizes there are significant differences between NFPA 704, GHS, OSHA HC 2012 and DOT. These systems serve different purposes. NFPA 704 provides a simple readily recognized and readily understood system of markings that provide a general idea of the hazards of a material and the severity of these hazards as they relate to emergency responders. GHS or HC2012 does not modify the existing NFPA 704. See proposed new Annex G for further information.

Public Input No. 23-NFPA 704-2014 [Global Input]

Revise NFPA 704 to match the OSHA Hazard Communication Standard.

Statement of Problem and Substantiation for Public Input

The danger of two separate standards with very differing methods of communicating the hazard of materials if readily obvious. This creates a significant danger of misunderstanding being communicated to fire fighters, occupants, emergency responders and users of the products.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 17 11:02:48 EDT 2014

Committee Statement

Resolution: The Committee recognizes there are significant differences between NFPA 704, GHS, OSHA HC 2012 and DOT. These systems serve different purposes. NFPA 704 provides a simple readily recognized and readily understood system of markings that provide a general idea of the hazards of a material and the severity of these hazards as they relate to emergency responders. GHS or HC2012 does not modify the existing NFPA 704. See proposed new Annex G for further information.

Public Input No. 25-NFPA 704-2014 [Section No. 2.3.1]

2.3.1 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D 92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, ~~2005~~ **2012B** .

ASTM D 3065, *Standard Test Methods for Flammability of Aerosol Products*, 2006**, reapproved 2013.**

ASTM D 6668, *Standard Test Method for the Discrimination Between Flammibility Ratings of F = 0 and F = 1*, 2006 **, reapproved 2010** .

Statement of Problem and Substantiation for Public Input

Updated to current editions.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 26-NFPA 704-2014 [Chapter G]	

Submitter Information Verification

Submitter Full Name: Aaron Adamczyk
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 10 01:53:03 EDT 2014

Committee Statement

Resolution: FR-1-NFPA 704-2014
Statement: Updated dates to reflect latest edition of ASTM Standards.

Public Input No. 31-NFPA 704-2014 [Section No. 2.3.1]

2.3.1 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D 92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, ~~2005~~ 2012b .

ASTM D 3065, *Standard Test Methods for Flammability of Aerosol Products*, ~~2006~~ 2001(2013)

ASTM D 6668, *Standard Test Method for the Discrimination Between Flammibility Ratings of F = 0 and F = 1*, ~~2006~~ 2001(2010) .

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

Submitter Full Name: Steve Mawn
Organization: ASTM International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:14:43 EDT 2014

Committee Statement

Resolution: FR-1-NFPA 704-2014
Statement: Updated dates to reflect latest edition of ASTM Standards.

Public Input No. 34-NFPA 704-2014 [Section No. 3.3.3]

3.3.3 Fire Point.

The lowest temperature at which a liquid will ignite and achieve sustained burning when exposed to a test flame ~~in accordance with ASTM D 92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester* . [**30,** 2012]~~ (see also 4.4).

Statement of Problem and Substantiation for Public Input

Definitions are not enforceable and cannot contain references to codes, standards or regulations. The reference to ASTM D92 is being placed in the new 4.4.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 35-NFPA 704-2014 [Chapter 4]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 15:17:23 EDT 2014

Committee Statement

Resolution: The committee prefers to retain the extracted definition that currently exists in NFPA 30. Any modification to this definition should be made in NFPA 30 not in NFPA 704 to eliminate having two definitions for the same term. See FR 5.

Public Input No. 35-NFPA 704-2014 [Chapter 4]

Chapter 4 General

4.1 Description.

4.1.1

This system of markings shall identify the hazards of a material in terms of the following three principal categories:

(1) Health

(2) Flammability

(3) Instability

4.1.2

The system shall indicate the degree of severity by a numerical rating that ranges from 4, indicating severe hazard, to 0, indicating minimal hazard.

4.1.3

The information shall be presented by a spatial arrangement of numerical ratings, with the health rating always at the nine o'clock position, the flammability rating always at the twelve o'clock position, and the instability rating always at the three o'clock position.

4.1.4*

Each rating shall be located in a square-on-point field (commonly referred to as a diamond), each of which is assigned a color as follows:

(1) Blue for health hazard

(2) Red for flammability hazard

(3) Yellow for instability hazard

4.1.5

Alternatively, the square-on-point field shall be permitted to be any convenient contrasting color and the numbers themselves shall be permitted to be colored. *(See Figure 9.1(a) through Figure 9.1(c) for examples of the spatial arrangements.)*

4.1.6

The fourth quadrant, at the six o'clock position, shall be reserved for indicating special hazards and shall be in accordance with Chapter 8. No special color is associated with this quadrant.

4.2 Assignment of Ratings.

4.2.1

The hazard evaluation required to determine the correct hazard ratings for a specific material shall be performed by persons who are technically competent and experienced in the interpretation of the hazard criteria set forth in this standard.

4.2.2*

Assignment of ratings shall be based on factors that encompass a knowledge of the inherent hazards of the material, including the extent of change in behavior to be anticipated under conditions of exposure to fire or fire control procedures.

4.2.3

The system shall be based on relative rather than absolute values, requiring that considerable judgment be exercised.

4.2.3.1

Based on professional judgment, the hazard rating shall be permitted to be either increased or decreased to more accurately assess the likely degree of hazard that will be encountered.

4.2.3.2*

It shall be anticipated that different physical forms of the material or conditions of storage and use could result in different ratings being assigned to the same material.

4.2.3.3*

Where more than one chemical is present in a building or specific area, professional judgment shall be exercised to indicate ratings using the following methods:

(1) *Composite Method.* Where many chemicals are present, a single sign shall summarize the maximum ratings contributed by the material(s) in each category and the special hazard category for the building and/or the area.

(2) *Individual Method.* Where only a few chemicals are present or where only a few chemicals are of concern to emergency responders (taking into account factors including physical form, hazard rating, and quantity), individual signs shall be displayed. The chemical name shall be displayed below each sign.

(3) *Composite–Individual Combined Method.* A single sign shall be used to summarize the ratings via the Composite Method for buildings or other areas containing numerous chemicals. Signs based on the Individual Method shall be used for rooms or smaller areas within the building containing small numbers of chemicals.

4.2.3.4*

When mixtures of chemicals are being rated, actual data on the mixture itself shall be used to obtain the ratings for health, flammability, and instability.

4.3* Location of Signs.

Signs shall be in locations approved by the authority having jurisdiction and as a minimum shall be posted at the following locations:

(1) Two exterior walls or enclosures containing a means of access to a building or facility

(2) Each access to a room or area

(3) Each principal means of access to an exterior storage area

4.4 Fire point. The lowest temperature at which a liquid will ignite and achieve sustained burning when exposed to a test flame in accordance with ASTM D92, Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester.

Statement of Problem and Substantiation for Public Input

This is simply being moved from the definitions section.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 34-NFPA 704-2014 [Section No. 3.3.3]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 15:19:14 EDT 2014

Committee Statement

Resolution: The committee prefers to retain the extracted definition that currently exists in NFPA 30. Any modification to this definition should be made in NFPA 30 not in NFPA 704 to eliminate having two definitions for the same term. See FR 5.

Public Input No. 2-NFPA 704-2013 [Section No. 5.2 [Excluding any Sub-Sections]]

NOTE: This proposal appeared as Comment 704-3 (Log #CC1) which was held from the A11 ROC on Proposal 704-8.

The degrees of health hazard shall be ranked according to the probable severity of the effects of exposure to emergency response personnel detailed in Table 5.2.

Table 5.2 Degrees of Health Hazards

Degree of Hazard*	Criteria†
4 — Materials that, under emergency conditions, can be lethal	Gases whose LC_{50} for acute inhalation toxicity is less than or equal to 1000 parts per million (ppm) Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than 10 times its LC_{50} for acute inhalation toxicity, if its LC_{50} is less than or equal to 1000 ppm Dusts and mists whose LC_{50} for acute inhalation toxicity is less than or equal to 0.5 milligram per liter (mg/L) Materials whose LD_{50} for acute dermal toxicity is less than or equal to 40 milligrams per kilogram (mg/kg) Materials whose LD_{50} for acute oral toxicity is less than or equal to 5 mg/kg
3 — Materials that, under emergency conditions, can cause serious or permanent injury	Gases whose LC_{50} for acute inhalation toxicity is greater than 1000 ppm but less than or equal to 3000 ppm Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than its LC_{50} for acute inhalation toxicity, if its LC_{50} is less than or equal to 3000 ppm, and that does not meet the criteria for degree of hazard 4 Dusts and mists whose LC_{50} for acute inhalation toxicity is greater than 0.5 mg/L but less than or equal to 2 mg/L Materials whose LD_{50} for acute dermal toxicity is greater than 40 mg/kg but less than or equal to 200 mg/kg Materials that are corrosive to the respiratory tract Materials that are corrosive to the eye or cause irreversible corneal opacity Materials that are corrosive to skin Cryogenic fluids that cause frostbite and irreversible tissue damage Compressed liquefied gases ~~with boiling points at or below -55°C (-66.5°F)~~ that cause frostbite and irreversible tissue damage Materials whose LD_{50} for acute oral toxicity is greater than 5 mg/kg but less than or equal to 50 mg/kg
2 — Materials that, under emergency conditions, can cause temporary incapacitation or residual injury	Gases whose LC_{50} for acute inhalation toxicity is greater than 3000 ppm but less than or equal to 5000 ppm Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC_{50} for acute inhalation toxicity, if its LC_{50} is less than or equal to

Degree of Hazard*	Criteria†	
	5000 ppm, and that does not meet the criteria for either degree of hazard 3 or degree of hazard 4	
	Dusts and mists whose LC_{50} for acute inhalation toxicity is greater than 2 mg/L but less than or equal to 10 mg/L	
	Materials whose LD_{50} for acute dermal toxicity is greater than 200 mg/kg but less than or equal to 1000 mg/kg	
	~~Compressed liquefied gases with boiling points between -30°C (-22°F) and -55°C (-66.5°F) that can cause severe tissue damage on contact, depending on duration of exposure~~	Materials that are respiratory irritants
	Materials that cause severe but reversible irritation to the eyes or lacrimators	
	Materials that are primary skin irritants or sensitizers	
	Materials whose LD_{50} for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg	
1 — Materials that, under emergency conditions, can cause significant irritation	Gases and vapors whose LC_{50} for acute inhalation toxicity is greater than 5000 ppm but less than or equal to 10,000 ppm	
	Dusts and mists whose LC_{50} for acute inhalation toxicity is greater than 10 mg/L but less than or equal to 200 mg/L	
	Materials whose LD_{50} for acute dermal toxicity is greater than 1000 mg/kg but less than or equal to 2000 mg/kg	
	Materials that cause slight to moderate irritation to the respiratory tract, eyes, and skin	
	Materials whose LD_{50} for acute oral toxicity is greater than 500 mg/kg but less than or equal to 2000 mg/kg	
0 — Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials	Gases and vapors whose LC_{50} for acute inhalation toxicity is greater than 10,000 ppm	
	Dusts and mists whose LC_{50} for acute inhalation toxicity is greater than 200 mg/L	
	Materials whose LD_{50} for acute dermal toxicity is greater than 2000 mg/kg	
	Materials whose LD_{50} for acute oral toxicity is greater than 2000 mg/kg	
	Materials that are essentially nonirritating to the respiratory tract, eyes, and skin	

*For each degree of hazard, the criteria are listed in a priority order based on the likelihood of exposure.

†See Section B.3 for definitions of LC_{50} and LD_{50}.

Additional Proposed Changes

File Name	Description	Approved
704_PI_2_Held_Comment_704-3_TC_CLA-AAA_.pdf	Held Comment 704-3	

Statement of Problem and Substantiation for Public Input

In the 2011 revision cycle, the committee reviewed the substantiating data used to develop the subject text in the Annual 2001 Report on Proposals. The substantiating data indicates that materials having boiling points between -30 C and -55 C cause freezing to exposed flesh within 1 minute, whereas materials having boiling points less than -55 C cause freezing to exposed flesh within 30 seconds. The difference in duration of exposure between 30 seconds and 1 minute was deemed meaningless in the context of the duration of an emergency response. Therefore, the committee believed that this better meets the intent of degree of hazard 3, and has modified the language accordingly.
However, in reviewing Annual 2011 comment Log #2, the committee recognized that time duration may be a factor in the physical hazard related to frostbite or tissue damage when dealing with the release of compressed liquefied gas. In addition, the reference in ACGIH booklet appears to refer to the environmental hazard of cold temperature and wind chill, not the hazard presented by the chemical release. The committee needs to review the reference material in more detail to better understand how it applies to the release of compressed liquefied gases.

Submitter Information Verification

Submitter Full Name: TC on CLA-AAA
Organization: TC on Classification and Properties of Hazardous Chemical Data
Street Address:
City:
State:
Zip:
Submittal Date: Fri May 24 09:54:43 EDT 2013

Committee Statement

Resolution: The Committee reconsidered and in the absence of more definitive data is retaining the current text as written.

704-3 Log #CC1 **Final Action: Hold**
(Table 5.2)

Submitter: Technical Committee on Classification and Properties of Hazardous Chemical Data
Comment on Proposal No: 704-8
Recommendation: Revise text to read:

Table 5.2 Hazard 3:

Compressed liquefied gases ~~with boiling points at or below -55 C (-66.5 F)~~ that cause frostbite and irreversible tissue damage.

Table 5.2 Hazard 2:

~~Compressed liquefied gases with boiling points between -30 C (-22 F) and -55 C (-66.5 F) that can cause severe tissue damage, depending on duration of exposure.~~

Substantiation: In the 2011 revision cycle, the committee reviewed the substantiating data used to develop the subject text in the Annual 2001 Report on Proposals. The substantiating data indicates that materials having boiling points between -30 C and -55 C cause freezing to exposed flesh within 1 minute, whereas materials having boiling points less than -55 C cause freezing to exposed flesh within 30 seconds. The difference in duration of exposure between 30 seconds and 1 minute was deemed meaningless in the context of the duration of an emergency response. Therefore, the committee believed that this better meets the intent of degree of hazard 3, and has modified the language accordingly.

However, in reviewing Annual 2011 comment Log #2, the committee recognized that time duration may be a factor in the physical hazard related to frostbite or tissue damage when dealing with the release of compressed liquefied gas. In addition, the reference in ACGIH booklet appears to refer to the environmental hazard of cold temperature and wind chill, not the hazard presented by the chemical release. The committee needs to review the reference material in more detail to better understand how it applies to the release of compressed liquefied gases.

Committee Meeting Action: Hold
Number Eligible to Vote: 13
Ballot Results: Affirmative: 10
Ballot Not Returned: 3 Edwards, L., Peterson, D., Satterfield, III, W.

Public Input No. 16-NFPA 704-2014 [Section No. 8.2.4]

8.2.4 *

Materials that are simple asphyxiant gases shall be permitted to be identified with the letters “SA” and shall be limited to the following gases: nitrogen, helium, neon, argon, krypton, ~~and~~ carbon dioxide and xenon.

Statement of Problem and Substantiation for Public Input

I the past few years their has been event that Carbon dioxide has cause death or injury due to the leakig of CO2 from berevage system. These location include Phoenix, AZ and another city in GA.

The CGA has issued a safety alaert alert SA - 22 - 2011 POTENTIAL OF CARBONATED BEVERAGE SYSTEMS TO CREATE
A LIFE-THREATENING ENVIRONMENT.

Addtional CO2 is now being used for swimming pools to control PH and even in large referginrantion system.

BY adding this new text fire fihgters safety will increase.

Submitter Information Verification

Submitter Full Name: Joe McElvaney
Organization: Phoenix Fire Department
Street Address:
City:
State:
Zip:
Submittal Date: Fri Feb 07 14:28:07 EST 2014

Committee Statement

Resolution: FR-7-NFPA 704-2014

Statement: In the past few years their have been evens in Pooler GA and Phoenix AZ where carbon dioxide has caused death or injury due to the leaking of CO2 from beverage system. Eighty employees were also injured at a food processing facility in Vallejo CA.

The CGA has issued a safety alert alert SA - 22 - 2011 POTENTIAL OF CARBONATED BEVERAGE SYSTEMS TO CREATE A LIFE-THREATENING ENVIRONMENT. CO2 is now being used for swimming pools to control PH and even in large refrigeration systems.

The Committee recognized that CO2 is not a simple asphyxiant by the definition in NFPA 704. However there are several sources that identify CO2 as a simple asphyxiant including NIOSH. The committee recognizes that CO2 can be an asphyxiant at elevated levels. There is currently no warning for this type of asphyxiation hazard in NFPA 704. The Committee decided that while technically CO2 is not a simple asphyxiant, adding an SA warning for emergency responders would provide the needed protection for this hazard.

References for CO2 as an asphyxiant include:

http://www.cdc.gov/niosh/docs/81-123/pdfs/0103.pdf

http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/cfodocs/howell.Par.2800.File.dat/25apxC.pdf

Public Input No. 26-NFPA 704-2014 [Chapter G]

Annex G Informational References

G.1 Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

G.1.1 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 30, *Flammable and Combustible Liquids Code*, 2012 ~~edition~~ .

NFPA 68, *Standard on Explosion Protection by Deflagration Venting*, ~~2007 edition~~ **2013** .

NFPA 400, *Hazardous Materials Code*, ~~2010 edition~~ **2013 with 2014 errata** .

NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, ~~2006 edition~~ **2012** .

NFPA 664, *Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities*, 2012 ~~edition~~ **with 2013 errata** .

Fire Protection Guide to Hazardous Materials, ~~13th edition, 2002~~ **2010** .

G.1.2 Other Publications.

G.1.2.1 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D 56, *Standard Method of Test for Flash Point by the Tag Closed Tester*, 2005**, reapproved 2010** .

ASTM D 86, *Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure*, ~~2009~~ **2012** .

ASTM D 93, *Test Methods for Flash Point by the Pensky-Martens Closed Tester*, ~~2008~~ **2013 with 2014 errata** .

ASTM D 2879, *Standard Test Method for Vapor Pressure–Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope*, ~~1997~~ **2010** .

ASTM D 3278, *Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus*, 1996, ~~reaffirmed 2004~~ **reapproved 2011** .

ASTM D 3828, *Standard Test Method for Flash Point by Small Scale Closed Tester*, ~~2009~~ **2012A** .

ASTM E 537, *Standard Test Method for Assessing the Thermal Stability of Chemicals by Methods of Differential Thermal Analysis*, ~~2007~~ **2012** .

ASTM E 698, *Standard Test Method for Arrhenius Kinetic Constants for Thermally Unstable Materials*, ~~2004~~ **2011** .

ASTM E 1226, *Test Method for Pressure and Rate of Pressure Rise for Combustible Dusts*, ~~2005~~ **2012A** .

ASTM E 1515, *Standard Test Method for Minimum Explosible Concentration of Combustible Dusts*, 2007.

ASTM E 1981, *Guide for Assessing the Thermal Stability of Materials by Methods of Accelerating Rate Calorimetry*, ~~1998~~ **2013e2** .

Test Method E 502, *Standard Test Method for Selection and Use of ASTM Standards for the Determination of Flash Point of Chemicals by Closed Cup Methods*, 2007**, reapproved 2013** .

G.1.2.2 UN Publications.

United Nations, UN Plaza, New York, NY 10017.

Recommendations on the Transport of Dangerous Goods, 4th revised edition.

G.1.2.3 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Federal Register, “Notice of Final Rule,” Vol. 50, p. 41092 et seq., October 8, 1985.

Federal Register, “Notice of Proposed Rulemaking,” Vol. 50, p. 5270 et seq., February 7, 1985.

G.1.2.4 Other Publications.

Bretherick, L., *Handbook of Reactive Chemicals*, ~~6th~~ **7th** edition, Boston: Butterworths, ~~1999~~ **2006** .

Britton, L. G., “Survey of Fire Hazard Classification Systems for Liquids,” *Process Safety Progress*, Vol. 18, No. 4, Winter, 1999.

Hanley, B., “A Model for the Calculation and the Verification of Closed Cup Flash Points for Multicomponent Mixtures,” *Process Safety Progress*, Summer 1998, pp. 86–97.

Hofelich, T. C., “A Quantitative Approach to Determination of NFPA Reactivity Hazard Rating Parameters,” *Process Safety Progress*, Vol. 16, No. 3, p. 121, 1997.

Hofelich, T. C., D. J. Frurip, and J. B. Powers, “The Determination of Compatibility via Thermal Analysis and Mathematical Modeling,” *Process Safety Progress*, Vol. 13, No 4. pp. 227–233, 1994.

Laidler, K. L., *Chemical Kinetics*, Chapter 3, New York: McGraw-Hill, 1965.

American Coatings Association, *Hazardous Materials Identification System Revised, Implementation Manual*, 1981.

Stull, D. R., “Fundamentals of Fire and Explosion,” AIChE Monograph Series, No. 10, Vol. 73, 1977.

G.2 Informational References.

ASTM D 235, *Standard Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)*, 2002**, reapproved 2012** .

ASTM D 6668, *Standard Test Method for the Discrimination Between Flammability Ratings of F = 0 and F = 1*, ~~2006~~ **2001, reapproved 2010** .

G.3 References for Extracts in Informational Sections. (Reserved)

Statement of Problem and Substantiation for Public Input

Referenced new editions.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 25-NFPA 704-2014 [Section No. 2.3.1]	New editions referenced.

Submitter Information Verification

Submitter Full Name: Aaron Adamczyk
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 10 16:05:46 EDT 2014

Committee Statement

Resolution: FR-3-NFPA 704-2014
Statement: Referenced new editions. Removed references no longer in Annex. Added references for materials added to annex.

Public Input No. 32-NFPA 704-2014 [Section No. G.1.2.1]

G.1.2.1 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D 56, *Standard Method of Test for Flash Point by the Tag Closed Tester*, 2005(2010) .

ASTM D 86, *Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure*, ~~2009~~ 2012 .

ASTM D 93, *Test Methods for Flash Point by the Pensky-Martens Closed Tester*, ~~2008~~ 2013e1 .

ASTM D 2879, *Standard Test Method for Vapor Pressure–Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope*, ~~1997~~ 2010 .

ASTM D 3278, *Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus*, 1996, reaffirmed ~~2004~~ 2011 .

ASTM D 3828, *Standard Test Method for Flash Point by Small Scale Closed Tester*, ~~2009~~ 2012a .

ASTM E 537, *Standard Test Method for Assessing the Thermal Stability of Chemicals by Methods of Differential Thermal Analysis*, ~~2007~~ 2012 .

ASTM E 698, *Standard Test Method for Arrhenius Kinetic Constants for Thermally Unstable Materials*, ~~2004~~ 2011 .

ASTM E 1226, *Test Method for Pressure and Rate of Pressure Rise for Combustible Dusts*, ~~2005~~ 2012a .

ASTM E 1515, *Standard Test Method for Minimum Explosible Concentration of Combustible Dusts*, 2007.

ASTM E 1981, *Guide for Assessing the Thermal Stability of Materials by Methods of Accelerating Rate Calorimetry*, ~~1998~~ 98(2012)e2 .

Test Method E 502, *Standard Test Method for Selection and Use of ASTM Standards for the Determination of Flash Point of Chemicals by Closed Cup Methods*, ~~2007~~ 07(2013) .

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

Submitter Full Name: Steve Mawn
Organization: ASTM International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:16:33 EDT 2014

Committee Statement

Resolution: FR-3-NFPA 704-2014
Statement: Referenced new editions. Removed references no longer in Annex. Added references for materials added to annex.

Public Input No. 33-NFPA 704-2014 [Section No. G.2]

G.2 Informational References.

ASTM D 235, *Standard Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)*, ~~2002~~ 02(2012) .

ASTM D 6668, *Standard Test Method for the Discrimination Between Flammability Ratings of F = 0 and F = 1*, ~~2006~~ 01(2010) .

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

Submitter Full Name: Steve Mawn
Organization: ASTM International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:24:28 EDT 2014

Committee Statement

Resolution: FR-3-NFPA 704-2014
Statement: Referenced new editions. Removed references no longer in Annex. Added references for materials added to annex.