Public Input No. 16-NFPA 2113-2012 [ Global Input ]

Revise the title of this standard to:
Standard on Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Short Duration Thermal Exposures from Fire

Statement of Problem and Substantiation for Public Input

This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. The potential fires that exist can be in the form of pressurized flammable line breaks (jet fires), flammable liquid spills (pool fires), fireballs (from Boiling Liquid Expanding Vapor Explosions or flammable material container BLEVE), and combustible dusts. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The title of this standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:33:31 EDT 2012

Committee Statement

Resolution: FR-7-NFPA 2113-2012
Statement: This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The title of this standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").
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Public Input No. 1-NFPA 2113-2012 [ Chapter NFPA ]

NOTE: This proposal appeared as Comment 2113-31 (Log #37) which was held from the A11 ROC on Proposal 2113-17.

New text to read as follows:
(x) Visibility characteristics of fabric

Statement of Problem and Substantiation for Public Input

Some garments may employ visibility materials (fluorescent or retroreflective) for enhancement of worker visibility under daytime or nighttime conditions.

Submitter Information Verification

Submitter Full Name: Jeffrey Stull
Organization: International Personnel Protec
Submittal Date: Thu Mar 29 11:03:33 EDT 2012

Committee Statement

Resolution: Visibility is addressed in 4.3.7.

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NOTE: This proposal appeared as Comment 2113-11 (Log #CC1) which was held from the A11 ROC on Proposal 2113-1.

Revise title to read as follows:
Standard on Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire.

Statement of Problem and Substantiation for Public Input

The TC reversed its ROP action by accepting 2113-4 (Log #1). However, the TC recognizes that further consideration should be given to changing the title of the document to better reflect the scope as modified by the committee in this cycle.

Submitter Information Verification

Submitter Full Name: TC on FLG-AAA
Organization: NFPA
Submittal Date: Thu Mar 29 12:32:45 EDT 2012

Committee Statement

Resolution: FR-7-NFPA 2113-2012
Statement: This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The title of this standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").

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4.1 General. The organization’s selection process for flame-resistant garments shall be based on the following:

(1) The conduct of a hazard assessment and risk assessment of the workplace to determine the need for the wearing of flame-resistant garments

4.3 Risk Assessment (to be completed by task group)

Renumber subsequent sections.

3.3.x Risk assessment. An assessment of the likelihood, vulnerability, and magnitude of incidents that could result from exposure to hazards. [1250]

Statement of Problem and Substantiation for Public Input

The TC believes that it would greatly benefit users and manufacturers to include a risk assessment in addition to the existing hazard assessment. The committee has assigned a task group to work on this issue prior to the next revision cycle. The scope of the task group is to develop risk assessment requirements similar to what is provided for hazard assessment, and to provide annex material including, but not limited to a sample risk assessment.

Submitter Information Verification

Submitter Full Name: TC on FLG-AAA
Organization: NFPA
Submittal Date: Thu Mar 29 12:34:01 EDT 2012

Committee Statement

Resolution: The Committee does not want to make risk assessment mandatory, see FR-3 for new section on risk assessment. Refer to FR-2 for new definition of risk assessment.
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1.1.1*
This standard shall specify the minimum selection, care, use, and maintenance requirements for flame-resistant garments for use by industrial personnel in areas at risk from flash fires or short-duration flame exposure, thermal exposures from industrial fires, that are compliant with NFPA 2112, Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire.

Statement of Problem and Substantiation for Public Input

This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. The potential fires that exist can be in the form of pressurized flammable line breaks (jet fires), flammable liquid spills (pool fires), fireballs (from Boiling Liquid Expanding Vapor Explosions or flammable material container BLEVE), and combustible dusts. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 16:36:35 EDT 2012

Committee Statement

Statement: This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The scope of this standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").
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Public Input No. 7-NFPA 2113-2012 [ New Section after 3.3.13 ]

3.3.x Fire. A rapid oxidation process, which is a chemical reaction resulting in the evolution of light and heat in varying intensities. [921, 2008]

Statement of Problem and Substantiation for Public Input

A definition of fire is missing from this standard (which offers guidance for the selection of appropriate PPE against this hazard). In addition, the definition offered for Flash Fire (3.3.16) is actually a fire subclass which requires a definition for fire if it is retained in the standard (a separate ROP is in place for deleting the Flash Fire definition).

Submitter Information Verification

Submitter Full Name: Roger Parry
Organizations: DuPont
Submittal Date: Tue Jun 19 15:46:37 EDT 2012

Committee Statement

Resolution: FR-9-NFPA 2113-2012
Statement: A definition of fire is missing from this standard (which offers guidance for the selection of appropriate PPE against this hazard).

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Sections 3.3.15, 3.3.16

3.3.15* Flame Resistance.
The property of a material whereby flaming combustion is prevented, terminated, or inhibited following the application of a flaming or nonflaming source of ignition, with or without subsequent removal of the ignition source.

3.3.16* Flash Fire.
A fire that spreads rapidly, typically lasting three seconds or less, through a diffuse fuel, such as dust, gas, or the vapors of an ignitable liquid, without the production of damaging pressure. [921, 2008]

Statement of Problem and Substantiation for Public Input

Addition of "Flaming" better defines the type of combustion controlled.

Limiting the time involved provides a true definition of a "flash fire." Fires lasting longer than three seconds are not a flash fire and would provide more extensive protective garments.

Submitter Information Verification

Submitter Full Name: DARREN HEWSTON CSP
Organization: PXP
Submittal Date: Tue Jun 12 08:28:55 EDT 2012

Committee Statement

Resolution: Combustion can occur flaming or non-flaming. The existing definition is accurate, adding in the duration of 3 seconds or less is not technically correct.

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Public Input No. 12-NFPA 2113-2012 [ Section No. 3.3.16 ]

3.3.16 *Flash Fire.*
A fire that spreads rapidly through a diffuse fuel, such as dust, gas, or the vapors of an ignitible liquid, without the production of damaging pressure. [921, 2008] Delete this definition from the standard

Statement of Problem and Substantiation for Public Input

This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. The potential fires that exist can be in the form of pressurized flammable line breaks (jet fires), flammable liquid spills (pool fires), fireballs (from Boiling Liquid Expanding Vapor Explosions or flammable material container BLEVE), and combustible dusts. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires"). As such, a definition specific to "Flash Fires" is not required.

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:08:35 EDT 2012

Committee Statement

Resolution: The Committee believes that the term flash fire is an important term in this standard and NFPA 2112. The term flash fire is used in the scope of this standard and provides consistencies with other safety regulations to help the user better understand a flash fire.
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Public Input No. 17-NFPA 2113-2012 [New Section after 3.3.31]

3.3.x Risk. A measure of human injury, economic loss, or environmental damage expressed as a combination of the probability of occurrence and the severity of the consequences.

Statement of Problem and Substantiation for Public Input

The proposed definition supports the addition of "Risk Assessment" language in Chapter 4 to addresses the technical committees desire to include this topic in the standard (linked to another ROP item from this submitter).

Related Public Inputs for This Document

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<td>Public Input No. 8-NFPA 2113-2012 [New Section after 3.3.31]</td>
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</table>

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:41:24 EDT 2012

Committee Statement

Resolution: FR-1-NFPA 2113-2012
Statement: The standard uses the term risk and the Committee determined that there should be a definition within the standard. The Committee considered the submitter's definition, but believed it is not relevant to the scope of the standard or the context in which the term risked is used. The Committee extracted the definition from NFPA 79, Electrical Standard for Industrial Machinery, as a relevant definition of risk that applies to this standard.

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3.3.x Risk Assessment. The process by which an organization develops a comprehensive quantitative or qualitative evaluation of the probability and severity of human injury, economic loss, and/or environmental damage from identified hazards for the implementation of preventative measures.

Statement of Problem and Substantiation for Public Input

The proposed definition supports the addition of "Risk Assessment" language in Chapter 4 to addresses the technical committees desire to include this topic in the standard (linked to another ROP item from this submitter).

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 15:55:35 EDT 2012

Committee Statement

Resolution: FR-2-NFPA 2113-2012
Statement: The definition supports the addition of "Risk Assessment" language in Chapter 4 to addresses the Committee's desire to include this topic in the standard, see FR-3-NFPA 2113-2012.

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4.2* Workplace Hazard Assessment.

4.2.1 The organization shall conduct a hazard assessment of the work environment to determine the requirement for wearing flame-resistant garments.

4.2.2 The hazard assessment shall be performed based on a review of the facility to determine if flammable materials are present in quantities that will present a fire hazard and risk of a flash fire and endanger a person.

4.2.3* The general workplace hazard assessment process shall include consideration of the following:

(1) Determination of the type of hazard, risks, or hazards, risks present in the workplace and the potential magnitude and duration of the hazard.

(2) Determination of the adverse effects of unprotected exposure to the hazards, risk(s) identified.

(3) Determination of whether other control options (engineering, administrative, and so forth) can be used instead of flame-resistant garments.

(4) Determination of garment performance characteristics needed for protection.

(5) Determination of the need for garment decontamination where applicable.

(6) Determination of ergonomic constraints, human factor (ergonomic, atmospheric, etc.) constraints, of work to be performed while wearing the garment.

(7) Comparison of risks and costs of all options.

(8) Implementation of selected option(s).

4.2.4* A specific evaluation of the work environment to determine the requirement for the wearing of flame-resistant garments shall be based on the potential hazards, risks, that workers are exposed to as part of their work duties.

4.2.5* Factors in determining if flame-resistant garments are required shall include, but not be limited to, the following:

(1) * Proximity of the work to be performed to a fire hazard, risk of flash fire.

(2) The presence of flammable materials in the environment during process operations.

(3) The potential for the task being performed to increase the possibility of a flammable materials release, which could result from a mechanical failure such as a line breaking.
Operating conditions of the process, for example, the potential for uncontrolled release of flammable fumes or vapors

The presence of engineering controls designed to reduce exposure to flammable materials present during normal operations.

Accident history

Means and duration of egress within potential exposure zone (e.g., location and distance to exits, potential congestion, elevated or restricted areas, connections to lifelines/fall protection, capability of workers to escape).

4.2.6 * The initial review of a facility shall determine if flammable materials are present in quantities necessary to present a fire hazard and endanger a person.

4.2.7 The organization shall reassess the hazard assessment at least every 5 years, or when a significant change is made to the work environment, to verify that the requirements for wearing flame-resistant garments or the levels of protection required have not changed.

Statement of Problem and Substantiation for Public Input

Hazards are Risks that have been realized. Do not want to work in an area where there are hazards for fire. Use Flash Fire in place of Fire to limit the scope to the document title Decontamination is not part of the workplace risk assessment. It needs to be addressed, but not here.

Submitter Information Verification

Submitter Full Name: DARREN HEWSTON CSP
Organization: PXP
Submittal Date: Tue Jun 12 09:44:21 EDT 2012

Committee Statement

Resolution: The submitter is changing hazard to risk, the committee disagrees with this change, as hazard analysis and risk assessment are different. The committee addresses risk assessment in FR-3. 4.2.3(5) Garment decontamination is important in the work place hazard analysis and the committee believes that it should remain in the standard. 4.2.5(4) The recommended change does not add clarity, it limits the current statement to just uncontrolled release of flammable fumes and vapors.

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4.2.3*

The general workplace hazard assessment process shall include consideration of the following:

(1) Determination of the type of hazard or hazards present in the workplace and the potential magnitude and, thermal intensity and, duration of the hazard

(2) Determination of the adverse effects of unprotected exposure to the hazards identified

(3) Determination of whether other control options (engineering, administrative, and so forth) can be used instead of flame-resistant garments

(4) Determination of garment performance characteristics needed for protection

(5) Determination of the need for garment decontamination where applicable

(6) Determination of ergonomic constraints of work to be performed while wearing the garment

(7) Comparison of risks and costs of all options

(8) Implementation of selected option(s)

Statement of Problem and Substantiation for Public Input

The magnitude and duration alone do not account for all the variables that will impact how a worker is affected by an exposure. The magnitude (size) and duration (exposure time) along with the intensity better assesses how much total thermal exposure an individual will experience. Depending on the type of fuel, the amount of oxygen, etc. the thermal intensity of the exposure will vary and the protection level requirements for the protective clothing will also vary.

Submitter Information Verification

Submitter Full Name: Mark Saner
Organization: Workrite Uniform Company, Inc.
Submittal Date: Wed May 30 13:12:09 EDT 2012

Committee Statement
Resolution: FR-17-NFPA 2113-2012

Statement: The Committee believes that hazard analysis is a more appropriate term than hazard assessment in the context of this standard and is more consistent with industry terminology. The Committee added in thermal intensity as part of the hazard analysis. The magnitude and duration alone do not account for all the variables that will impact how a worker is affected by an exposure. The magnitude (size) and duration (exposure time) along with the intensity better assesses how much total thermal exposure an individual will experience. Depending on the type of fuel, the amount of oxygen, etc. the thermal intensity of the exposure will vary and the protection level requirements for the protective clothing will also vary.

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4.2.8 A comprehensive fire risk assessment shall be permitted to be used in combination with a fire hazard assessment for the purpose of evaluating the work environment for protection strategies and the management of flame resistant garment use. This risk assessment shall consider the nature of potential fire related injuries in the work environment, likelihood of these injuries occurring, and the time period over which these injuries might be expected. The generation of geographic or work location based risk contours, showing the expected frequency of a fire event capable of causing a specified level of injury at specified locations, shall be permitted to be used in conjunction with the fire hazard consequence analysis to assess the implementation of specific engineered and administrative preventative measures and the selection of appropriate flame resistant PPE.

Statement of Problem and Substantiation for Public Input

The proposed text supports the addition of "Risk Assessment" language to the standard to addresses the technical committees desire to include this topic in the next edition. The new text is worded such that the implementation of a risk assessment is optional, but if executed identifies general features that should be utilized in industrial risk calculations. The inclusion of a risk ranking matrix (Likelihood of Occurrence with Safeguards versus Severity of Consequences without Safeguards) was not included here for the purpose of brevity. However, a reference to an appropriate literature resource may be appropriate for inclusion in the explanatory material of Annex A (e.g., Guidelines for Chemical Process Quantitative Risk Assessment, Center for Chemical Process Safety of the AIChE, 2000) Currently, I'm aware of no prescriptive regulatory risk assessment requirements that are required for industrial facilities.

Related Public Inputs for This Document

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<tr>
<td>Public Input No. 8-NFPA 2113-2012 [New Section after 3.3.31]</td>
<td>Definition for the topic identified in this new text addition</td>
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Submitter Information Verification

Submitter Full Name: Roger Parry  
Organization: DuPont  
Submittal Date: Tue Jun 19 16:02:35 EDT 2012

Committee Statement

Resolution: FR-3-NFPA 2113-2012  
Statement: The addition of "Risk Assessment" language to the standard addresses the Committees desire to include this topic into this edition. The new text is worded such that the implementation of a risk assessment is optional, but if executed identifies general features that should be utilized in industrial risk calculations. The Committee added in references to an appropriate literature resource in the annex.
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A.1.1.1
The use of garments providing protection against flash fires—short duration thermal exposures from fire—should be incorporated into a proper safety program that also utilizes appropriate administrative and engineering controls in addition to proper, safe work procedures.

Flame-resistant garments are available from a variety of manufacturers, in a range of items (coveralls, pants, shirts, vests, parkas, rainwear, disposable garments, aprons, etc.). Flame-resistant garments are made out of a variety of either inherently flame-resistant fabrics or fabrics that have been treated with a flame retardant.

NFPA 2112–compliant clothing is intended to reduce the probability and extent of burn injury during exposure or escape.

Statement of Problem and Substantiation for Public Input

This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. The potential fires that exist can be in the form of pressurized flammable line breaks (jet fires), flammable liquid spills (pool fires), fireballs (from Boiling Liquid Expanding Vapor Explosions or flammable material container BLEVE), and combustible dusts. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:05:00 EDT 2012

Committee Statement
Resolution: FR-10-NFPA 2113-2012

Statement: This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires").

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A.3.3.16 Flash Fire.——

A flash fire requires an ignition source and a hydrocarbon or an atmosphere containing combustible, finely divided particles (e.g., coal dust or grain), having a concentration greater than the lower explosive limit of the chemical. Both hydrocarbon and dust flash fires generate temperatures from 538°C to 1038°C (1000°F to 1900°F). The intensity of a flash fire depends on the size of the gas or vapor cloud. When ignited, the flame front expands outward in the form of a fireball. The resulting effect of the fireball’s energy with respect to radiant heat significantly enlarges the hazard areas around the gas released. Additional information describing flash fires is provided in Assessing Flame-Resistant Clothing Use, CMA Manager’s Guide.

Delete this section

Statement of Problem and Substantiation for Public Input

This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. The potential fires that exist can be in the form of pressurized flammable line breaks (jet fires), flammable liquid spills (pool fires), fireballs (from Boiling Liquid Expanding Vapor Explosions or flammable material container BLEVE), and combustible dusts. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). The standard is better served by identifying thermal exposures to fire, which encompasses all of the noted hazards and fits with the established scope, rather than singling out a specific fire type (as in the case of "Flash Fires"). As such, a discussion of this definition (which I am proposing to be removed in another ROP) is not needed.

Related Public Inputs for This Document

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Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:14:32 EDT 2012

Committee Statement

Resolution: FR-11-NFPA 2113-2012
Statement: The Committee corrected the technical details in the annex for the definition of flash fire.
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A.4.2.3
These hazards include, but are not limited to, the following:
(1) Exposure to flash flames and intense radiant energy from fires
(2) Generation of static electricity on garments or other personal protective equipment (PPE) worn by workers
(3) Physical hazards
(4) Person-position hazards (work near waterways, on elevated platforms, or near roadways)
(5) Hazards created by the wearing of PPE

Also, the hazard classification of the work area needs to be determined, for example, chemical, electrical, or explosion.

Statement of Problem and Substantiation for Public Input

This standard is about the selection, care, use, and maintenance of PPE for protection of industrial personnel from short duration thermal exposures from industrial fires, not from a specific type of fire. "Flash Fires" or more properly vapor cloud fires, are a very small subset of actual fire types experienced in industrial environments with fire hazards. The potential fires that exist can be in the form of pressurized flammable line breaks (jet fires), flammable liquid spills (pool fires), fireballs (from Boiling Liquid Expanding Vapor Explosions or flammable material container BLEVE), and combustible dusts. Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). This explanatory section is better served by expressing the hazard as an exposure to flames or intense radiant energy.

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:18:12 EDT 2012

Committee Statement

Resolution: FR-12-NFPA 2113-2012
Statement: Actual thermal exposures can be in the form of full or partial flame contact or engulfment and/or exposure to the radiant and convective energy from a fire's flame emissive power (e.g., when a worker is not in contact with the flames but is escaping the hazard). This explanatory section is better served by expressing the hazard as an exposure to flames or intense radiant energy.
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Public Input No. 15-NFPA 2113-2012 [ Section No. A.4.2.5(1) ]

A.4.2.5(1) Short-duration flame exposures can arise from other numerous fire types in industrial environments. These fires include, but are not limited to, vapor cloud fires, jet flames fires, liquid fires (pool fires or running liquid fires), solids fires (fires of solid materials or dust fires), and fires associated with oxygen. Short duration thermal exposures can also arise from the radiant energy generated by these fires (radiated by the flame front).

Statement of Problem and Substantiation for Public Input

A short duration thermal exposure can come from both flame contact / engulfment and radiant energy (emitted by the fire's flame front). The corrected text makes this clarification (and places vapor cloud fires into perspective within the standard).

Submitter Information Verification

Submitter Full Name: Roger Parry
Organization: DuPont
Submittal Date: Tue Jun 19 17:23:20 EDT 2012

Committee Statement

Resolution: FR-13-NFPA 2113-2012
Statement: A short duration thermal exposure can come from both flame contact / engulfment and radiant energy (emitted by the fire's flame front). The corrected text makes this clarification (and places vapor cloud fires into perspective within the standard).

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