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SAND2012-3873 C



Future Impact of the FHA to the Fire Protection Program

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SNL/NM Fire Marshal

Hazardous Materials

- Control areas
 - Building Level
 - Multiple Control Areas
- Number of allowable control areas decreases as floor height increases
- Maximum Allowable Quantities (MAQs) decrease as floor height increases
- MAQs vary based on state (storage vs. in use)
- MAQ increases (e.g., automatic sprinkler systems, flammable liquid storage cabinets, gas cabinets)

IBL Control Areas

- 3 control areas (2 interior & 1 exterior gas storage)
- One POC for entire building – 27,854 sq ft
- Posted Signage with MAQs for single Chemical Storage Room
- Easy to generate reports



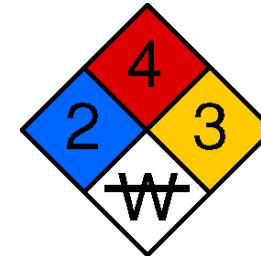
Chemical Information System (CIS)



- 29,000+ Unique Chemicals
 - 29,000+ Material Safety Data Sheets (MSDS)
 - 32,000,000+ lbs of material
 - 162,000+ containers
- Classified per NFPA 704 Hazard Rating System
- MAQ evaluations were *tedious!!!*

Fire Code Classification

- IFC (2012), Table F101.2



Hazard Category	NFPA 704 Designation
Highly Toxic	H4
Flammable Gas	F4
Pyrophoric Gas	F4
Explosive	R4
Organic Peroxide, UD	R4
Unstable Reactive, 4D	R4
Unstable Reactive, 3D	R4

Previous Method of Evaluation

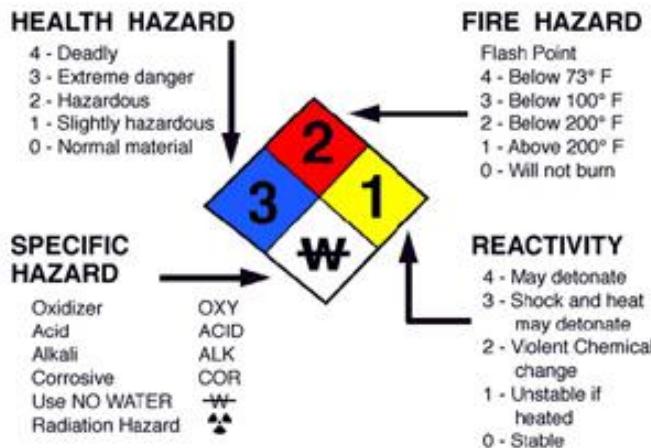
CIS

NFPA 704 Hazard Rating System

CIS Query: Bldg X, Reactivity 4

Total Quantity (Solid): 0.4 lb

Total Quantity (Liq): 4 lbs



Fire Codes

Material	MAQ (Storage ²)
Organic	Solid ³ - 1 lb
Peroxide	Liq ³ - 1 lb
(Unclassified) ¹	Gas - N/A
Unstable	Solid ³ - 1 lb
Reactive	Liq ³ - 1 lb
(Class 4) ¹	Gas ³ - 10 ft ³
Unstable	Solid ^{3,4} - 5 lbs
Reactive	Liq ^{3,4} - 5 lbs
(Class 3)	Gas ^{3,4} - 50 ft ³

¹ Permitted only in sprinklered facilities

² Quantities differ for use (open/closed)

³ MAQs increase if stored in approved cabinets

⁴ MAQs increase if stored in sprinklered facilities

- 1) Evaluate MSDS
- 2) Determine fire code classification
- 3) Determine if MAQ is exceeded
- 4) Address any issues

MAQ Tool

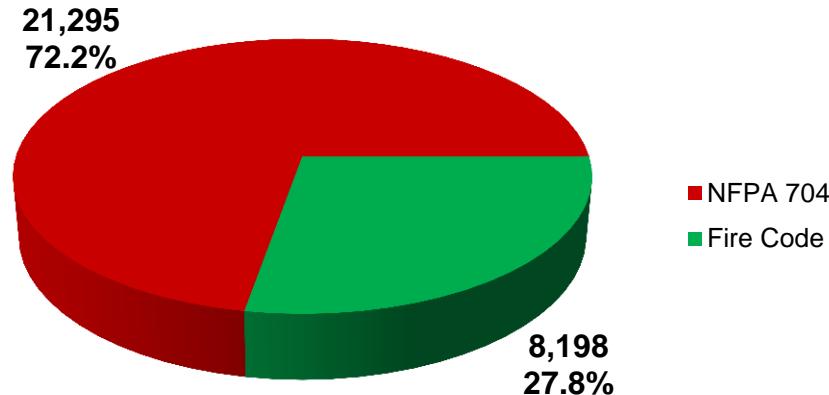
- Developed with Corporate support
- FPE & ES&H Coordinators have access to perform evaluations
- Pulls data from CIS
- Rolls up quantities per the Fire Code Classifications
- Flags areas that are over or approaching the MAQ
 - Considers increases for sprinkler systems
- Assumes one control area per building
- Notifies Managers, ES&H, and Chemical Owners
- Records data from Chemical Owners
 - Disposition (e.g., CIS reconciled, chemical disposed of, chemical stored in approved cabinets, etc)
- Evaluations are performed in minutes vs. days
- Is continuously improving

Fire Code Classification Efforts

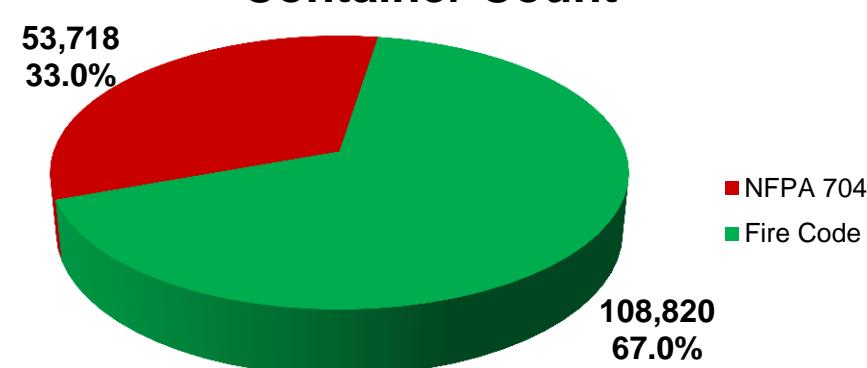
- How have other sites addressed this issue?
- NFPA 704 Hazard Rating R4
- Fire Protection Assessment Schedule
 - NFPA 704 Hazard Rating 3 and 4
 - NFPA 704 Hazard Rating 1 and 2
- MSDS
 - Mixtures
- HMEx Assistant
- WWW

Fire Code Classification Progress

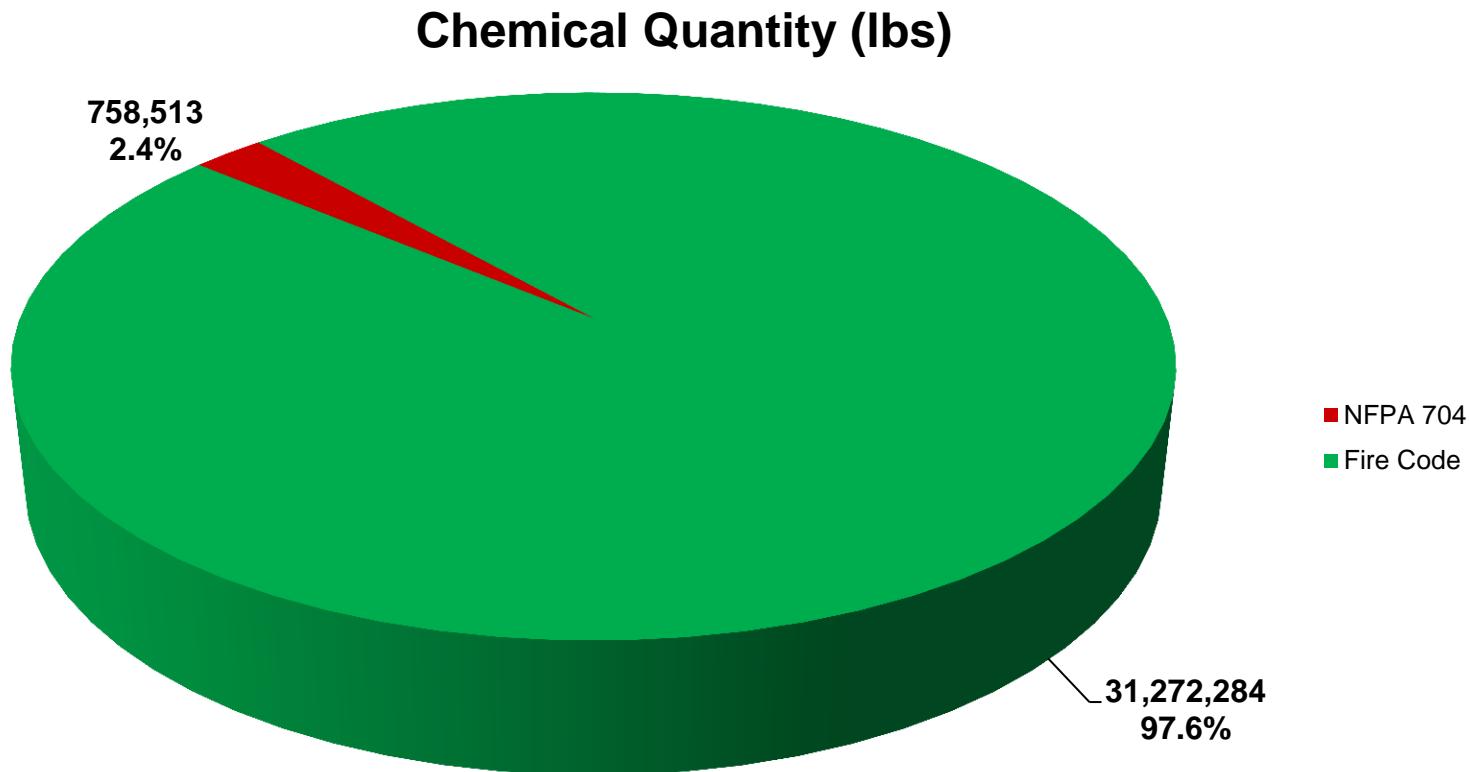
MSDS Count



Container Count



Fire Code Classification Progress



MAQ Tool

Building and Fire Safety MAQ Hazardous Materials



Welcome to the Hazardous Materials Maximum Allowable Quantities (MAQ) Assessment Site.

Site SNL/NM SNL/CA SNL/NV

Building

NFPA Code

Fire Code Class

Physical State Solid Liquid Gas Aerosol

[help](#)

Get Started

- [MAQ Rollup Tool](#)
- [Evaluations](#)
- [Administrative MAQs](#)
- [MAQ Process Flow Chart](#)
- [MAQ FAQs](#)

Contacts

- [Julie Cordero](#)
- [Laura Draelos](#)

Resources

- [Building and Fire Safety Home](#)
- [Chemical Inventory System \(CIS\)](#)
- [Lab Safety: A Fire Protection Perspective](#)
- [Division ES&H Coordinators](#)
- [Center ES&H Coordinators](#)

MAQ Tool

Building and Fire Safety, HAZMAT, MAQ Assessment - Windows Internet Explorer All

File Edit View Favorites Tools Help

Favorites Suggested Sites Web Slice Gallery CCHD

Building and Fire Safety, HAZMAT, M...

Building and Fire Safety MAQ H...

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- Laura Draelos

Welcome to the Hazardous Materials Assessment Questionnaire (MAQ) tool. This tool is designed to help you evaluate the potential hazards of materials stored or used in your facility. The MAQ is divided into several categories:

- Site**
- Building**
- NFPA Code**
- Fire Code Class**
- Physical State**

For each category, you will be asked a series of questions to determine the hazard classification of the material. The results will be used to generate a hazard profile for the material.

Submit help

No Classification

Combustible Materials -- Class II Liquid

Combustible Materials -- Class IIIA Liquid

Combustible Materials -- Class IIIB Liquid

Combustible Materials -- Combustible Dust

Corrosive Materials -- Gases

Corrosive Materials -- Liquids

Corrosive Materials -- Solids

Explosive Materials -- Yes

Flammable Materials -- Class IA Liquid

Flammable Materials -- Class IB Liquid

Flammable Materials -- Class IC Liquid

Flammable Materials -- Gas

Flammable Materials -- Liquefied

Flammable Materials -- Solid

Highly Toxic Materials -- Gases

Highly Toxic Materials -- Liquids

Highly Toxic Materials -- Solids

Organic Peroxides -- Liquids Class I

Organic Peroxides -- Liquids Class II

Organic Peroxides -- Liquids Class III

Organic Peroxides -- Liquids Class IV

Organic Peroxides -- Solids Class I

Organic Peroxides -- Solids Class II

Organic Peroxides -- Solids Class III

Organic Peroxides -- Solids Class IV

Oxidizing Materials -- Gases

Oxidizing Materials -- Liquids Class 1

Oxidizing Materials -- Liquids Class 2

Building and Fire Safety, HAZMAT, MAQ Assessment - Windows Internet Explorer All

File Edit View Favorites Tools Help

Favorites Suggested Sites Web Slice Gallery CCHD

Building and Fire Safety, HAZMAT, M...

SNL Index

SNL Index

Page Safety Tools

Q) Assessment Site.

MAQ Tool

Building and Fire Safety MAQ Hazardous Materials



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[Building and Fire Safety Home](#)[Chemical Inventory System \(CIS\)](#)

Site:	SNL/NM
NFPA Codes:	All
Fire Code Class:	Flammable -- Gas
Physical States:	Solid, Liquid/Aerosol, Gas
Assessed By:	Julie V Cordero
Date of Assessment:	2012-05-04

-  Building is over their MAQ limit
-  Building is within 80% of their MAQ limit
-  Building has a sprinkler system
- Chemical Fire Code Class is TBD
- none Chemical has no Fire Code Class

 Show all

Bldg	State	Rolled Up Qty	MAQ	Fire Code Class	Comments	Details
	Gas	334.78 CUFT	2000 CU. FT	 Flammable -- Gas	<input type="button" value="Select no-notification reason"/> <input type="button" value="Show"/>	<input type="button" value="Export Details"/>
					<input type="checkbox"/> Notify All	<input type="button" value="Evaluate"/>

MAQ Tool

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Center ES&H Coordinators

MAQs for R4 Hazard Rating

MAQs for H4 Hazard Rating

MAQs for F4 Hazard Rating

Show all

Bldg	State	Rolled Up Qty	MAQ	Fire Code Class	Comments	Details		
720	Gas	334.78 CUFT	2000 CU. FT 	Flammable -- Gas	Select no-notification reason	<input type="button" value="Hide"/> <input type="button" value="Export Details"/> <input type="button" value="Evaluate"/>		
					<input type="checkbox"/> Notify All			
SUMMARY								
Fire Code Class					Total Qty			
flammable - Gas					334.78 CUFT			
DETAILS								
Location	FP Rolled Up Qty	Purchase Date	Name	Fire Code Class	Health	Fire	Reactivity	Special
AQ00019550	McWatters, Bruce Ray	<input checked="" type="checkbox"/> DO NOT NOTIFY						
NM/720	200.00 CUFT	04/25/1995	NITROGEN (10%)/HYDROGEN (BAL)	flammable - Gas	1	0	0	N
AQ00636696	Perry, Daniel Lee	<input checked="" type="checkbox"/> DO NOT NOTIFY						
NM/720	25.43 CUFT	08/22/2007	ETHYLENE	flammable - Gas	2	4	2	U
AQ00727357	Perry, Daniel Lee	<input checked="" type="checkbox"/> DO NOT NOTIFY						
NM/720	20.00 CUFT	09/24/2009	HYDROGEN	flammable - Gas	1	4	0	U

MAQ Tool

Building and Fire Safety MAQ Hazardous Materials



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Site:	SNL/NM
NFPA Codes:	All
Fire Code Class:	Flammable -- Class IA Liquid
Physical States:	Solid, Liquid/Aerosol, Gas
Assessed By:	Julie V Cordero
Date of Assessment:	2012-05-08

- Building is over their MAQ limit
- Building is within 80% of their MAQ limit
-  Building has a sprinkler system
- Chemical Fire Code Class is TBD
- none Chemical has no Fire Code Class

 Show all

Bldg	State	Rolled Up Qty	MAQ	Fire Code Class	Comments	Details
	Liquid/Aerosol	24.37 GAL 243.7 LBS	300 LBS	Flammable -- Class IA Liquid	<input style="width: 100%; height: 100%;" type="button" value="Select no-notification reason"/>	<input style="width: 100px; height: 100px;" type="button" value="Show"/> <input style="width: 100px; height: 100px;" type="button" value="Export Details"/>
						<input type="checkbox"/> Notify All <input style="width: 100px; height: 100px;" type="button" value="Evaluate"/>

Future MAQ Tool Enhancements



- Summarized reports for Managers & ES&H Coordinators
 - Prior to notifying lab owners
- Printer friendly reports
- Rolled up quantities based on control areas

Secretary of Energy Achievement Award for IBL



Questions

