

Chemical Pre-Procurement Tool

ChemPro

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Outline

- **Chemical Management History**
 - Chemical Information System (CIS)
 - MAQ Tool
- **ChemPro**
 - Overview
 - Process
 - Requirements Development
 - Fire Protection Review & Approval
 - Possible Solutions for Denied Requests
 - Metrics
 - Other Challenges
 - Projected End State

Chemical Management History

- Chemical Information System (CIS):
 - Inventory and barcoding
 - 29,971 unique Safety Data Sheets (SDS's) in use
 - 130,859 containers
 - 150+ Regulatory Reports (e.g., Safety, Environmental, Fire Protection, etc.)
 - Notification system
 - Captures Fire Code Classification data (e.g., flammable gas, pyrophoric, etc.)
 - Previously only NFPA 704 hazard information was captured
 - Quantities of each fire code classification can be summed

CIS Search



Fire Protection Report search


Site: ☒ SNL/NM ☐ SNL/CA ☐ SNL/NV ☐ SNL/HI ☐ SNL/CB
Building: ☐ Exact (eg. 962, 96)
Room: ☐ Exact (eg. 284 would be room 284, 2 second floor)
Bin: ☐ Exact (eg. 3A4, SHEDB1, DOCK)
Organization: ☐ Exact (eg. 7, 85, 102681, 01123)
(For organization numbers less than 2000, please enter a leading zero.)

Combustible materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> No <input type="checkbox"/> Class II Liquid <input type="checkbox"/> Class IIIA Liquid <input type="checkbox"/> Class IIIB Liquid <input type="checkbox"/> Combustible Dust
Corrosive materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Gases <input type="checkbox"/> Liquids <input type="checkbox"/> Solids <input type="checkbox"/> No
Explosive materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Yes <input type="checkbox"/> No
Flammable materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input checked="" type="checkbox"/> No <input type="checkbox"/> Gas <input type="checkbox"/> Solid <input type="checkbox"/> Class IA Liquid <input type="checkbox"/> Class IB Liquid <input type="checkbox"/> Class IC Liquid <input type="checkbox"/> Liquefied
Toxic materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Gases <input type="checkbox"/> Liquids <input type="checkbox"/> Solids <input type="checkbox"/> No
Oxidizing materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Gases <input type="checkbox"/> Liquids Class 4 <input type="checkbox"/> Liquids Class 3 <input type="checkbox"/> Liquids Class 2 <input type="checkbox"/> Liquids Class 1 <input type="checkbox"/> Solids Class 4 <input type="checkbox"/> Solids Class 3 <input type="checkbox"/> Solids Class 2 <input type="checkbox"/> Solids Class 1 <input type="checkbox"/> No
Organic peroxides:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Liquids Class V <input type="checkbox"/> Liquids Class IV <input type="checkbox"/> Liquids Class III <input type="checkbox"/> Liquids Class II <input type="checkbox"/> Liquids Class I <input type="checkbox"/> Solids Class V <input type="checkbox"/> Solids Class IV <input type="checkbox"/> Solids Class III <input type="checkbox"/> Solids Class II <input type="checkbox"/> Solids Class I <input type="checkbox"/> Unclassified Detonatable <input type="checkbox"/> No
Pyrophoric materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Gases <input type="checkbox"/> Liquids <input type="checkbox"/> Solids <input type="checkbox"/> No
Highly Toxic materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Gases <input type="checkbox"/> Liquids <input type="checkbox"/> Solids <input type="checkbox"/> No
Unstable (reactive) materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Liquids Class 4 <input type="checkbox"/> Liquids Class 3 <input type="checkbox"/> Liquids Class 2 <input type="checkbox"/> Liquids Class 1 <input type="checkbox"/> Solids Class 4 <input type="checkbox"/> Solids Class 3 <input type="checkbox"/> Solids Class 2 <input type="checkbox"/> Solids Class 1 <input type="checkbox"/> No <input type="checkbox"/> Reactive Gas I <input type="checkbox"/> Reactive Gas II <input type="checkbox"/> Reactive Gas III <input type="checkbox"/> Reactive Gas IV
Water-reactive materials:	<input type="checkbox"/> All <input type="checkbox"/> Unknown <input type="checkbox"/> Liquids Class 3 <input type="checkbox"/> Liquids Class 2 <input type="checkbox"/> Liquids Class 1 <input type="checkbox"/> Solids Class 3 <input type="checkbox"/> Solids Class 2 <input type="checkbox"/> Solids Class 1 <input type="checkbox"/> No

Report Type: ☒ Individual Containers ☐ Totals
Group By: ☒ Location ☐ Room ☐ Building ☐ Site ☐ Organization
Physical State: ☒ Solid ☒ Liquid ☒ Gas ☒ Aerosol



CIS Search Results



Barcode	Location	Org.	Container Label Quantity	Emergency Management Report Quantity	Fire Protection Rollup Quantity	Purchase Date	Physical State	Name	Health	Fire	React	Special	Combustible	Explosive	Corrosive	Flammable
AQ00185286	NM	01815	50.0 L	0.2 LBS	1.8 CUFT	07/07/2005	Gas	CARBON MONOXIDE	0	4	0	N/A	No	No	No	Gas
AQ00159575	NM	01815	5.0 CUFT	< 0.1 LBS	5.0 CUFT	11/10/1997	Gas	HYDROGEN	0	4	0	N/A	No	No	No	Gas
AQ00972775	NM	01815	255.0 CUFT	27.3 LBS	255.0 CUFT	12/19/2014	Gas	HYDROGEN (4%)/ARGON (BAL)	0	4	0	N/A	No	No	No	Gas
AQ00340290	NM	01831	254.0 CUFT	26.9 LBS	254.0 CUFT	12/15/2000	Gas	HYDROGEN (5%)/ARGON (BAL)	1	4	0	N/A	No	No	No	Gas
AQ00787023	NM	01833	197.0 CUFT	1.1 LBS	197.0 CUFT	09/14/2010	Gas	HYDROGEN	0	4	0	N/A	No	No	No	Gas
AQ00416667	NM	01852	200.0 GR	0.4 LBS	3.5 CUFT	10/31/2002	Gas	2-BUTENE	0	4	0	U	No	No	No	Gas
AQ00869256	NM	01852	1.9 CUFT	< 0.1 LBS	1.9 CUFT	03/09/2012	Gas	CARBON DIOXIDE (10%)/METHANE (10%)/ARGON (2.4%)/HELIUM (BAL)	0	4	0	N/A	No	No	No	Gas

Chemical Management History (con't)



- MAQ (Maximum Allowable Quantity) Tool:
 - Developed in 2011
 - **Helps** identify buildings that are exceeding the MAQ (or appear to be)
 - **Helps** identify buildings that are approaching the MAQ (or appear to be)
 - **Sums** quantities of hazardous materials and compares to MAQs
 - **Interfaces** with CIS
- Baseline Assumptions in MAQ Tool (carried over into ChemPro):
 - Buildings with automatic sprinkler protection qualify for an increase (doubling) in some MAQ categories
 - Hazardous Materials Storage Cabinets are used site-wide for Liquids and Solids, thus qualify for an increase (doubling) in some MAQ categories; this is NOT the assumption for Gases
 - Each building is a single control area
 - Only a few SNL buildings contain multiple control areas
 - Capability to sum by control area will soon be available

MAQ Tool Search

Building and Fire Safety MAQ Hazardous Materials

Get Started

- MAQ Rollup Tool
- Evaluations
- Administrative MAQs
- MAQ Process Flow Chart
- MAQ FAQs

Contacts

- Julie Cordero
- Laura Draelos

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

Site ☒ SNL/NM ☐ SNL/CA ☐ SNL/NV ☐ SNL/HI ☐ SNL/CB

Building

Room Number


NFPA Code

Fire Code Class

Physical State ☒ Solid ☒ Liquid ☒ Gas ☒ Aerosol

[help](#)

MAQ Tool Search Results

Bldg	State	Rolled Up Qty	MAQ	Fire Code Class	Comments	Details			
	Gas	445.00 CUFT (55.51 LBS)	2000 CU FT 	Flammable - Gas	Select no-notification reason ▼ <div></div>	<div>Hide</div> Managers and Coordinators Export Details			
					<input type="checkbox"/> Notify All	<div>Evaluate</div>			
SUMMARY									
Fire Code Class					Total Qty				
flammable - Gas					445.00 CUFT (55.51 LBS)				
unstable reactive - Reactive Gas II					445.00 CUFT (55.51 LBS)				
DETAILS									
Location	FP Rolled Up Qty	Purchase Date	Name	Fire Code Class	Health	Fire	Reactivity	Special	
AQ00157546 .. <input checked="" type="checkbox"/> DO NOT NOTIFY									
NM, ..	80.00 CUFT (9.98 LBS)	09/19/1997	ACETYLENE	flammable - Gas, unstable reactive - Reactive Gas II	0	4	2	N	
AQ00378359 .. <input checked="" type="checkbox"/> DO NOT NOTIFY									
NM/ ..	75.00 CUFT (9.36 LBS)	03/08/2002	ACETYLENE	flammable - Gas, unstable reactive - Reactive Gas II	0	4	2	N	
AQ00971053 .. <input checked="" type="checkbox"/> DO NOT NOTIFY									
NM, ..	40.00 CUFT (4.99 LBS)	08/05/2014	ACETYLENE	flammable - Gas, unstable reactive - Reactive Gas II	0	4	2	N	

ChemPro

- Purchasing storefront application launched Oct 2014:
 - ~1 ½ years to develop
 - Module with CIS
 - **Establishes** a control point for the purchase of chemicals
 - **Helps** ensure compliance with numerous federal, state, local, and corporate requirements (Fire Protection, Industrial Hygiene, Air Quality Control, Emergency Management, and Safety Basis)
 - **Reduces** corporate liability
 - **Improves** chemical management and material accountability
 - **Protects** human health and the environment
 - **Interfaces** with the MAQ Tool

ChemPro Process

- A chemical request is submitted
 - Some requests provide notification only while others require review/approval
- Subject Matter Experts review & approve (if needed)
 - Industrial Hygiene
 - Air Quality Control
 - Emergency Management
 - Safety Basis
 - Fire Protection
- A Chemical Approval Number (CAN) is issued OR the request is denied
 - If a CAN is issued, the chemical purchase can proceed
 - Denied requests do NOT receive a CAN
 - SME's provide comments to requester and possible solutions

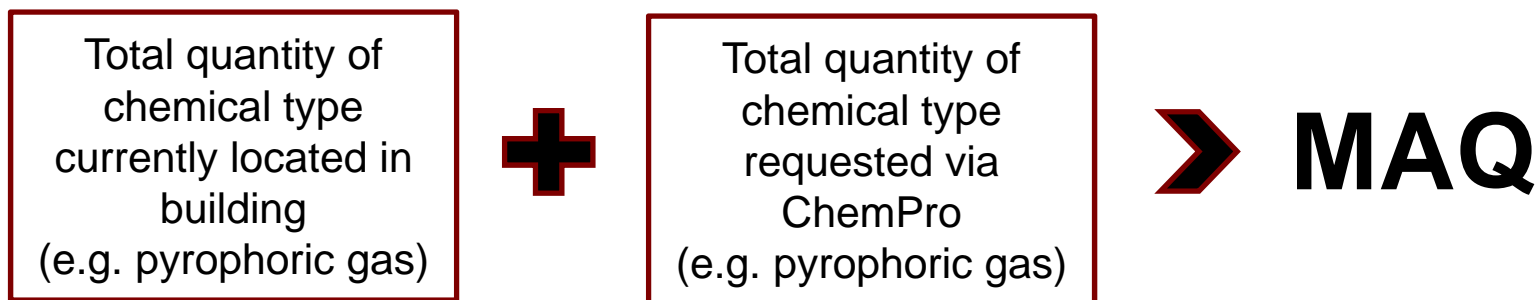
ChemPro

- Requirements Development
 - Industrial Hygiene
 - High Risk/Toxic Gases, Peroxide formers, controlled substances, ethanol, Bio
 - Air Quality Control
 - Class 1 Ozone Depleting Substances, Hazardous Air Pollutants (HAP), SF6 new users (to determine if use is allowable)
 - Emergency Management
 - Emergency Planning Hazard Assessment (EPHA) threshold monitoring of NFPA 704 Hazard 3 and 4
 - Safety Basis
 - Highly Toxics, HI Process Safety Management (PSM)

ChemPro – Fire Protection Review & Approval



- MSDS has not been classified for chemical with an NFPA 704 Hazard Rating of 3 or 4
 - Fire Protection will classify the MSDS
- Class 1 Flammable Liquid requested for a basement
 - Fire Protection will evaluate per IBC vs. NFPA requirements
- MAQ appears to be exceeded
 - Fire Protection will evaluate based on control areas, hazardous materials storage cabinets, location, etc.



Fire Protection Engineering has a goal of a 2-day turn-around for ChemPro reviews

Possible Solutions for Denied Requests



- Perform chemical reconciliation
- Dispose of excess chemicals
- Purchase gas cabinets
- Purchase hazardous materials storage cabinets/transportainers
- Share other building storage locations
- Purchase gas mixtures in lower concentrations (below the flammability threshold)
- Purchase containers of smaller quantity
- Reconstitute fire barriers

All actions may require involvement from multiple Orgs, not only the Org that is requesting the new chemical purchase

ChemPro Metrics

- Metrics are used to monitor fire protection performance (FY15: Q1 and Q2)
 - >2700 Chemical Requests submitted
 - >350 Routed to Fire Protection for Approval
 - Control area additions to CIS and the MAQ Tool will reduce this number

ChemPro – Other Challenges

- Air Quality
 - Requester selects old SDS
 - Prompt new request with updated SDS
- Automatic approval
 - Requester does not select SDS and bypasses system
 - These automatic approvals are now being monitored

What is the Risk?

- How far out of compliance is SNL with regard to MAQs?
 - Unknown
 - **No immediate risk to life safety has been discovered thus far, but the potential does exist**
- Mitigation includes:
 - Fire alarms
 - Sprinkler protection in most facilities
 - Annual evacuation drills
 - Emergency pre-fire plans
 - Periodic inspection, testing and maintenance of fire protection systems
 - Line PHS process
 - Line work planning and controls
 - Engineered controls (e.g., flammable storage, ventilation, inert atmospheres, etc)
 - Dispersed locations of hazardous materials within a building
 - Periodic building assessments

Projected End State

- Process and tools to efficiently and effectively manage safety and compliance
 - Integrated tool(s) that includes moves, procurement & waste processes
 - ChemPro addresses procurement
 - MAQ Tool addresses current state (captures moves after the fact)
 - Moves (real-time) and waste are still a gap
 - Life Cycle Material Management Team solution is in-progress
 - Improved configuration management of control area boundaries

Questions

???

Thank you!
