

Laboratory databases: Applications in safety programming

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Safety Advisor
Environmental Health and Safety
Columbia university

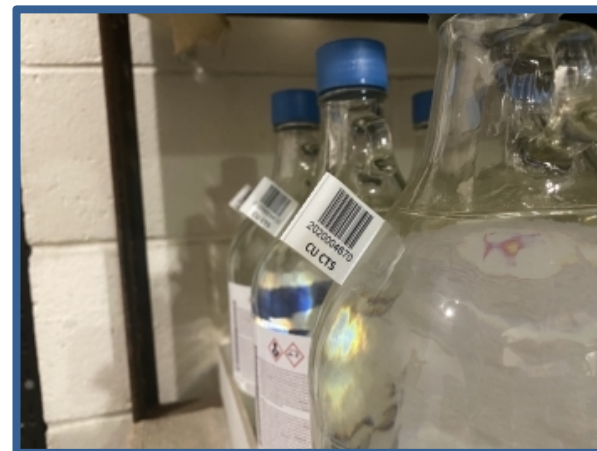
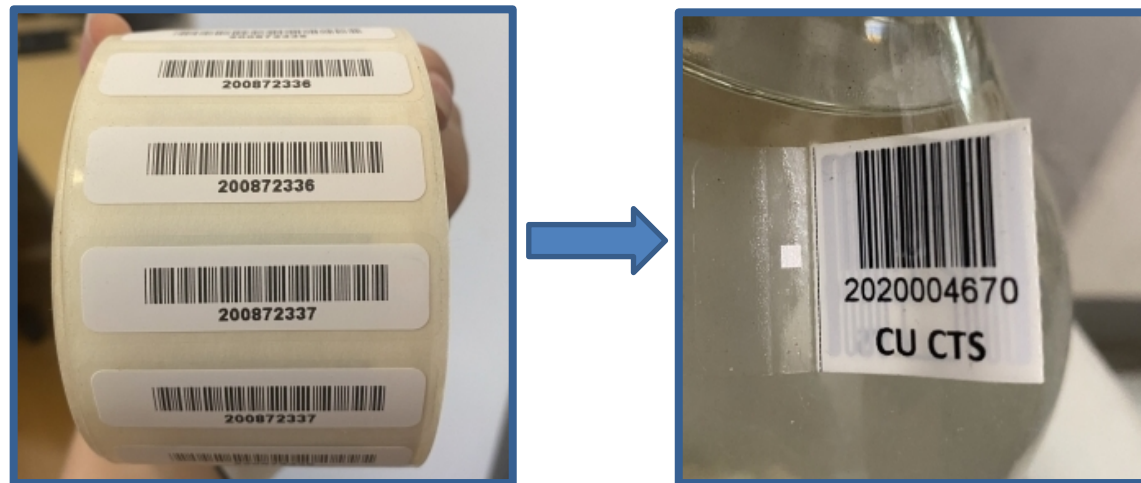
Databases surround us



Central chemical inventory system

Advantages

- Chemical containers delivered to receiving offices
- Opened, examined, RFID tagged, inventoried
- Picked up or delivered directly to the lab



Our system

Chemical Containers

Find Individual or Group
Search



Displaying 1 - 50 of 72899 results

Research Management

ChemTracker

- » Add Inventory
- » Bulk Edit
- » Chemical Containers
- » Reconciliation History
- » Group Inventories
- » Totals
- » Reports

Research Tools

Chemical Name: <input type="text" value="Chemical Name"/>	CAS Number: <input type="text" value="CAS Number"/>	Chemical Synonym: <input type="text" value="Chemical Synonym"/>
Group Name: <input type="text" value="Select one"/>	Building: <input type="text" value="Select one"/>	Spaces: <input type="text" value="Select one"/>
Physical State: <input type="text" value="Select one"/>	Department/Unit: <input type="text" value="Select one"/>	Site/Campus: <input type="text" value="Select one"/>
Last Updated After: <input type="text" value="Last Updated After"/>	Last Updated Before: <input type="text" value="Last Updated Before"/>	Product Name: <input type="text" value="Product Name"/>
Container Expires After: <input type="text" value="Container Expires After"/>	Container Expires Before: <input type="text" value="Container Expires Before"/>	

Chemical Name ↑	CAS Number ↑	State ↑	Amount ↑	Units ↑	Location ↑	Container ID ↑
Lead(II) iodide	10101-63-0	Solid	25	g	Havemeyer - 117G	2019018688
Lead(II) iodide	10101-63-0	Solid	25	g	CEPSR - 10LE1	2018003605
Lead(II) iodide	10101-63-0	Solid	50	g	Havemeyer Extension - 501	2019007413
Lead(II) iodide	10101-63-0	Solid	50	g	Chandler - 768	2019019619
Lead(II) iodide	10101-63-0	Solid	50	g	NWC - 1308	2020018024
Lead(II) iodide	10101-63-0	Solid	50	g	Havemeyer Extension - 501	2019007390
Lead(II) iodide	10101-63-0	Solid	5	g	Havemeyer Extension - 304	2018001915
Lead(II) iodide	10101-63-0	Solid	50	g	S.W. Mudd - 1028	2019019225

Group Name:

Undergraduate Lab ✕

Chemical Hazards:

17 Pyrophoric ✕

Storage Group:

Select one

A: Compatible Organic Bases

B: Compatible Pyrophoric & Water Reactive Materials

C: Compatible Inorganic Bases

D: Compatible Organic Acids

E: Compatible Oxidizers including Peroxides

F: Compatible Inorganic Acids not including Oxidizers or Combustibles

G: Not Intrinsically Reactive or Flammable or Combustible

I: Compatible Strong, Oxidizing Acids

J: Poison Compressed Gases

K: Compatible Explosive or other highly Unstable Materials

L: Non-Reactive Flammables and Combustibles, including solvents

U: Storage group unknown, no data available

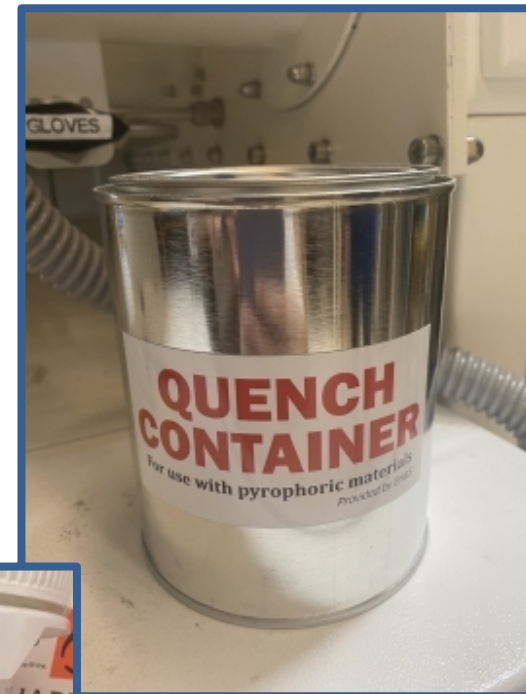
X: Incompatible with ALL other storage groups

ChemTracker based programs

Hydrofluoric Acid

Perchloric Acid

Pyrophoric Materials



ChemTracker based programs

Peroxide formers



**NEW YORK CITY FIRE CODE REQUIRES
THIS CHEMICAL BE TESTED FOR
EXPLOSIVE PEROXIDES.**

**TEST WHEN FIRST OPENED, AND SIX
MONTHS AFTER OPENING.
CHEMICAL MUST BE DISPOSED WHEN
THE FIRST OF THREE OPTIONS OCCUR:**

- A) TEST FAILS ($>10\text{mg/L H}_2\text{O}_2$), OR —
- B) MANUFACTURER EXPIRATION DATE
- C) ONE YEAR AFTER OPENING

DATE RECEIVED: _____
DATE OPENED: _____
DATE TESTED: _____
DATE EXPIRED: _____

[https://research.columbia.edu/content/
managing-peroxide-forming-chemicals](https://research.columbia.edu/content/managing-peroxide-forming-chemicals)

Dear Prof &&&

I hope you are well. I wanted to reach out to you, regarding the peroxide formers that are present in your lab. Because these chemicals can readily form peroxides upon exposure to air and thus present fire and explosion hazards, the New York City Fire Department (FDNY) regulates their storage and handling.

This e-mail is a reminder to review your inventory of peroxide-forming chemicals below and ensure that any OPEN containers be checked ([recommended test strips](#)) for peroxides 6 months after opening and disposed of 12 months after opening, in accordance with FDNY requirements. Please submit any containers older than 12 months or containers in which peroxides have been detected, using the [hazardous waste pick-up request form](#).

Label the peroxide-formers' containers with the following dates, according to the FDNY and Columbia University policies:

1. Date received
2. Date opened
3. Date tested
4. Date expired

If you have tested the opened containers, disposed of any of the containers, no longer have the containers in your possession, or would like assistance in testing, please let me know. EH&S also provides the green peroxide former labels upon request. Note: Any containers highlighted in green are less than 6 months old and do not require testing.

< SPREADSHEET >

If you would like more information or have any questions regarding the safe management of peroxide-forming chemicals, please visit the [Environmental Health & Safety website](#) or contact labsafety@columbia.edu.

Best,
&&&

Picric Acid



Picture by sciencemadness.wikia.com

LION



L

Laboratory

I

Information

O

Online

N

Network

LION

Laboratory
Information
Online
Network

Inspections ▾

New Inspection

Continue an Inspection

Pending Inspections

Follow Up Items

Inspection Findings ▾

Corrective Actions

Summary Reports

Completed Inspections

LATCH

Incidents ▾

Task View

New Incident

Open Incidents

Closed Incidents

Administration ▾

Analytics

Data Manager

Send Bulletins

Edit Inspection

Edit LATCH

Edit Settings

Edit Incidents

Import FE Scans

View Email Log

Import Training

Import User Departments

Administrator User Guide

Admin User Guides ▾

LION General

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

Magdalena (Administrator) Logout

COLUMBIA LION
LABORATORY INFORMATION
ONLINE NETWORK

Users

Room

Room Types

Organization

Training

Assets

Inventory

Orders

Catalog

Waste

Licenses

Permits

Permit Types

Tags

Export

Roster Roles

Rosters

Remove PI Status

Close

ID	Name	Email Address	Role	Department	Last Login	Status	
3356		@columbia.edu	General User	Neuroscience- Manhattanville	7/12/21 5:05PM	active	

User Permits

Description	Issue Date	Expiration Date	Role	Status
Radioactive Materials Permit (R-151)	Feb 20, 2015	Mar 31, 2024	Principal Investigator	Inactive

Room List

Campus	Building	Room	Role	
Manhattanville	Jerome L. Greene Science Center		Principal Investigator	
Manhattanville	Jerome L. Greene Science Center		Laboratory Staff Action	

Asset List

Type	Description	Location	Department	Role	
Radiation Detector	GM (273449)		MS: Environmental Health & Safety (Morningside)	Principal Investigator	

Principal Investigators

First Name	Last Name	Email	Room	Roles
		@columbia.edu	All	LSM
		@columbia.edu	All	PI

COLUMBIA
Environmental

August 2022
columbia.edu

Programs tracked in LION

Annual Fume Hood Certification



Semiannual O₂ Sensor Calibration



Biosafety Cabinet Tracking



<https://sco-tech.com/produkt/biosafety-cabinets-class-ii/?cn-reloaded=1>

Surveys tracked in LION

- Comprehensive surveys
- Laboratory Waste Inspections
- Personal Protective Equipment Awareness
- Radiation Programs:
 - Radiation Safety Audits
 - Waste Tracking
 - Radiation Use Tracking

Recent Inspections		
Show	10	entries
Date	Inspector	Template
May 9, 2016		Personal Protective Equipment Awareness and Chemical Fume Hood Safety
Aug 3, 2016		Personal Protective Equipment Awareness and Administrative Controls
May 31, 2017		Animal Care Appendix
Sep 18, 2017		Personal Protective Awareness and Emergency Equipment Safety
Jul 30, 2018		Animal Care Appendix
Sep 26, 2018		Comprehensive Entry Survey
Oct 2, 2019		Animal Care Appendix
Mar 5, 2020		Comprehensive Laboratory Safety Inspection
May 11, 2022	Magdalena Andrzejewska	AAALAC Survey

LATCH

L

Laboratory

A

Assessment

T

Tool and

C

Chemical

H

Hygiene Plan

Chemical Hazards

Working with small volumes (< 1L) of organic solvents and non-acutely toxic liquids

Room: MS: NWC - 1001A, 1001B, 1001C, 1001D, 1001E

Hazard: Skin or eye damage. Chronic toxicity outcomes with long-term handling based on chemical SDS.

Additional Information: "Many organic solvents are recognized carcinogens (e.g., benzene, carbon tetrachloride, trichloroethylene, 2-ethoxyethanol, 2-methoxyethanol, methyl acetate, n-hexane, tetrachloroethylene, toluene)." - CDC

Engineering Controls: Work with material on a bench top with adequate air exchanges or inside a certified fume hood.

Administrative Controls: Substitute with less hazardous chemicals. Order prepared solutions.

PPE: Gloves, chemically resistant and disposable, e.g. nitrile. Lab coat, standard, e.g. polyester-cotton blend. Standard safety glasses or equivalent, closed shoes, hair pulled back.

Working with corrosive liquids with a pH > 2 or < 12

Room: MS: NWC - 1001A, 1001B, 1001C, 1001D, 1001E

Hazard: Also known as a chemical burn, corrosives destroy tissue. Exposure to the skin or eyes can cause permanent damage. Corrosives are also toxic. Check the SDS for specific chemical hazards.

Engineering Controls: Work with material on a bench top with adequate air exchanges or inside a certified fume hood. Use the proper protective equipment and change gloves as needed.

Administrative Controls: Use solutions buffered as close to neutral as possible.

PPE: Gloves, chemically resistant and disposable, e.g. nitrile. Lab coat, standard, e.g. polyester-cotton blend. Standard laboratory safety glasses or equivalent, closed shoes, hair pulled back, Safety goggles.

Laboratory Assessment Tool

Please post a signed copy of the LATCH in the lab where it can be easily accessed by all laboratory personnel and maintain the original on file.

A Chemical Hygiene Plan (CHP) is required per OSHA's Occupational Exposure to Hazardous Chemicals in Laboratories standard (29 CFR 1910.1450) and Columbia University policy. The CHP provides essential information for prevention of potential exposures to hazardous materials and physical hazards in the laboratory. Columbia University has developed a [Chemical Hygiene Plan](#) to provide an overview of information about the use of hazardous materials in research laboratories, their hazards, warning signs, control measures, safety training to minimize exposure and waste management. LATCH is your laboratory-specific complement to the Columbia University Chemical Hygiene Plan.

After review, please sign and date below.

Name	Email	Signature	Date
[redacted]	[redacted]	_____	_____
		_____	_____
		_____	_____
		_____	_____
		_____	_____
		_____	_____

24-hour Emergency Contacts

Name	Room	Phone	Date
[redacted]	1001E, 1001B, 1001A, 1001D, 1001C	(212)	19-Mar-20
	1001D, 1001A, 1001E, 1001B, 1001C	(908)	28-Jul-22
	1001C, 1001A, 1001B, 1001D, 1001E	(646)	19-Mar-20
	1001C, 1001D, 1001A, 1001E, 1001B	(201)	27-Mar-20
	1001C, 1001B, 1001E, 1001D, 1001A	(212)	19-Mar-20

RASCAL

Research
Compliance and
Administration
System



RA

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Training Center

[My Training To-Do List](#)

[Course Listings](#)

[View Certified Test History](#)

Actions

[Reports](#)

[Assign Courses](#)

[Create a Course](#)

[Batch Upload Assign
Courses](#)

Administration

[\[RASCAL Menu\]](#)

[Training Center Menu](#)

	Course Number	
<input type="checkbox"/>	TC0025	Bloodborne i Clinical Setti
<input type="checkbox"/>	TC5000	Contingency
<input type="checkbox"/>	TC3550	Biological Se
<input type="checkbox"/>	TC1650	Hydrofluoric
<input type="checkbox"/>	TC0076	Shipping witi
<input type="checkbox"/>	TC2400	Regulations
<input type="checkbox"/>	TC2500	Increased Cr
<input type="checkbox"/>	TC0502	Controlled S
<input type="checkbox"/>	TC0600	Shop Safety
<input type="checkbox"/>	TC2250	Hazard Com
<input type="checkbox"/>	TC4100	Regulated M
<input type="checkbox"/>	TC4850	Biological Se
<input type="checkbox"/>	TC1750	Initial Radiat
<input type="checkbox"/>	TC4951	Lab Safety, C
<input type="checkbox"/>	TC4950	Biological Se
<input type="checkbox"/>	TC5451	Certificate of Laboratories
<input type="checkbox"/>	TC2100	Chemical Str
<input type="checkbox"/>	TC1850	Pyrophoric M

Add Training Record

Manage Training

Training Description

Biosafety Cabinet - TC3550

Last
Completed

Expiration
Date

Status

Oct 27, 2021

Oct 27, 2023

Current

Bloodborne Pathogens/Infection Control Training for Personnel in Human Research Studies and Clinical Settings - TC0025

Oct 27, 2021

Oct 27, 2022

Current

Chemical Storage and Segregation 101 - TC2100

Oct 27, 2021

Oct 26, 2021

Current

Controlled Substances Use and Management in Research - TC0502

Oct 26, 2021

Oct 25, 2024

Current

Hazard Communication Training for Laboratory Workers - TC2250

Oct 27, 2021

Oct 26, 2021

Current

Hydrofluoric Acid (HF) Training - TC1650

Oct 26, 2021

Oct 26, 2023

Current

Increased Control of Radioactive Materials and Unescorted Access - TC2500

Oct 27, 2021

Oct 27, 2022

Current

Initial Laboratory Safety, Chemical Hygiene and Hazardous Waste Management Training - TC4951

Oct 18, 2021

Oct 18, 2023

Current

Initial Radiation Safety Course - TC1750

Oct 25, 2021

Oct 25, 2022

Current

Pyrophoric Materials Training - TC1850

Oct 26, 2021

Oct 26, 2022

Current

Shipping with Dry Ice, Exempt Specimens and Excepted Quantities of Dangerous Goods - TC0076

Oct 27, 2021

Oct 27, 2023

Current

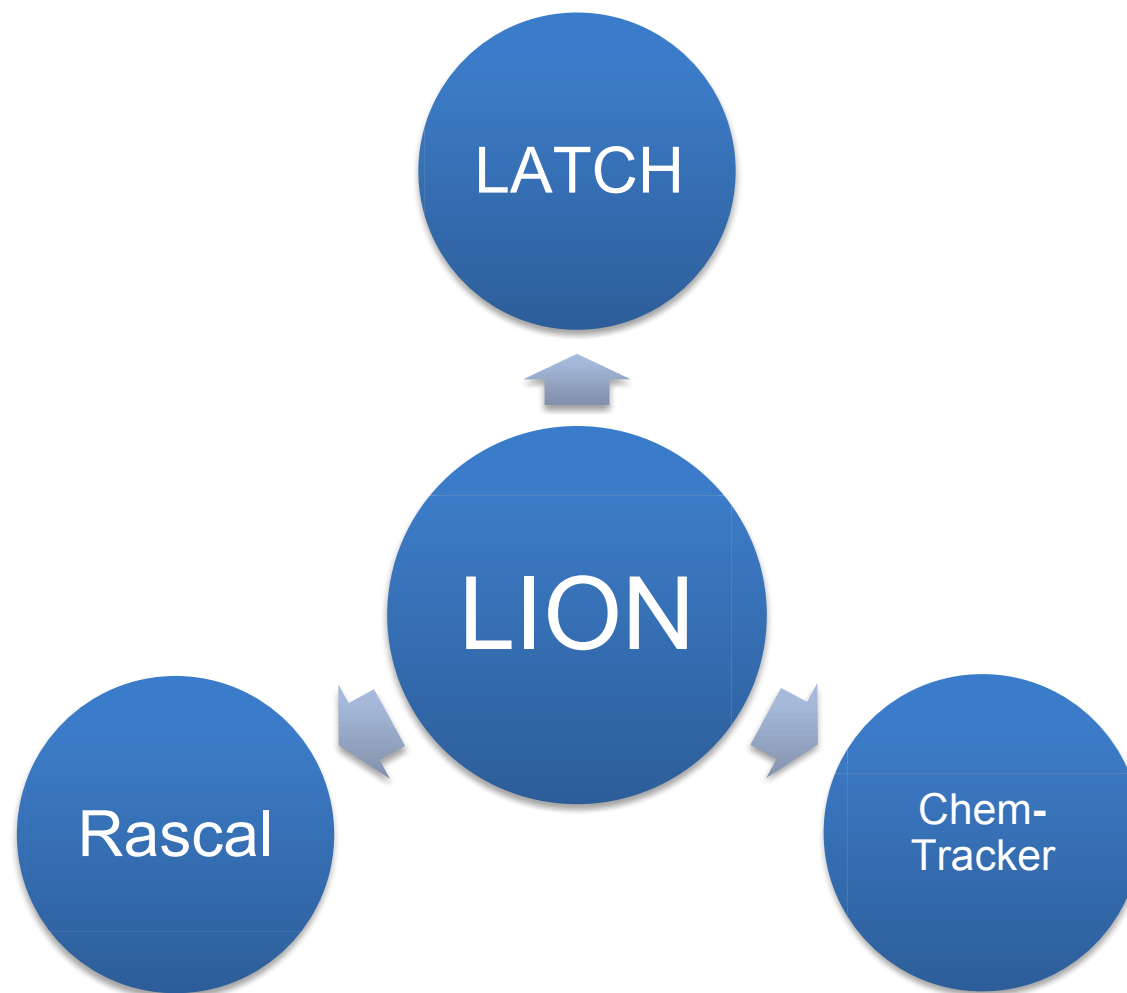
Shop Safety Training - TC0600

Oct 26, 2021

Oct 21, 2041

Current

It takes a village



Thank you!