



LSR Orientation Training

Outline



- O Who is HSE?
- Roles and Responsibilities of LSRs
- Salute Introduction
- Navigating HSE Webpage
- Key Resources





Who are we



- The Health, Safety, and Environment Department is composed of the following sections:
 - Environmental Protection
 - Community Health and Safety
 - Fire & Emergency Services
 - Research Safety



HSE webpage: https://hse.kaust.edu.sa

Who are we



- The Health, Safety, and Environment Department is composed of the following sections:
 Health, Safety and Environment Department
 - Environmental Protection
 - Community Health and Safety
 - Fire & Emergency Services
 - Research Safety
- Research Safety provides programs to help laboratories manage risks and implement the appropriate hazard controls.

Research Safety

HSE webpage: https://hse.kaust.edu.sa

The Research Safety Team

By the numbers



Who we are and what we do

~3000	KAUST Employees Covered
200 / 60,000	Laboratories / m² lab space
~200	Principal Investigators
13/11	Research Centers / Core Labs (BESE, CEMSE, PSE, Core Labs, RPIC)
~200	Lab Safety Representatives (LSR's)
500 / 300	Risk Consultations / Inspections











7 Expert Staff:

- 1 Lab Safety & Design Specialist
- 2 Biological Safety Specialists
- 1 Industrial Hygienist
- 1 Chemical Safety Specialist
- 2 Radiation Safety Specialists

Protecting what matters most through our HSE expertise, partnerships and world-class collaborations. We work closely with our research partners to build resiliency into our research!

The Barrier Experts

KAUST's Research Safety Team





Marcos Aguilar

- RST Lead
- Lab Safety & Design
- 12+ years experience at KAUST
- Certified Safety Professional & Safety Management Systems



Hattan Matar

- BS Systems Engineering
- MS Risk Control
- Certified Industrial Hygienist
- Certified Safety Professional
- Extensive oil & gas expertise



Rodion Gorchakov

- Biological Safety Lead
- PhD Epidemiology
- MS Molecular Bio
- BSL-3 Expertise
- Biological Safety Officer



Mohamad Bahmaid

- Radiation Safety Officer
- Certified Rad Safety Officer
- Eng. Degree Nuclear Engineering Sciences
- MS Health & Med. Physics
- BS Nuclear Physics



Kee Mei Leong

Head, Research Safety



Sujata Haydu

- Biological Safety Specialist
- MSc. Microbiology
- HIV Research background
- Sept 2022



Moustafa Elsoubki

- BS Physics
- MSc Medical Physics
- Non-Ionizing Radiation Safety Specialist
- Laboratory Waste Specialist



Gianluca Barco

Chemical Safety Specialist

Safety Programs



Lab Life Cycle

- Lab Design
- Assessments
- Lab safety
- Lab clearance

Biosafety

- BSL-1 and BSL-2
- Biosafety cabinet certification
- Biological registration
- KAUST Committee (IACUC and IBEC)

Chemical Safety

- Acid, base, corrosive, flammable, and oxidizer
- Fume hood testing
- Compressed gas and cryogens
- Experiment review



Safety Programs



Industrial Hygiene

- Respiratory protection
- Possible exposure
- O PPE
- Hearing conservation
- Heat illness prevention
- Mold prevention and remediation
- Office ergonomics

Laser Safety

- Registration of lasers (Class 3B & Class 4)
- Laser lab design
- Hazard assessment

Radiation Safety

- Registration of X-ray equipment
- Registration of radioactive substances
- KAUST Committee IRSC

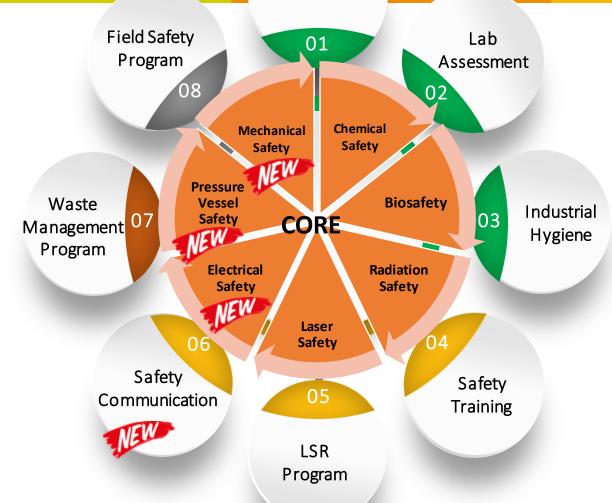






Management

Program

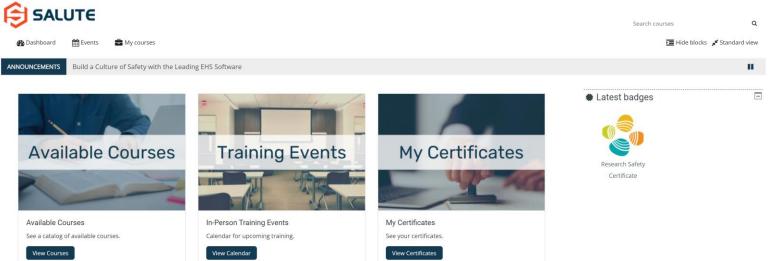


Lab Design

Trainings



- All training is completed or booked via Salute
 - Take the training directly online
 - Book for live courses
 - Arrange on-demand courses
 - View/Access your certificates





- ▶ Radiation Safety
- ▶ Laser Safety
- ▶ Laboratory Safety
- ▶ Emergency Preparedness
- ▶ Chemical Safety
- Biosafety
- ▶ Research Safety Classroom Trainings

KAUST Committee



Research Compliance coordinates the University's regulatory framework for research safety and ethics review via four faculty-led committees:

- Institutional Animal Care and Use Committee (IACUC)
- Institutional Biosafety and Bioethics Committee (IBEC)
- Institutional Radiation Safety Committee (IRSC)
- Dive Control Board (DCB) for scientific diving



Research Compliance also promotes policies and activities pertaining to the responsible conduct of research.

KAUST Committee

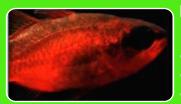


Institutional Biosafety and Bioethics Committee (IBEC)



Research that involves the use of

- Recombinant or synthetic nucleic acids.
- Infectious agents,
- Biological toxins,
- Biohazardous agents (Risk Group 2)
- Research involving human subjects.



Institutional Animal Care and Use Committee (IACUC)

Care and use of live animals in:

- Research
- Teaching
- Testing activities



Institutional Radiation Safety Committee (IRSC)

Research conducted at or sponsored by KAUST that involves the use of:

- Radioactive substances
- Radiation-producing equipment (including SEM, TEM, hand-held x-ray, etc.)



Dive Control Board

• Research conducted at or sponsored by KAUST that involves scientific diving.





Institutional Biosafety and Bioethics Committee (IBEC)

Reviews all research conducted at or sponsored by KAUST that involves the use of:

- Recombinant or synthetic nucleic acids,
- Infectious agents,
- Biological toxins,
- Biohazardous agents (Risk Group 2),
- Research involving human subjects.

Dive Control Board

Reviews all research conducted at or sponsored by KAUST that involves scientific diving.

Institutional Animal Care and Use Committee (IACUC)

Reviews all research conducted at or sponsored by KAUST that involves the care and use of live animals in:

- Research.
- Teaching
- Testing activities.

Institutional Radiation Safety Committee (IRSC)

Reviews all research conducted at or sponsored by KAUST that involves the use of:

- Radioactive substances
- Radiation-producing equipment (including SEM, TEM, hand-held x-ray, etc.)



LSR Role & Responsibilities

LSR assists faculty to promote a safe work ethic and safe work environment.

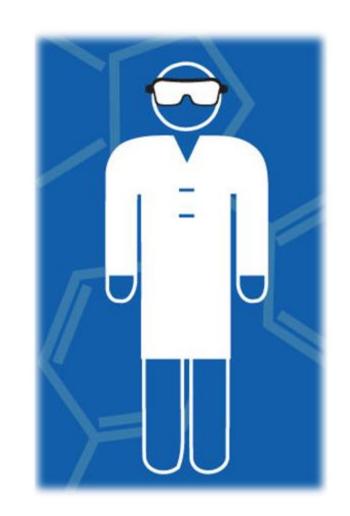
Roles and Responsibilities



Laboratory Safety Representatives (LSR) provide an essential link between the lab and Health, Safety & Environment (HSE).

LSRs are the <u>catalyst for driving a strong safety culture</u> and a safe work environment in the lab with the support of the faculty.

LSRs help to improve lab safety, identify hazards, and provide support to prepare for and deal with emergency situations.



Lead by Example



- Discuss your role with your faculty and the need for their support to promote a strong safety culture.
- Outline resources and support needed in order to be an effective LSR.
- Obtain all the required training related to the hazards present in the areas you represent.
- Be aware of all the relevant programs that apply to research conducted in your lab (http://labsafety.kaust.edu.sa).
- Monitor the safe and unsafe behaviors in the lab area and address any safety concerns.

LSRs should be driven, proactive, responsible, and result-oriented to improve the safety culture in the lab.

New LSR or alternate LSR



Once you have been appointed as LSR or alternate LSR by your faculty, you should:

- Notify HSE (<u>HSE@kaust.edu.sa</u>) that you have been appointed LSR so that HSE can include you in the LSR email list and notify you of any update related to lab safety.
- Establish who is the HSE building point of contact.
- Discuss your responsibilities with your faculty and the possibility to nominate an alternate LSR.
- Update the following documents to include your contact details:
 - Lab Safety Plan (LARA)
 - SOPs
 - Lab door sign
 - Organizational flip chart
- Attend the LSR Orientation Training (live session)

Hazard Identification and Risk Control



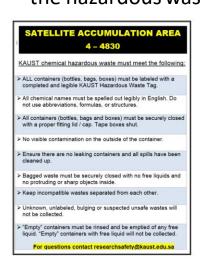
- Lab Safety Plan (LSP) Prepare/review the Lab Safety Plan (future LARA) to identify all the hazards present in the lab and ensure that safety controls are available and operational to minimize the risks (e.g. fume hood, biosafety cabinets, enclosures, etc.).
 - LSP must be read, understood and signed by everyone working in your lab
 - LSP available to all lab personnel
 - LSP must be reviewed annually
 - A template is available on our webpage
- Standard Operating Procedures (SOPs) Assist lab members to develop written SOPs for hazardous operations, equipment, or specific experiment.
 - Ensure that SOPs are reviewed regularly (or yearly)
 - A template SOP is available on our webpage
 - Have all lab members read and sign the SOPs that apply to their work
 - Ensure lab-specific SOPs are available (either paper copies available in the lab or electronic copies accessible while in the lab)





- Chemical Inventory Help maintain the chemical inventory up to date using the online chemical inventory system (Salute). To obtain access to the chemical inventory you must first complete the Chemical Inventory training.
- Hazardous Waste Manage hazardous waste and satellite accumulation areas (SAA)

Ensure the hazardous waste bags and containers are segregated appropriately and labeled or tagged as per the hazardous waste guide.



HAZARDOUS WASTE				
Date:				
Contents:	Amount	Units		
	_			
	-			
If mixture, what is pH:				
HAZARDS (check all that apply)				
Corrosive: Acid Air Reactive Flam	mable/Con	nbustible		
Corrosive: Base Water Reactive Ot	ner/Non-Ha	azardous		
☐ Biohazardous ☐ Toxic/Poisonous ☐ C	xidizer			
Hazardous Waste Generator Ir	formation	on		
Building & Room Location (FLOC):				
Full Name:				
Email:				

hse.hazwastepickup@kaust.edu.sa

Key Points Hazardous Waste Management

- All chemical containers must be labeled with a completed KAUST Hazardous Waste Label:
 - Must be in English and include all constituents
 - No abbreviations
 - No chemical formulas
 - No chemical structures
- Containers must be securely closed with a properly fitted cap/lid.
- Ensure that there is no contamination on the outside of containers.
- Keep incompatible wastes separated.
- Unknown/unlabeled containers will not be collected.





- Ensure availability of adequate personal protective equipment (PPE) for each lab member.
 PPE standard for KAUST Laboratories.
- Encourage/support lab personnel to use and maintain PPF.
- Identify required protective equipment needed (gloves, goggles, respirators, etc.).
- Ensure all <u>safety supplies</u> (first aid kits, spill kits, etc.) and equipment required for the management of hazardous waste are available.







Key Points of Required PPE in the Lab

- Wear minimum PPE when in the lab
 - Eyewear worn at all times when entering the lab (working or passing through the lab)
 - Lab coat buttoned worn when working with or around hazards
 - Gloves worn when working directly with hazards
- Wear additional PPE based on the lab activities
 - Special gloves (cryogens, hot surfaces, etc.)
 - Face shield (cryogens, UV, etc.)
 - Special eyewear (UV, lasers, etc.)
 - Respirators require a risk assessment from IH and enrollment in respiratory protection program (even N95)
- Users must wear PPE correctly when in the lab
- NO PPE WORN OUTSIDE THE LAB



Personal Protective Equipment and Safety Supplies

- Ensure availability of protective equipment (PPE)
 PPE standard for KAUST Lab
- Encourage/support lab pe maintain PPE.
- Identify required protectiv (gloves, goggles, respirators
- Ensure all <u>safety supplies</u> (* etc.) and equipment management of hazardous





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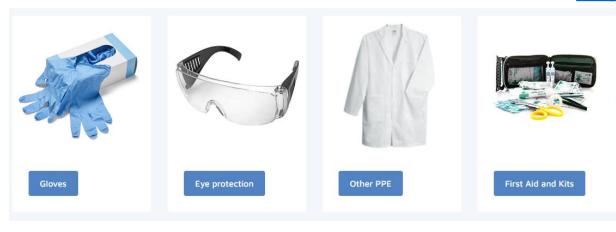
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E WORN OUTSIDE THE LAB

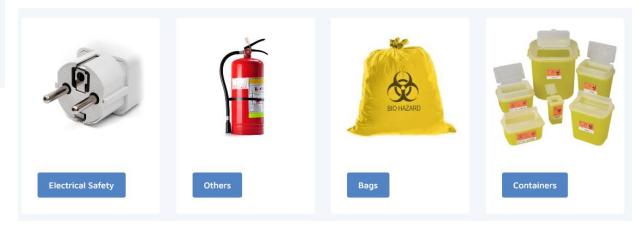
Safety Supplies List



https://hse.kaust.edu.sa/keeping-kaust-safe/safetysupplies







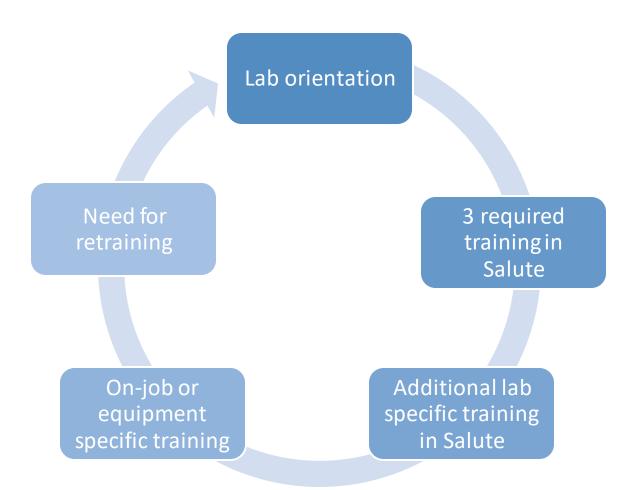
Training



- Ensure everyone who works in the lab is competent to carry out their duties.
- Lab Orientation Checklist (recommendation)
- Notify HSE if additional safety-related training is needed for the lab group.

Training requirements:

- Lab Safety Training (online or live classes available)
- Hazardous Waste Training
- Emergency and Incident Preparedness Training
- Any additional online training identified in LSP
- LSR Orientation Training (LSR and alternate LSR only)
- First Aid Training (recommend 2 people)
- Fire Extinguisher Training (recommend 2 people)



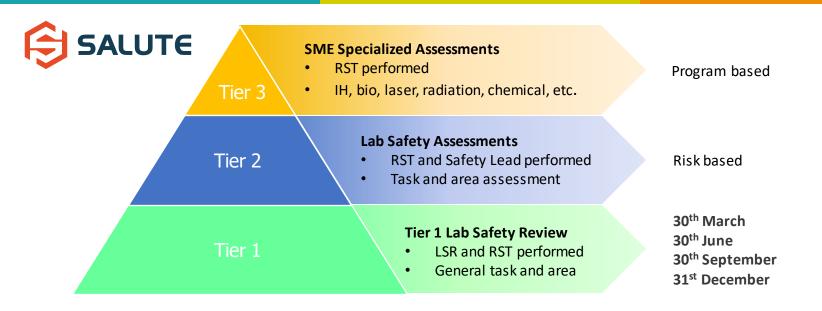
Communication



- Connection between HSE and your lab point of contact for all health and safety matters arising within your lab.
- Attend the Lab Safety Forum (or send a designated representative if you cannot attend).
- Communicate with all team members relevant outcomes from the Lab Safety Forum and other emails received via the LSR distribution list.
- All presentations for previous forums can be found on the <u>LSR webpage</u>.
- Report any safety hazard observed, near-miss, accident, incident, or occupational disease by creating a new event in Salute. <u>Click here to raise an event</u>.
- Assist in the investigation of all incidents that occurred in your lab.







- LSR or lab user perform Tier 1 Lab Safety Review at least once per quarter.
- Simple checklist no finding added.
- Help the laboratory to validate controls.
- Enables the lab users to conduct safety readiness reviews, prevent safety issues, and keep a record of continuous safety improvements.

https://hse.kaust.edu.sa/SALUTE/Assessments

ecklist and Survey		
Engineering Controls		
Engineering Controls		
Are biossfery cabinets, furne hoods, glove boxes, laminar flow loods and other safety engineering controls functioning and eady for operations? *	*	II 0
Administrative Controls		
OPs mailable *		
lignage reflects hazards *	¥	11 0
Appropriate type of training in place *		Q ==
Personal Protective Equipment (P	PE)	
required PPE is available *		E
Number of times when PPE is not used effectively *	¥	E ==
Storage and Housekeeping		
seneral housekeeping issued in the lab *		11 0
iervice Carridor Issues *	-	E
scessive storage issues "		II •
sues with heavy items stored too high "		Π σ
sues with tripping or slipping hazards *		II •
General Safety		
suses with materials (bio, chem, rad) are not labelled, stored, and segregated properly *	¥	□ ∞
ssues, with bench top samples are not labelled and stored properly *	-	II o
ssues with gas cylinders are not secured and labeled properly "	*	fl ==
Electrical safety issues. (Power strips not elevased from the floor, exposed wiring or damaged electrical conds, overload circuits) *	-	E +
-lazardous wasse issues (Consainers are not closed, not labeled and sored correctly) *	*	fl =9
Emergency Readiness		
pill kits are available, right type & free of obstructions *	*	EL #
ye wash stations are checked & free of obstructions."		11 0
Free Aid kits are available	*	11 0
harps and broken glass containers are available	*	0 0

Assessments



- Coordinate with HSE Tier 2 and Tier 3 assessments, correct findings, and report safety or compliance issues.
- Identify the major lab/building safety issues and bring to the attention of the relevant department heads unresolved health and safety problems. Contact HSE for assistance.
- Lab member departure:
 - Student departure: Completed by LSR to ensure that the lab space occupied is free from hazards and that chemicals and samples have been disposed of or transferred to another lab member (remember to check the fridge and freezers).
 - *Post-doc, Researcher departure:* Completed by RST to ensure that the lab space occupied is left hazard free and that all chemicals/samples have been disposed of or transferred. You are required to attend the visit or nominate a delegate.

Emergency Preparedness



- The LSR assists the faculty and ensures emergency preparedness measures are in place:
 - Two persons trained for first aid and fire extinguisher
 - Identify risks in your area (Lab Safety Plan and SOPs)
 - Establish emergency procedures specific to your lab (can be added to the Lab Safety Plan) include:
 - Safe shutdown of experiments and equipment
 - Safe handling of hazardous spills
 - Triggering of alarm systems
 - When and how to escalate an incident
 - Organize and execute regularly small emergency drills (e.g. simulate a small spill, walkthrough the
 evacuation procedure with your team, etc.)

Emergency Situations & Lessons Learned



- Lesson Learned following a near-miss or incident should always be shared
 - Not always the result of human mistakes, can be the failure of an instrument or facility
 - Use it as a learning tool
 - Don't use the names of people involved
 - Don't try to embarrass or blame.
- Listen to safety concerns or complains
 - Listen and take it seriously
 - Thank them!
 - Respond quickly
 - Involve employees
 - Follow-up and contact HSE if necessary

An emergency is any situation that requires <u>IMMEDIATE</u> attention such as fire, or medical response to preserve life or property

- Call 911 from a Campus phone
- Call <u>012 808 0911</u> from a cell phone
- Be part of assistance during emergency and met with the first responder if necessary
- Later raise a Report/Event in Salute
- Work with HSE on investigationand corrections





Hazard Identification & Risk Control

Lab Safety Plan & SOP Lab door sign, PPE and Safety Supplies List Chemical inventory Hazardous Waste Management

Training

3 required training as well as lab specific training On-job trainings and need for retraining Coordinate on-demand trainings

Assessment

Conduct Tier 1 Lab Safety Review Assist with Tier 2 and Tier 3 assessments Departure clearance

Communication

Attend Lab Safety Forum
Forward applicable safety information sent by RST to lab users
Promote safety culture in the lab

Emergency Preparedness

Establish location of the assembly point, fire extinguishers, and fire pull station Create emergency checklist
Organize drills to ensure lab members are prepared

Research Safety Certificate & LSR Service Certificate





Research Safety Certificate



LSR Service Certificate



Available to all lab members.



Awarded to LSRs for their support and collaboration with HSE.



Recognize the efforts and reward their commitment to safety.



Certificate.



How to obtain it:

Take 5 required courses
Take 9 additional courses offered by HSE



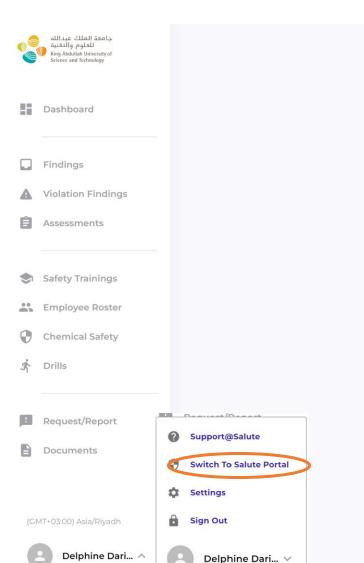
How to obtain it:

Complete at least two years of service as an LSR Obtain the Research Safety Certificate Attend 75% of Lab Safety Forum during service



Introduction to Salute





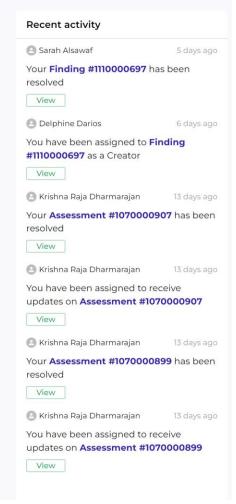
Dashboard



You have no open items

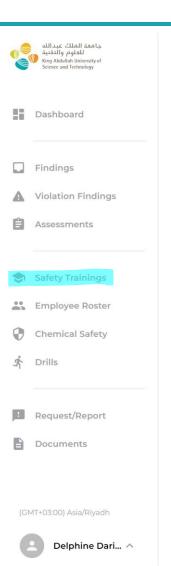
All tasks assigned to you will appear here





Trainings

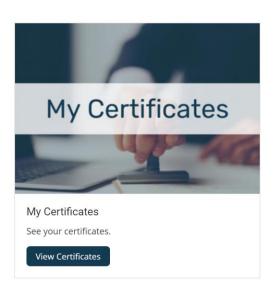






View Courses

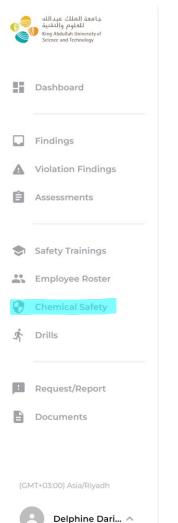




How to view if users have done trainings

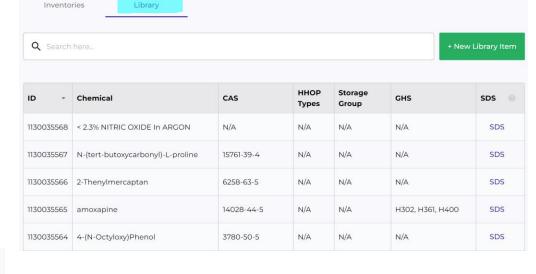
Chemical Inventory





In Community Portal – Check your inventory and access SDS for all chemicals available in KAUST

Library tab shows all the chemicals available on KAUST

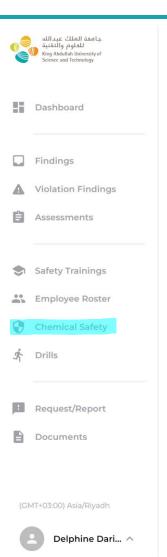


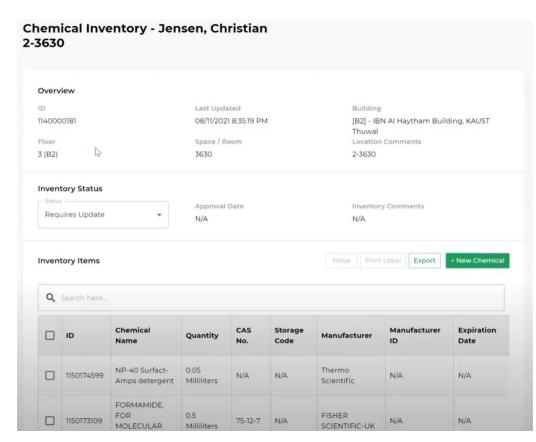
Chemical Safety Export Library Q Search here. Jensen, Christian 2-3630 Space / Room **Location Comments** [B2] - IBN Al Haytham Building, 3 (B2) 3630 2-3630 Chemicals (High Hazard) **Inventory Comments** Requires Update Christopher Motter, Ramatoulaye Balde, Christian Froekjaer Jensen

Inventory tab shows all the chemicals inventories you are the owner of.

Chemical Inventory





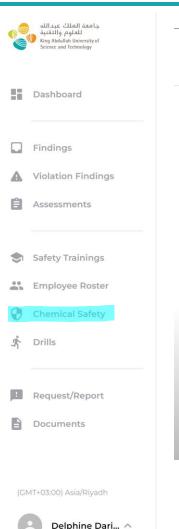


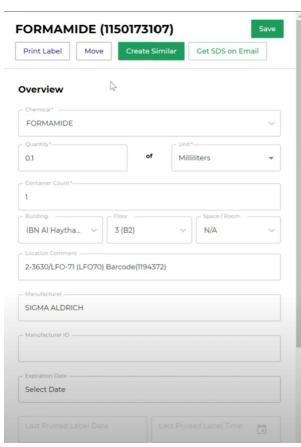
On each individual inventory, you are the owner of you can access the following information:

- Salute ID for this inventory
- Last time it was updated
- Building / Floor / Space
- Inventory status (Pending EHS Review, Incomplete, Complete, Closed, Require Update)
- Possibility to export the inventory on an excel spreadsheet
- View all the chemicals included in this inventory

Chemical Inventory





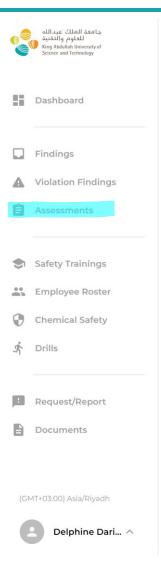


Click on one of the chemicals and you can access the following information:

- Print a label
- Move to a different chemical inventory
- Obtain the SDS for that chemical
- See the quantity and the location
- At the bottom, you can remove that chemical from the inventory
- The LSR decides who can be an owner of the chemical inventory for the lab (the owner can view and change the inventory)
- The LSR must take the chemical inventory training before being granted access
- Check the naming convention for the chemical inventory on our webpage

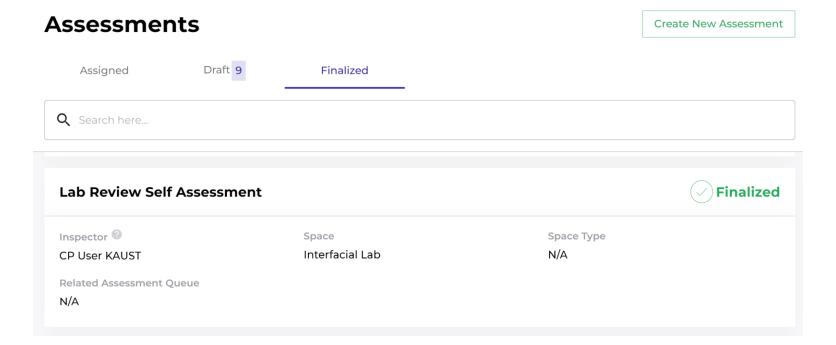
Assessments





Tier 1 Lab Safety Review to be performed in **Community Portal**

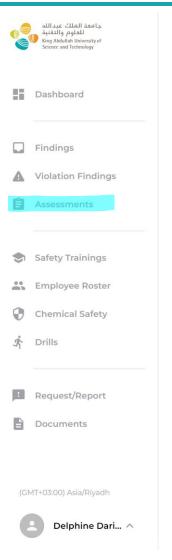
- Assigned Assessments that you have been assigned and that need to be completed before a particular date.
- Draft Assessments that you have started but not finalized
- Finalized Assessments that have been completed and finalized (Tier 1, Tier 2, and Tier 3).



Assessments

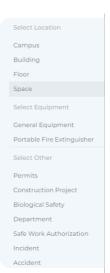
Overview





Tier 1 Lab Safety Review to be performed in **Community Portal**

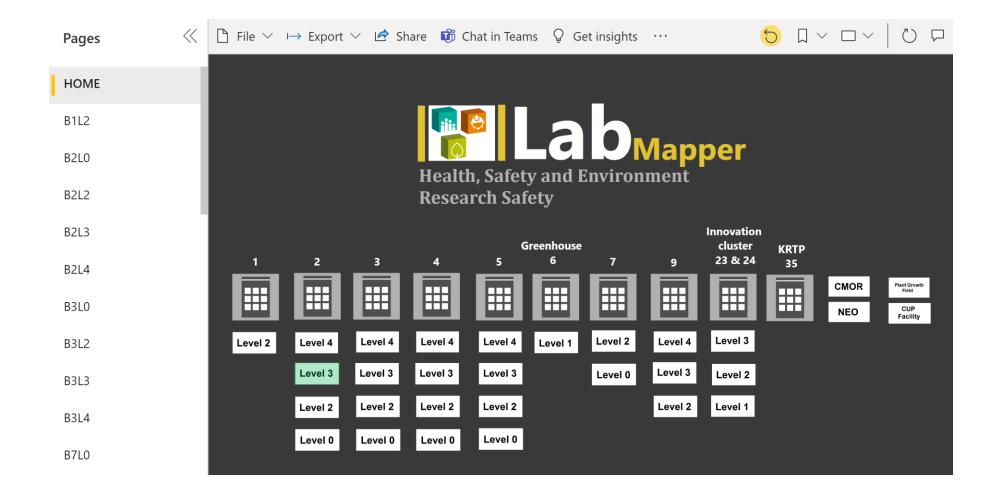
Assessment ID	Created By	
N/A	Delphine Darios	
User Group*		
KAUST		▼
Assessment Date		
07/13/2022		=
Responsible Person*		
Delphine Darios		_
Dolphinic Ballies		
Also Notified People —		
Dwight Stevenson 8		▼
		▼
Assessment Type*		
Tier 1 Lab Safety Review		*
-		
Assessment Object		
Object Type*		
Space		<u> </u>
- Object*		
4, 4-0250		•
Object Details —		
PI First Name & PI Surname		







Use <u>LabMapper</u> to find the correct space to enter in the Tier 1 Lab Review Assessment







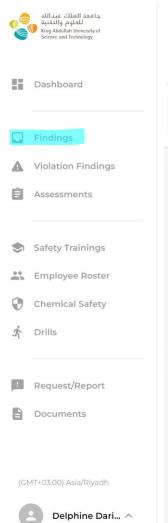
One Assessment per colored space

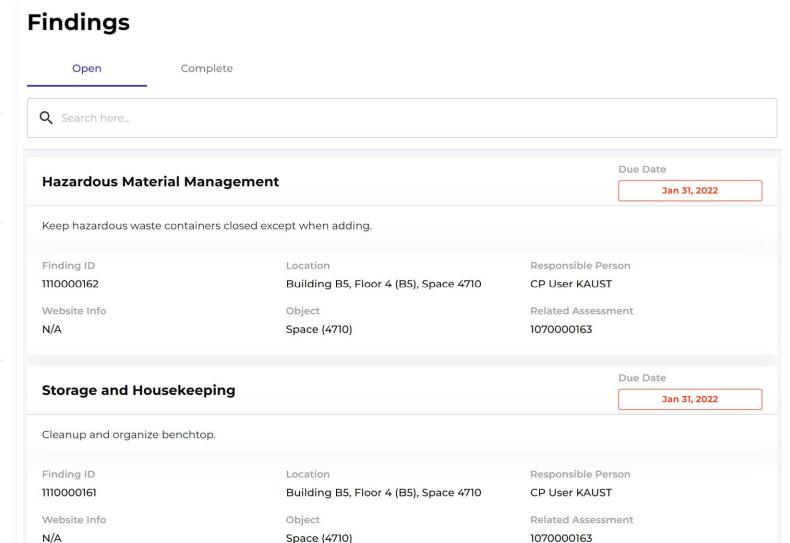
Lab Name	FLOC Number	Personal Investigator (PI)	Lab Safety Representative (LSR)	LSR Email	! ^
Alfredo De Biasio Lab	B2-3740	Alfredo De Biasio	Hadiza Aliyu	hadiza.aliyu@kaust.edu.sa	—
BioActives Lab (incl. 3924)	B2-3850	Salim Al-Babili	Yanjun Wei	yanjun.wei@kaust.edu.sa	(
Center for Desert Agriculture Area 6	B2-3940	Rod Wing	Safya Zaoui	safya.zaoui@kaust.edu.sa	5
Cereal Genetics and Genomics	B2-3910	Simon Krattinger	Safya Zaoui	safya.zaoui@kaust.edu.sa	5
Chodasiewicz Lab	B2-3840	Monika Chodasiewicz	Yanjun Wei	yanjun.wei@kaust.edu.sa	(
Comparative Genomics and Engineering	B2-3720	Takashi Gojobori	Mohammed Alawari	Mohammed. Alarawi@kaust.edu.sa	`
Distributed Systems and Autonomy	B2-3750	Shinkyu Park	Nurzhan Yesmagambet	nurzhan. yesmagambet@kaust.edu.sa	
Environmental Epigenetics Lab	B2-3610	Valerio Orlando	Amira Eltally	amira.eltally@kaust.edu.sa	1



Findings





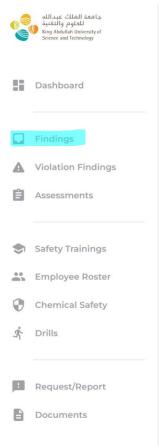


Findings/Actions from any assessment carried out

- Tier 2 and Tier 3 findings
- Incident investigation findings

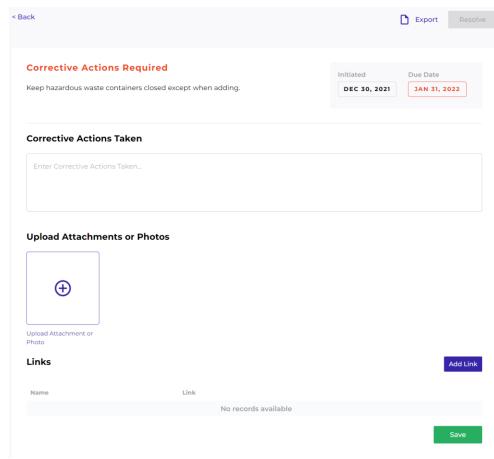


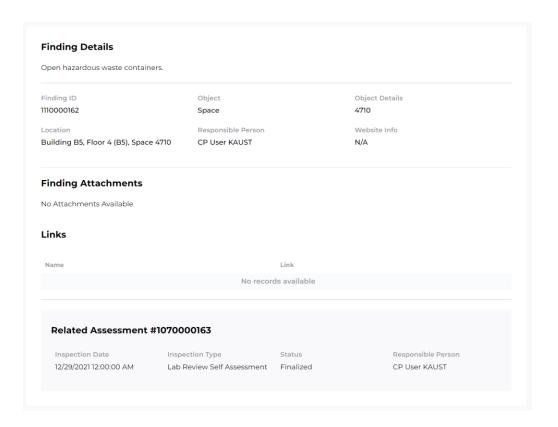




(GMT+03:00) Asia/Riyadh

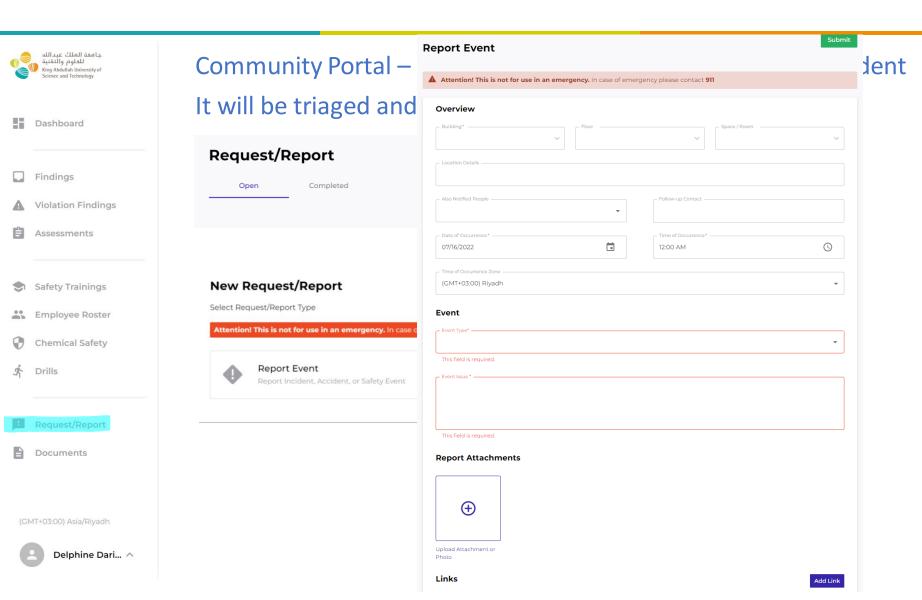
Delphine Dari... ^













HSE Webpage

HSE Webpage



Environmental Protection

The Environmental Protection division of HSE aspires to be a leader among the top tier higher education institutions and communities in environmental protection.

Read More



Research Safety

The KAUST Research Safety team makes every effort to keep our scientists, students, and faculty members safe on campus and in the laboratory.

Read More



Health and Safety

KAUST is committed to providing residents with a safe and secure environment in which to work, live and play, and to support safe and secure practices in the conduct of University activities.

Read More



Fire & Emergency Services

Emergency Management, Fire Loss prevention and Fire Services in KAUST.

Read More



Sustainability

KAUST Sustainability is a subdivision of the HSE Department that provides leadership and guidance to advance the University's commitment to sustainability.

Read More



Occupational Health

KAUST offers Occupational Health services that focus on prevention in the pursuit of maintaining the health and wellbeing of our workforce and community.

Read More

RST Webpage





Biosafety

The KAUST Blosafety Program has been developed to protect the research community, the general public and the environment from exposure to hazardous biological agents.

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Industrial Hygiene

Office ergonomics, particularly hazardous substances, respiratory protection program, heat illness prevention, reproductive hazards, hearing protection signage.

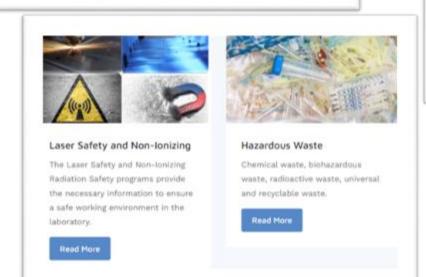
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Lab Safety

The Research Safety Team provides guidance and oversight to research staff. Our focus is to provide proactive direction to facilitate compliance and support safe work.

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Radiation Safety

information about various forms of electromagnetic radiation as pertaining to research at KAUST.

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Research Safety Training

All KAUST faculty, staff, and students who work in labs with chemical, biological, radiological and/or physical hazards are required to attend.

Chancel Marries



Salute

Salute contains many modules such as safety training, risk assessments, inspections, permits, incident reporting, and many others that will allow for the management of all MSE safety needs.

Read More

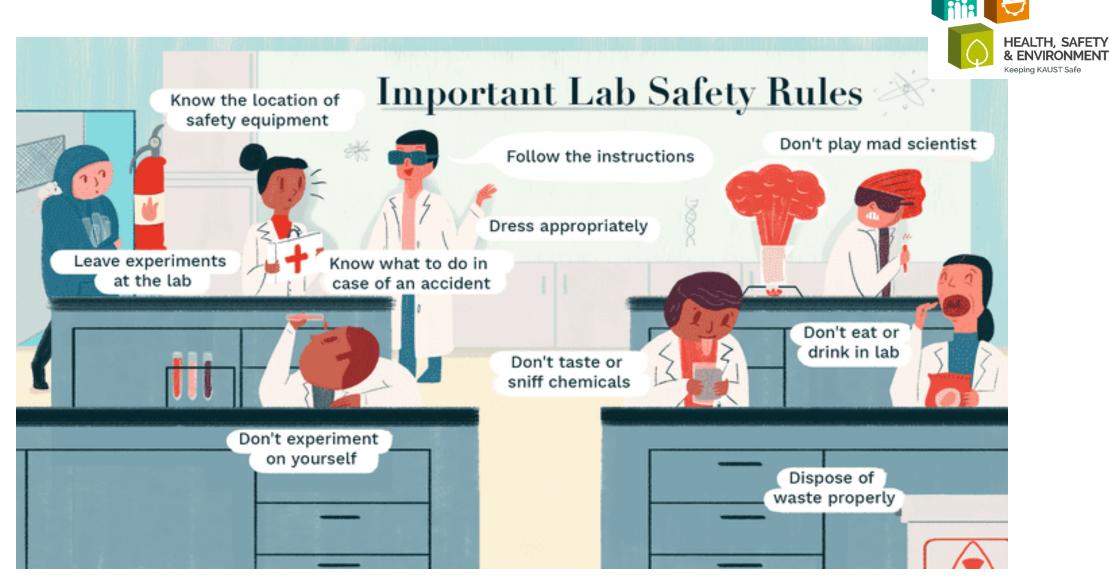
Important Content



- LSR webpage
- KAUST Evacuation Plans
- <u>LabMapper for Assessments</u>
- <u>Lab Safety Plan template</u>
- SOP template
- o Safety Supplies List
- Prescription Safety Glasses

- O ASEPC
- o **Equipment Surplus**
- Chemical Reuse Program Contact <u>WHSOrder@kaust.edu.sa</u>
- Consumables Reuse Program Contact <u>WHSOrder@kaust.edu.sa</u>





If you have any question or need advice, please contact us at HSE@kaust.edu.sa