المختبر المرجعي الوطني
National Reference Laboratory
An M42 company

NRL Occupational Health & Safety Management System

NRL-TTC-QA-009 | Induction Training 2025

A comprehensive safety orientation for National Reference Laboratory staff covering critical laboratory safety protocols, emergency procedures, and regulatory compliance requirements - designed to protect our team and uphold world-class laboratory safety standards.

Trainer: Kannan S Das Date: 29/09/2025

TRAINING OBJECTIVES

NRL Occupational Health & Safety Management System

Safety Basics

- OHSMS Framework
- Roles & Responsibilities

Fire Safety

- RACE Procedure
- PASS Technique
- Evacuation

Chemical Safety

- SDS Reading
- Spill Response
- Storage Rules

Biohazard Safety

- Biosafety Levels
- Exposure Protocols

Infection Control

- Universal Precautions
- Containment Methods

Lab Attire & PPE

- Selection Guidelines
- Proper Use

Waste Management

- Color-Coded System
- Sharps Handling

Hand Hygiene

- 6-Step Technique
- When Required

Emergency Response

- Evacuation Procedures
- Assembly Points &
- Contact Numbers

Incident Reporting

- Q-Pulse System
- Required Documentation
- Follow-up Actions

Safety Responsibilities

Employer

- Establish safety policies & procedures
- Implement controls & provide PPE
- Ensure regular training & assessment

Employee

- Follow safety protocols
- Use PPE correctly
- Report hazards promptly

Supervisor

- Enforce compliance with safety rules
- Conduct regular safety inspections
- Investigate incidents & take action

Fire Safety

Fire Triangle

Oxygen | Fuel | Heat | Chemical Reaction

Fire Types

Class A: Combustibles **Class B:** Flammable Liquids

Class C: Electrical **Class D:** Metals

RACE Procedure

R Rescue anyone in danger

A Activate fire alarm

C Contain fire (close doors)

E Extinguish or Evacuate

PASS Technique

P Pull pin

A Aim at base

S Squeeze handle

S Sweep side to side

Fire Extinguisher Types

Water (Red): Class A **Foam (Cream):** Class A, B

Powder (Blue): Class A, B, C, D

CO_2 (Black): Class B, Electrical

Non-Compliance Consequences

Legal: Fines and penalties

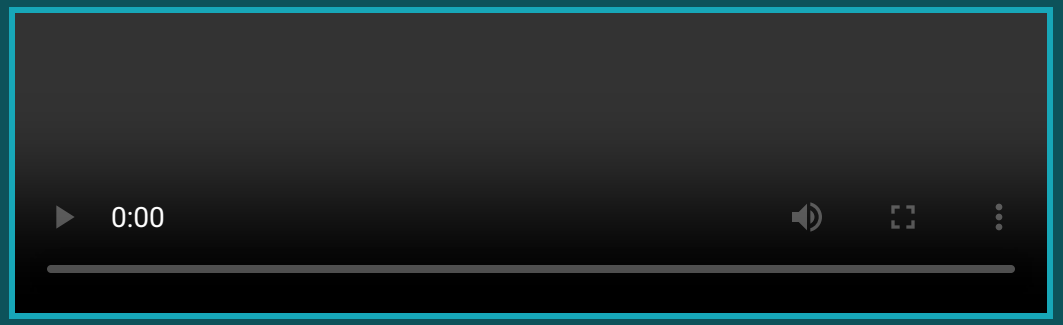
Safety: Risk to life and property

Regulatory: Enforcement notices

Fire Safety Video Demonstration

This video demonstrates critical fire safety procedures used in laboratory environments:

- Fire classifications and appropriate extinguishers
- RACE and PASS procedures in action
- Evacuation routes and assembly point guidance

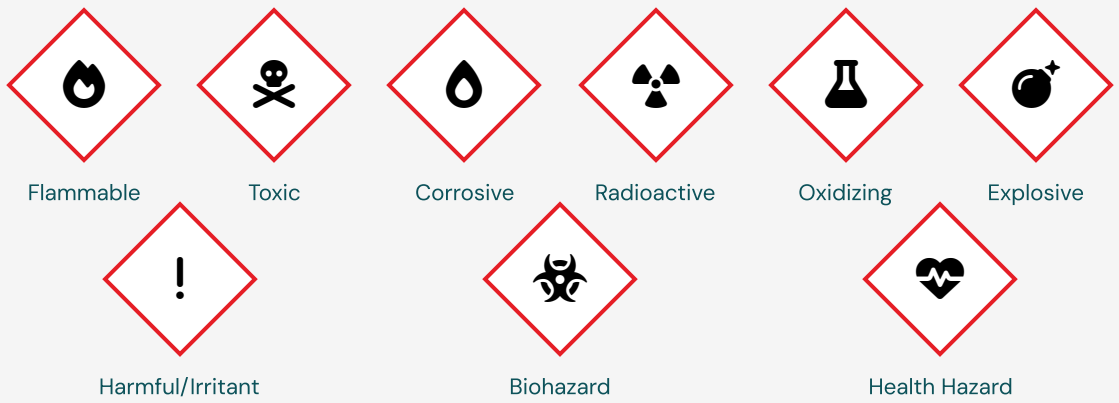


- Click play to start video demonstration
- Discussion will follow after viewing
- Note any questions for Q&A session

NRL OHSMS – Chemical Safety

Understanding hazard pictograms, exposure routes, and safety procedures

GHS Chemical Hazard Pictograms



Globally Harmonized System (GHS) pictograms appear as red diamond borders with black symbols inside. They provide immediate visual indication of the chemical hazards present.

Safety Data Sheets (SDS)

- Chemical name and properties
- Health hazard information
- First aid procedures
- Annual update reviews required
- Highlight first aid sections
- Must be accessible to all staff

Routes of Entry

- Inhalation: Breathing vapors/fumes
- Absorption: Through skin/mucous membranes
- Ingestion: Mouth entry (eating, smoking)
- Injection: Sharps, foreign bodies

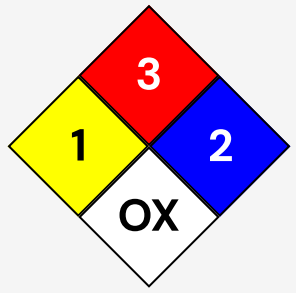
First Aid Procedures

- Flush with water (15+ minutes)
- Remove contaminated clothing
- Seek medical attention
- Document incident thoroughly
- Follow SDS-specific protocols

Spill Management

- Identify spilled material
- Alert supervisor & safety team
- Evacuate & restrict area
- Use appropriate PPE
- Apply neutralizer around edges
- Clean using proper tools

NFPA Diamond System

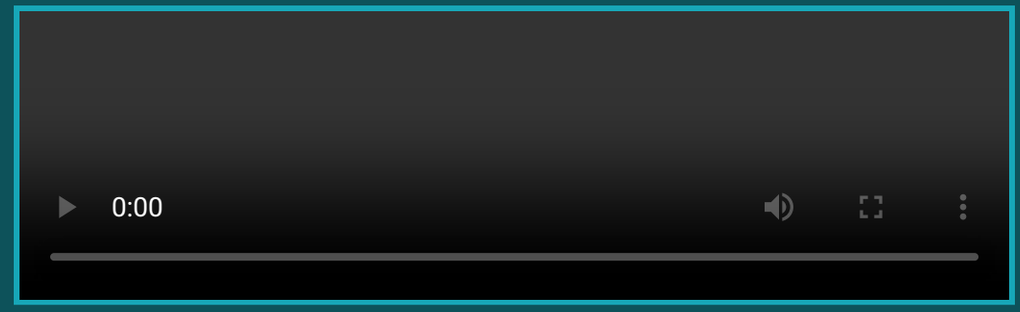


- Red (top left): Fire Hazard (0-4)
- Blue (top right): Health Hazard (0-4)
- Yellow (bottom left): Reactivity (0-4)
- White (bottom right): Special Hazards

Health Hazards

- Carcinogens → cancer
- Corrosives → chemical burns
- Hepatotoxins → liver damage
- Mutagens → DNA damage
- Nephrotoxins → kidney damage
- Neurotoxins → nervous system

Spill Management Video Demonstration



Click play to start video demonstration

Follow 9-step procedure shown in video

Report all spills per NRL incident protocol

This video demonstrates proper chemical spill management procedures in laboratory settings:

- 9-step spill response protocol implementation
- Proper use of spill kit components
- Neutralization, containment, and safe disposal techniques

Biohazard Safety

Types of Biohazards

- Human Specimens
- Microorganisms
- Cell Cultures
- Biological Toxins

Biosafety Levels

- **BSL-1:** Non-pathogenic
- **BSL-2:** Moderate risk
- **BSL-3:** High risk agents

Vaccinations

- Hepatitis B (mandatory)
- Annual influenza
- MMR & Td/Tdap (risk-based)

Exposure Response

- Wash exposed area
- Report to supervisor
- Seek medical care (2 hrs)
- Complete NRL-OHS-FRM-016

Infection Control

Prevent transmission of infectious agents in the laboratory

- Universal Precautions
  Treat all samples as infectious
- Engineering Controls
  Biosafety cabinets & safety equipment
- Administrative Controls
  SOPs & staff training
- NRL Program
  Follow NRL-OHS-SOP-022

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Selection

- Gloves: Nitrile for chemicals
- Eye protection: Safety glasses/goggles
- Respiratory: N95 masks when needed
- Body: Lab coats & gowns

Donning & Doffing

- Donning: Wash → coat → mask → eye → gloves
- Doffing: Gloves → eye → coat → mask → wash
- Use glove-in-glove removal technique
- Never touch contaminated surfaces

Care & Disposal

- Lab coats: Launder when contaminated
- Clean eye protection after use
- Dispose gloves in biohazard waste
- Report damaged PPE immediately

Lab Attire

Safety Requirements

Hair

Tie back hair longer than 6 inches Keep away from eyes and work No contact with open flames

Footwear

Completely enclosed shoes No sandals, open toe, or Crocs Must protect from chemicals

Clothing

No loose/flowing tops No wide sleeves Must accommodate lab coat

Accessories

No dangling neckwear No caps over eyes No contact lenses in lab Long pants to ankles only

Electronics

No iPods or MP3 players No headphones in lab Must hear alarms/warnings

NRL OHSMS - WASTE DISPOSAL

✖ Chemical Waste

- Yellow containers only
- Separate incompatibles
- Keep containers closed
- Use NRL-QA-FRM-090 labels

◯ Biological Waste

- Red bags & containers
- Fill only to ¾ capacity
- Disinfect liquid waste
- Document disposal

◯ Sharps Management

- Yellow puncture-proof boxes
- Never recap needles
- Replace when ¾ full
- Secure lids before disposal

✖ NRL Protocols

- Mandatory segregation
- Collections: Tue & Fri
- Emergency: Call ext. 7755
- Document using logs

Universal Precautions

Hand Hygiene

- Before & after all procedures
- Even when wearing gloves

Glove Use

- Select correct type for procedure
- Change between tasks

Spill Response

1. Assess spill & isolate area
2. Use appropriate spill kit

Hand Hygiene

Most important measure to prevent infections

- WASH: When visibly soiled
- SANITIZE: Between tasks

1. Wet & soap
2. Rub palms
3. Interlace fingers
4. Scrub nails
5. Clean thumbs
6. Rinse & dry

Emergency Response

Disaster Plan

- Command Center coordinates all emergencies
- Contact extension 8888 for all emergencies

Alarm Activation

- Activate nearest alarm for fire
- Call Medical Team for injuries

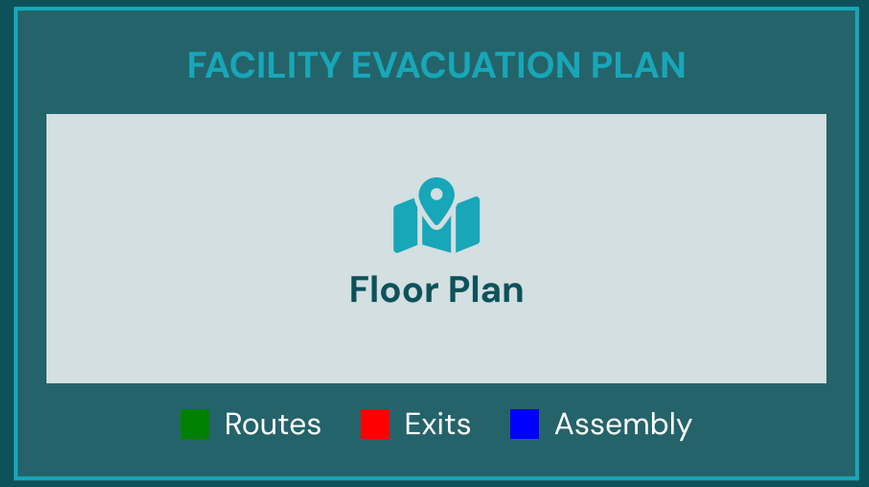
Emergency Team Roles

- Fire Wardens: Direct evacuation
- Floor Coordinators: Account for staff

Evacuation Procedures

Know your evacuation routes

- Routes
  Follow green arrows to exits
- Assembly Points
  North parking lot
- Assistance
  Help disabled personnel



INCIDENT REPORTING SYSTEM

✕ What to Report

- Laboratory accidents & spills
- Near-miss events
- Equipment failures
- Safety protocol violations

○ How to Report

- Notify supervisor immediately
- Submit OVR form (NRL-OHS-FRM-016)
- Complete Q-Pulse CAPA entry
- Report within 24 hours

■ After Reporting

- Root cause analysis
- Immediate corrective actions
- Update SOPs if needed
- Share lessons learned

NRL OHSMS – RISK MANAGEMENT

✖ Risk Identification

- Hazard Recognition
- Workplace Inspections
- Incident Investigation
- Form: NRL-OHS-FRM-023

◯ Risk Assessment

- Use 5×5 risk matrix
- Evaluate likelihood & severity
- Prioritize high risks
- Review annually

◯ Control Hierarchy

- Elimination (Best)
- Substitution
- Engineering Controls
- PPE (Last Resort)

✖ Continuous Review

- Quarterly Reviews
- Q-Pulse CAPA Tracking
- Annual Safety Audits
- Improvement Planning

OHS Emergency Contact Numbers

External Emergency Services

Police	**999**
Ambulance	**998**
Fire-Civil Defense	**997**
Electricity and Water	**991**
Environmental Agency (24 hrs)	**8009990**
Sheikh Shakhbout Medical City	**8007762**
Disaster Management Center	**024193666**
Abu Dhabi EHS Center	**026934747**
DOH OSHAD	**025048336**

NRL Internal Staff Contacts

Name	Role	Phone	Availability
Arslan Ahmed	Security	056-4209334	Day
Shijjan (Sree)	Security	056-8382540	Night
Kannan S Das	Safety Officer	050-1483087	Day & Emergency
Ajayan Unnikrishnan	Facilities	056-5247625	Day and Night
Shubin Kuriakose	Utilities	056-5701078	Day and Night
Bong Soriano	IT Support	050-9259365	Day and Night

For ALL emergencies: Contact Security first, then notify your supervisor and Safety Officer as soon as possible. Follow NRL-OHS-ERP-001 Emergency Response Plan.

OHSMS Quiz

1. In the RACE procedure, what does "C" stand for?
   - A. Call for help
   - B. Contain fire (close doors)
   - C. Clear the area

2. Which document provides detailed safety information for chemicals?
   - A. SDS (Safety Data Sheet)
   - B. COSHH assessment
   - C. Laboratory manual

3. When must you wear a lab coat in the laboratory?
   - A. Only when handling chemicals
   - B. At all times
   - C. Only during experiments

4. What should you do if you have a chemical splash on your skin?
   - A. Wipe it off with a paper towel
   - B. Rinse with water for 15 minutes
   - C. Apply neutralizing agent

5. Which of the following is not allowed in the laboratory?
   - A. Tied back long hair
   - B. Open-toed shoes
   - C. Safety glasses

6. How should biohazard waste be disposed of?
   - A. Regular trash bin
   - B. Red biohazard bag
   - C. Chemical waste container

Quiz answers will be discussed at the end of training. Minimum passing score: 80%