

Principal Investigator:
Lab Location:
Date:

Hazard Category	Subcategory	Working Quantities (not qtls in inventory)	Response		Potential Hazard(s)	Controls		
			Yes	No		Engineering	Administrative	PPE
Chemical 01	Corrosives: liquids and/or solids	< 4 liters, < 1 lb			<ul style="list-style-type: none"> Eye/skin damage Splash 	Chemical fume hood	<ul style="list-style-type: none"> General SOP for corrosives Chemical-specific SOP 	<ul style="list-style-type: none"> Splash goggles or safety glasses Chemical-resistant gloves 100% cotton lab coat
Chemical 02	Corrosives: liquids and/or solids	> 4 liters, > 1 lb			<ul style="list-style-type: none"> Poisoning Greater potential for eye/skin damage Splash 	Chemical fume hood	<ul style="list-style-type: none"> General SOP for corrosives Chemical-specific SOP 	<ul style="list-style-type: none"> Splash goggles Chemical-resistant gloves 100% cotton lab coat Chemical-resistant apron
Chemical 03	Flammable/combustible solvents; organic fixatives	< 4 liters			<ul style="list-style-type: none"> Eye/skin damage Potential poisoning through skin contact Fire 	Chemical fume hood	<ul style="list-style-type: none"> General SOP for flammables/combustibles Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves Flame-resistant lab coat or Nomex
Chemical 04	<u>Flammable/combustible solvents; organic fixatives</u>	> 4 liters			<ul style="list-style-type: none"> Major eye/skin damage Potential poisoning through skin contact Fire 	Chemical fume hood	<ul style="list-style-type: none"> General SOP for flammables/combustibles Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves Nomex
Chemical 05	Toxic substances	Any amount			<ul style="list-style-type: none"> Exposure through inhalation, ingestion, injection, or absorption 	Chemical fume hood	<ul style="list-style-type: none"> General SOP for toxic materials Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves 100% cotton lab coat
Chemical 06	Toxic substances - Carcinogens	Any amount			<ul style="list-style-type: none"> Exposure through inhalation, ingestion, injection, or absorption Cancer-causing 	Chemical fume hood	<ul style="list-style-type: none"> General SOP for carcinogens Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves 100% cotton lab coat
Chemical 07	Toxic substances -Reproductive toxicants	Any amount			<ul style="list-style-type: none"> Exposure through inhalation, ingestion, injection, or absorption Mutagenic Teratogenic 	Chemical fume hood or inert atmosphere chamber	<ul style="list-style-type: none"> General SOP for reproductive toxicants Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves 100% cotton lab coat
Chemical 08	Highly toxic substances	Any amount			<ul style="list-style-type: none"> Exposure through inhalation, ingestion, injection, or absorption Chemicals pose a high level of immediate health risk 	Chemical fume hood or inert atmosphere chamber	<ul style="list-style-type: none"> General SOP for toxic materials Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves 100% cotton lab coat
Chemical 09	<u>Pyrophoric or water-reactive chemicals (Class 2 or Class 3)</u>	Any amount			<ul style="list-style-type: none"> Severe skin/eye damage Fire 	Inert atmosphere chamber	<ul style="list-style-type: none"> General SOP for reactive materials Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Chemical-resistant gloves Nomex
Chemical 10	<u>Explosive/highly reactive materials</u>	Any amount			<ul style="list-style-type: none"> Detonation Flying debris Severe skin/eye damage Fire 	Chemical fume hood with blast shield or inert atmosphere chamber	<ul style="list-style-type: none"> General SOP for explosive, highly reactive materials Chemical-specific SOP 	<ul style="list-style-type: none"> Safety glasses or splash goggles Face shield Chemical-resistant gloves Nomex
Biological 01	Working with human or non-human primate blood, body fluids, tissues, cells, or other potentially infectious materials (OPIM), which may contain human Blood borne pathogens	Any			<ul style="list-style-type: none"> Exposure to infectious materials sharps injuries 	Biosafety Cabinet (BSC) Safety engineered sharps plasticware instead of glassware	<ul style="list-style-type: none"> Written SOP for procedures involving listed materials Appropriate training (documented) Proper waste disposal Signage 	<ul style="list-style-type: none"> fluid resistant lab coat eye protection gloves closed-toe shoes
Biological 02	Working with microbial agents (bacteria, virus, parasites, yeast, fungi, prions), recombinant DNA and/or biological materials exposed to or likely to be contain risk group 1 (RG1) microbial agents or rDNA	Any			<ul style="list-style-type: none"> Eye irritation sharps injury cross-contamination of animal or extra-laboratory areas Exposure of infectious materials to those who may have personal health issues which make them more susceptible to infection 	Biosafety Cabinet (BSC) Safety engineered sharps	<ul style="list-style-type: none"> Written SOP for procedures involving listed materials Appropriate training (documented) Proper disinfected waste disposal Signage 	<ul style="list-style-type: none"> lab coat eye protection gloves closed-toe shoes

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Biological 03	Working with microbial agents, recombinant DNA and/or biological materials exposed to or likely to contain risk group 2 (RG2) microbial agents or rDNA	Any			Exposure to infectious materials through broken skin or mucosal membranes Sharps injury	Biosafety Cabinet (BSC) Safety engineered sharps	Written SOP for procedures involving listed materials Appropriate training (documented) Proper disinfected waste disposal Signage	fluid resistant lab coat eye protection gloves closed-toe shoes
Biological 04	Working with microbial agents, recombinant DNA and/or biological materials exposed to or likely to contain Risk Group 2 microbial agents or rDNA for which biosafety level 3 practices are required (BSL2+ containment)	Any			Exposure to infectious materials through broken skin or mucosal membranes Sharps injury	Biosafety Cabinet (BSC) Safety engineered sharps	Written SOP for procedures involving listed materials BSL2+ training (documented) Proper disinfected waste disposal signage	dedicated/disposable lab coat (fluid resistant) face/eye protection double gloving closed-toe shoes; surgical mask or N95 (as determined by IBC)
Biological 05	Working with microbial agents, rDNA and/or biological materials exposed to or likely to contain Risk Group 3 agents or rDNA	Any			Exposure to infectious materials with high risk of exposure, particularly through inhalation route Sharps injury	BSL3 facility Biosafety Cabinet (BSC) Safety engineered sharps	Written SOP for procedures involving listed materials; enrollment in occupational health program BSL3 training (documented) Proper disinfected waste disposal signage	Scrubs; Tyvek suit with shoe covers Powered air purifying respirators (PAPR)/ N95 (determined by IBC) Double gloves dedicated shoes
Biological 06	Working with live animals alone or in conjunction with risk group 1 (RG1) agents or rDNA which falls under ABSL1 containment	Any			Animal bites Allergies/ Eye irritation Sharps injury Exposure to biological materials to personnel that may be susceptible to infection	Biosafety Cabinet/Changing Station Safety engineered sharps	Written SOP for procedures involving listed materials Appropriate training (documented) Proper disinfected waste disposal signage	Disposable gown Shoe covers Surgical face mask Gloves; hair bonnet
Biological 07	Working with infected or potentially infectious live animals alone/conjunction with risk group 2 (RG2) microbial agents or rDNA which required ABSL2 containment	Any			Animal bites Allergies/ Eye irritation Sharps injury Exposure to biological materials to personnel that may be susceptible to infection	Biosafety Cabinet/Changing Station Safety engineered sharps	Written SOP for procedures involving listed materials Appropriate training (documented) Proper disinfected waste disposal signage	Disposable gown Shoe cover Surgical face mask Gloves; hair bonnet
Biological 08	Working with biological toxins or materials exposed to biological toxins or toxic/venomous plants, animals or insects	Any			Exposure to toxins or venoms Sharp injury	Biosafety Cabinet/Changing Station Safety engineered sharps	Written SOP for procedures involving listed materials Appropriate training (documented) Proper disinfected waste disposal signage	fluid resistant lab coat eye protection gloves closed-toe shoes
Radiation 01	Working with radioactive material or radioactive waste (Solid & Liquid)	Any Amount			Damage to body cells Contamination of radioactive material	Appropriate Shielding	Contamination Checks Training and SOPs required Documentation - All activities	Gloves for applicable chemical hazard Safety glasses Lab coat
Radiation 02	Working with generally licensed sealed radioactive sources	Any Amount			If the integrity of sealed source is compromised either by physical abuse or removal of the source from equipment then high potential for spread of contamination Cell damage due to exposure		Sources inside equipment may be removed by manufacturer or EHS Waste: Disposed as radioactive waste	Normal working conditions - NO PPE required
Radiation 03	Working with generally licensed unsealed radioactive sources	Any Amount			Cell, Liver, Kidney damage due to chronic exposure Spread of contamination, Respiratory irritant.	Appropriate Shielding	Waste: Dispose it as radioactive waste through EHS Contamination Checks	Gloves for applicable chemical hazard Safety glasses Lab coat
Radiation 04	Working with radiation producing devices (Open X-rays, CT scanner, etc.)	NA			Damage to body cells. Acute and chronic exposures	Shielding	Dosimeter badges and rings Appropriate training	PPE might involve Lead Apron

Lab Hazard Analysis Tool

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Radiation 05	Working with self shielded radiation producing devices (X-ray Irradiator, XRD units)	NA			Potential for radiation exposure if fail proof mechanism is compromised	NA	Area monitors might be required. No personal dosimetry is required. Training to operate the machines.	NA
Radiation 06	Working with Ultraviolet radiation	NA			Corneal damage and Skin redness	NA		Lab coat UV face shield and goggles
Laser 01	Working with Class 3b laser open beam that can produce a direct exposure or specular reflection	5-500 mW or pulsed 10 J/cm ²			Eye and Skin Damage	Beam dumps for stray beam Barriers, shrouds, beam stops, etc. Interlocks	Access restriction Area controls with NHZ calculation Administrative and/or procedural controls Education and training	Protective eyewear appropriate to wavelength with correct optical density
Laser 02	Working with Class 4 laser open beam that could result in direct exposure or specular or diffuse reflection	>500mW or pulsed >10J/cm			Eye and Skin Damage	Beam dumps for stray beam Barriers, shrouds, beam stops, etc. Interlocks	Access restriction Area controls with NHZ calculation Administrative and/or procedural controls Education and training	Protective eyewear appropriate to wavelength with correct optical density
Laser 03	Enclosed Beam - Exposure during servicing a Class 3b or 4 laser system enclosed within a Class 1 device housing.	NA			Eye and Skin Damage	Protective housings should be interlocked	Lock out tag out during service	During Service - Protective eyewear appropriate to wavelength with correct optical density
Laser 04	Non-Beam: Repair/service of power source in laser system	NA			Electrocution and fire	Earthing, good housekeeping	Lock out tag out during service	NA
Laser 05	Non-Beam: Working with dyes, solvents and chemicals	NA			Fire, Carcinogens, Chemical exposure	Containment of chemicals and proper segregation	MSDS access for chemicals	Lab coats for chemicals, Gloves and appropriate eye protection
Physical 01	Extreme temperatures	N/A			• Burns • Frost bite • Splash	Ventilated area	• General SOP for cryogenic materials • Cryogen-specific SOP	• Safety glasses or splash goggles • Thermal gloves • 100% cotton lab coat (cryogenic)
Physical 02	High pressure or vacuum	N/A			• Flying debris • Severe skin/eye damage	Chemical fume hood with blast shield	• General SOP for high pressure or vacuum systems	• Safety glasses or splash goggles • Face shield • Chemical-resistant gloves • 100% cotton lab coat
Physical 03	Highly energized sources	N/A			Burns; electrocution		Electrical Safety; LOTO;	Non-conductive apparel including gloves
Physical 04	Welding, brazing, cutting, glassblowing	N/A			Burns; fire	Non-combustible work surface; ventilated area; fire extinguisher	Hot work program	• Safety glasses or splash goggles • Face shield • Chemical-resistant gloves • Flame-resistant lab coat or Nomex
Physical 05	Open flame (e.g. bunsen burner, alcohol lab burner, etc.)	N/A			Burns; fire	Non-combustible work surface; ventilated area; fire extinguisher Consider use of a non-flame alternative e.g. micro-incinerator	Generate required SOP(s) for work with open flames	• Safety glasses or splash goggles • Face shield • Chemical-resistant gloves • Flame-resistant lab coat
Physical 06	Sharps (pipet; scalpel; razor blades; cannula; hypodermic needles, etc.)				needlestick; puncture; laceration	work bench	BBP	puncture-resistant gloves