

LOUISIANA REFINING DIVISION PERSONAL PROTECTIVE EQUIPMENT REFERENCE GUIDE

Type of Hazard/Exposure	Physical Hazards															Chemical Exposures																								
	Area Entry															Splash, Gas &/or Vapor					Dust and Fume																			
	Process Units, Pipe Racks, Tank Farms, on Docks and in Fab Areas	Zone Shop Work Benches	Zone Shop Work Areas and Associated Fab Areas	Acid and Causitic Areas (Other than Hydrofluoric Acid - Refer to Alky PPE Matrix)	Electrical Shock or Flash	Work at Elevations 6-18 1/2ft. above lower level	Elevated Tank Work on Vertical Lifelines	Falling Objects	Eye & Face Hazards from Pressurized Liquids, Steam, Flying Particles or Objects	High Noise Areas (> 82 dBA)	Thermal Burns and Flash Fires	Welding Arc Flash and Slag	Abrasive and /or Sharp Objects	Foot Hazards	Elevated confined space work area temperatures (>109o F)	Hot Liquid Service (140F - 400F)	Elevated temperatures (>80°F for >15 minutes) while wearing impermeable clothing (e.g. Acid or Slicker Suits, Tyvek)	Miscellaneous Liquid Hydrocarbons (Crude, Naphtha, Gasoline, Platformate, Distillate)	Perchloroethylene (>12.5 ppm)	Phenol (>2.5 ppm)	Amines (MDEA or DGA) (>3 ppm)	Benzene (>0.5 ppm)	Sulfur Dioxide (>0.5 ppm)	Mercaptans - Butyl-, Ethyl-, Methyl- (>0.5 ppm)	Hydrogen Sulfide (>10 ppm)	Ammonia (>25 ppm)	Carbon Monoxide (>25 ppm)	Inert Gas (Nitrogen, Argon, etc released that results in less than 19.5% Oxygen)	Hydrofluoric Acid (3 ppm PEL)	Acids (NOT including HF)	Caustic Flakes/Powder/Liquid (Sodium or Potassium Hydroxide, Sodium Bicarbonate, Sodium Hypochlorite)	Lead (During disturbance of lead based paint or paint of unknown content) (0.05 mg)	Arsenic (During disturbance of refractory or hydrotreater catalyst) (.010 mg/m3)	Crystalline Silica (During installation of new or disturbance of old refractory or Asbestos (0.1 f/cc) & Refractory Ceramic Fibers (0.2 f/cc)	Hexavalent Chromium (Released during hot work on Chrome alloys (i.e. Stainless) (0.005 mg/m3)	Response to Fire	Response to Uncontrolled Hazardous Chemical Liquid, Gas or Vapor Release			
Required Personal Protective Equipment																																								
Basic PPE Requirements (Flash, Head, Eye and Hearing Protection and H2S Exposure Indication) for Refinery Work Area Entry	X	X	X	X	X						X	X		X		X																								
Full-body fire retardant clothing (FRC) (e.g. Nomex); Safety glasses with side shields; Steel toed boots or shoes	X			X	X		X									X																								
Class E Hardhat	X			X	X			X																																
UVEX FlexSeal or Non-vented goggles (must be kept with you) for eye protection from liquids and particles during bulk transfers, sampling and handling	X		X	X				X																																
Personal H2S Monitor	X			X																																				
Ear Plugs or Ear Muffs (NRR of 25 or greater)	X			X					X																															
Hand Protection																																								
Cut Level 3, or greater, work gloves required when work involves contact with sharp or abrasive surfaces	X		X										X																					X	X	X	X	X		
HexArmor 2085 Helix (nitrile palm coating over a 13-gauge seamless knit liner) for contact with residual hydrocarbons (e.g. lubes)												X					X																		X	X	X			
Nitrile glove liners (light blue, yellow-green and purple) for use in laboratories or to supplement outer glove protection				X													X		X	X	X		X	X	X			X	X	X			X	X	X	X	X			
Welding gloves and welding shield											X																							X			X			
ThermaPrene (black) gloves (18" Ansell neoprene/thermal liner) for contact with hot containers/surfaces (less than 400°F) during sampling or maintenance										X					X																									
Face Protection																																								
Faceshield required if there is a potential for exposure to flying particles, objects or chemical splashes								X									X		X	X	X		X	X	X			X	X	X										
UVEX FlexSeal or Non-vented goggles worn for eye protection from liquids and particles during work, bulk transfers, sampling and handling				X																								X	X											
Body Protection																																								
PVC Slicker Suit Pants & Coat (yellow) for splash protection during sampling, bulk transfers or cleanup																	X		X	X	X		X	X	X			X	X	X										
Full-body Tychem 2000 SFR (Olive Drab / Green) and chemical boots to prevent contamination of clothing with hazardous liquid and solids																													X	X										
Full-body Tyvek (yellow) to prevent contamination of clothing with hazardous dust particles																														X	X	X	X	X	X					
Shock and electric flash protective clothing (Reference Electrical Safe Approach Distance and PPE Selection Matrix)					X																																			
Bunker Gear OR Kappler DuraChem 200 Suit (or equivalent) Bibs & Coat for hot liquid protection when there is potential for splash or skin contact															X																									
Respiratory Protection (Based on atmospheric testing & Respiratory Protective Equipment Selection Guide or Exposure Control Measure Requirements Matrix) *RAM Score is ultimate determination of Respiratory Protection for Invasive Work*																																								
Supplied Air Respirators (Airline or SCBA) Selection is work scope dependent.																	X		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X		
Air Purifying Respirators (Half-Face, Full-Face, Powered-APR - Refer to LRD Hazard Characterization & Respiratory PPE Selection Guide RSW-A-002-GV)																	X		X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X				
Heat Stress Exposure Protection																																								
Isotherm Cool-Vest for use under Bunker Gear and impermeable clothing.																X												X												
Personal air conditioner attached to air fed hood inlet (Used only with supplied respiratory protection)																X												X												
Personal air conditioner worn under Acid Suit, Slicker Suit or Tyvek																X												X												
No PPE available at the LRD - Engineered control required														X																										
Fall Protection																																								
Full-body harness with self retractable lanyard					X																																			
Full-body harness with shock absorbing lanyard						X																																		
Emergency Response Flash Protection (Body; Head; Foot; Hand) and Respiratory Protection																																								
Bunker Coat, Pants, Helmet, Gloves, Hood, Boots & SCBA																																					X			
Level A Suit with Flash Protection (Kappler Reflector) HazMat Boots & SCBA																																						X		
HF Protection (Reference Lab Procedures & HF Alky PPE Guide and Job Task Matrix)																																								
Alky Level D PPE: Basic PPE; PVC gloves; PVC boots; Faceshield and safety glasses with side shields or Non-vented goggles																																								
Alky Level C PPE: PVC (HighGlo yellow) Acid Suit Pants & Coat; PVC boots; PVC gloves; Faceshield and UVEX FlexSeal or Non-vented goggles																																								
Alky Level B PPE: PVC (HighGlo yellow) Acid Suit Pants & Air Fed Hood (Full face airline respirator required); PVC boots; PVC gloves																																								
PVC (HighGlo yellow) Acid Smock use only in HF Lab during HF sample handling & analysis																																								

X - Minimum required PPE PPE requirements defined in this document are based on regulatory requirements and assessments of potential hazards conducted by LRD Safety.