SAN DIEGO
HAZARDOUS INCIDENT RESPONSE TEAM

STANDARD OPERATING GUIDELINES

Unknown Materials

	ITEM	DESCRIPTION
☐	**BACKGROUND INFORMATION**	▪ Approach UPWIND/UPGRADE and stay out of the spill or plume while getting within viewing distance. ▪ Wear appropriate personal protective equipment (PPE), at a minimum turnouts and SCBA. ▪ Recognize signs of chemical reactions: heat, vapors, fizzing, or pressurization. A thermal imaging camera (TIC) can help evaluate containers for chemical reactions. ▪ In cases where explosives or shock sensitive materials are suspected DO NOT TOUCH! Call EOD (the bomb squad). See table and list of potentially explosive materials below.
☐	**INITIAL SIZE UP**	▪ Exposures / injuries? What are the symptoms? ▪ Ongoing release or stagnant? Potential size of release? ▪ Is there a responsible party with more information on the unknown material(s)? ▪ What are the containers and quantities? ▪ Solid, liquid, gas? Any odors? ▪ Is the unknown material inside or outside? HVAC shut down and/or isolated?
☐	**PROTECTIVE MEASURES**	▪ Isolate / Deny Entry ▪ Determine rescue if applicable ▪ Utilize an all hazards approach with available monitoring and detection equipment ▪ Secure area, use banner tape to set up exclusion zones ▪ Evacuation? ▪ Shelter in Place? ▪ Dam, divert, dike to contain and prevent entry into any storm drains or waterways
☐	**TACTICAL ACTIONS**	▪ Establish Site Safety / Incident Action Plan ▪ Determine quantity and location of leak ▪ Determine potential for exposures and contamination ▪ Determine Control Zones ▪ Conduct sampling and chemical identification ▪ Use appropriate PPE including splash protection when opening containers.
☐	**MONITORING & DETECTION**	▪ Thermal Imaging Camera ▪ CGI ▪ PID ▪ Multi Rae Pro ▪ pH paper ▪ Oxidizer paper ▪ Fluoride paper ▪ Peroxide Test Strips ▪ IR: Raman / FTIR ▪ MX908 ▪ Rad: Identifinder, Ludlum, Vortec, Pager ▪ Bio: Raid 8, Alexeter, BT 650

☐	**TECHNICAL REFERENCES**	▪ Safety Data Sheets (SDS) ▪ ERG ▪ NIOSH ▪ WISER ▪ CAMEO ▪ PEAC ▪ Chemical Protective Clothing Guide ▪ Estimate plume projection, if applicable
☐	**MITIGATION AND CONTAINMENT**	▪ Absorbents / absorbent pads ▪ Plug and patch ▪ Dam and diking ▪ Fog stream and runoff
☐	**ADDITIONAL RESOURCES**	▪ Fire ▪ Law ▪ EMS ▪ Bomb Squad ▪ Military ▪ 9th CST ▪ Public Works ▪ Poison Control ▪ US EPA
☐	**NOTIFICATIONS**	▪ CAL OES ▪ CUPA ▪ Fire ▪ Code Enforcement ▪ Stormwater ▪ US Fish and Wildlife ▪ CA Fish and Game ▪ USCG
☐	**PERSONAL PROTECTIVE EQUIPMENT**	Based on chemical identification: ▪ Turnouts with SCBA ▪ Level A ▪ Level B ▪ Level C
☐	**DECONTAMINATION**	Based on chemical identification: ▪ Water ▪ Water and soap ▪ Hydrogen peroxide 10% ▪ Decon 7 ▪ Citric acid ▪ Soda ash
☐	**CLEAN UP & DISPOSAL**	▪ Responsible Party ▪ Licensed clean up contractor ▪ Waste manifests ▪ Enforcement: photographs and sampling
☐	**INCIDENT TERMINATION**	▪ Safe to reoccupy, re-monitoring ▪ ICS forms

Common Organic Peroxide-Forming Chemicals[1]

(Note: List is not all-inclusive. List only includes pure liquids; solids, gases, and mixtures may also have peroxide hazards.)

Group A

Potentially explosive levels of peroxides without concentration (e.g., evaporation).

Expiration date after opening: ***3 months***

Butadiene	Diisopropyl ether (Isopropyl ether)	Potassium metal
Chloroprene	Divinylacetylene	Sodium amide (Sodamide)
Dichloroethylene (Vinylidene chloride)	Potassium amide	Tetrafluoroethylene

Group B

Potentially explosive levels of peroxides on concentration (e.g., evaporation during storage).

Expiration date after opening: ***12 months***

Acetal	Diacetylene	2-Hexanol	1-Phenylethanol
Acetaldehyde	Dicyclopentadiene	Methyl acetylene	2-Phenylethanol
Benzyl alcohol	Diethyl ether (Ether)	3-Methyl-1-butanol (Isoamyl alcohol)	2-Propanol (isopropanol; IPA)
2-Butanol	Diglyme	Methyl isobutyl ketone	Tetrahydrofuran
Cumene	Dioxanes	4-Methyl-2-pentanol	Tetrahydronaphthalene
Cyclohexanol	Dimethoxyethane	2-Pentanol	Vinyl ethers
Cyclohexene	Furan	4-Penten-1-ol	Other secondary alcohols
Decahydronaphthalene	4-Heptanol		

Group C

Potential for explosive peroxide formation and initiation of autopolymerization.

Expiration date after opening: ***24 hours if uninhibited; 6 months if inhibited***

Acrylic acid	Chlorotrifluoroethylene	Vinyl acetate
Acrylonitrile	Methyl methacrylate	Vinyl acetylene
Chlorobutadiene	Styrene	Vinyl chloride
		Vinyl pyridine

POTENTIAL EXPLOSIVE AND SHOCK-SENSITIVE MATERIALS

Acetylides of heavy metals
Aluminum ophorite explosive
Amatol
Ammonal
Ammonium nitrate
Ammoniuim perchlorate
Ammonium picrate
Ammonium salt lattice
Butyl tetryl
Calcium nitrate
Copper acetylide
Cyanuric triazide
Cyclotrimethylenetrinitramine
Cylcotetramethylenetetranitramine
Dinitroethyleneurea
Dinitroglycerine
Dinitrophenol
Dinitrophenolates
Dinitrophenyl hydrazine
Dinitroresorcinol
Dinitrotoluene
Dipicryl sulfone
Dipicrylamine
Erythritol tetranitrate
Fulminate of mercury
Fulminate of silver
Fulminating gold
Fulminating mercury
Fulminating platinum
Fulminating silver
Gelatinized nitrocellulose
Guanyl nitrosamino guanyl tetrazene
Guanyl nitrosamino guanylidene hydrazine
Heavy metal azides
Hexanite
Hexanitrodiphenylamine
Hexanitrostilbene
Hexogen
Hydrazinium nitrate
Hydrazoic acid
Lead azide
Lead mannite
Lead mononitroresorcinate
Lead picrate
Lead salts
Lead styphnate
Trimethylolethane
Magnesium ophorite
Mannitol hexanitrate
Mercury oxalate
Mercury tartrate
Mononitrotoluene
Nitrated carbohydrate
Nitrated glucoside
Nitrated polyhydric alcohol
Nitrogen trichloride
Nitrogen tri-iodide
Nitroglycerine
Nitroglycide
Nitroglycol
Nitroguanidine
Nitroparaffins
Nirtonium perchlorate
Nitrourea
Organic amine nitrates
Organic nitramines
Organic peroxides
Picramic acid
Picramide
Picratol
Picric acid
Picryl chloride
Picryl flouride
Polynitro aliphatic compoinds
Potassium nitroaminotetrazole
Silver acetylide
Silver azide
Silver styphnate
Silver tetrazene
Sodatol
Sodium amatol
Sodium dinitro-ortho=cresolate
Sodium nitrate-potasium nitrate
Sodium picramate
Syphnic acid
Tetrazene
Tetranitrocarbazole
Tetrytol
Trimonite
Trinitroanisole
Trinitrobenzene
Trinitrobenzoic acid
Trinitrocresol
Trinitro-meta-cresol
Trinitroaphthalene
Trinitrophenetol
Trinitrophloroglucinol
Trinitroresorcinol
Tritonal
Urea nitrate