

Explosive

- When responding to the scene of an explosion the cause will not always be clear. Consider an Improvised Explosive Device (IED) if it occurs on a significant date in history or the scene holds value as a target.
 - Park outside the debris field, locate the Incident Commander and follow the EMS Incident Response Plan.
 - DO NOT transmit on UHF/VHF radios inside the debris field and turn 800 MHz radios OFF because they transmit automatically and can detonate a device.
 - If on-scene clues point to chemical or radiological involvement don the appropriate PPE before entering the area.
 - Remove live victims from the debris field quickly, by whatever means necessary, and transport to a Trauma Center.
 - Maintain safety by minimizing time on the scene. LOAD and GO.
 - DO NOT handle dead bodies.
 - If a suspicious item is discovered evacuate personnel immediately and notify the command post.
 - Patients should be carefully examined during transport for penetrating trauma as it may be very subtle.
- * An explosion in a confined space (bus, room) will increase injury***

Secondary Devices/Suicide Bombers

Look for anything that seems out of place, such as:

1. Persons trying to blend into a group they don't fit into
2. Unusual protrusions from clothing
3. Abandoned items of value
4. Vehicles with windows blacked out or darkened
5. A Person avoiding Law Enforcement/Security officers, walking deliberately but not running.
6. Clothing that is loose or out of sync with: weather, social position, or location.

Threat Description	Explosive Mass†	Building Evac.††	Outdoor Evac.†††
Pipe bomb (metal or PVC)	5 pounds	70 feet	850 feet
Suicide belt	10 pounds	90 feet	1,080 feet
Suicide vest	20 pounds	110 feet	1,360 feet
Briefcase/suitcase	50 pounds	150 feet	1,850 feet
Compact car (in trunk)	500 pounds	320 feet	1,500 feet
Full-size car (in trunk)	1,000 pounds	400 feet	1,750 feet
Passenger/cargo van	4,000 pounds	640 feet	2,750 feet
Small box van/truck	10,000 pounds	860 feet	3,750 feet
Large box van or water/fuel truck	30,000 pounds	1,240 feet	6,500 feet
Semi-trailer	60,000 pounds	1,570 feet	7,000 feet

† Based on the amount of material (TNT equivalent) that could reasonably fit, variations are possible.

†† Governed by the ability of an unreinforced building to withstand severe damage or collapse.

††† Governed by the greater fragment throw distance or glass breakage/falling glass hazard distance.

Chemical

Agent	Example	Toxicity	Signs/Symptoms	Treatment
ASPHYXIANTS (simple)	Carbon Dioxide Nitrogen Methane Natural Gas	<ul style="list-style-type: none"> •Displaces oxygen in environment, causing hypoxia. •Occurs in many environments depends on source strength. 	<ul style="list-style-type: none"> •Anxiety and tachycardia due to hypoxemia. •Syncope, coma, and death if not removed from environment. 	<ul style="list-style-type: none"> •Removal from environment, oxygen. Victim should not deteriorate after removal from agent unless due to underlying disease complications (e.g. cardiac disease)
ASPHYXIANTS (chemical)	Hydrogen sulfide (HS) CO Methylene chloride Cyanide (CN)	<ul style="list-style-type: none"> •Chemically interfere with use of oxygen by body tissue, for example closed space exposure. 	<ul style="list-style-type: none"> •Anxiety, tachycardia, eventual syncope, coma, and death if not removed from exposure area. •Peripheral and perioral cyanosis •Cyanide=severe acidosis •Methylene Chloride= CO in body 	<ul style="list-style-type: none"> •Remove from environment, provide airway support/O2. •If Cyanide (CN) highly likely, give both sodium nitrite and sodium thiosulfate. (May use amyl nitrite ampules under nose if no IV access). •For fire exposure and questionable CN toxicity, give thiosulfate alone. •For symptomatic HS exposures give sodium nitrite alone. •Contact medical control for orders.
CORROSIVES	Acids: HCL nitric, sulfuric, HF Bases: NaOH, KOH Oxidizers: white phosphorous	<ul style="list-style-type: none"> •Damage to tissues. •Bases penetrate tissues deeply, acids affect surface tissues. •Oxidizers react with O2 in exothermic reaction, causing burns. 	<ul style="list-style-type: none"> •Local pain. •Bases may not have many initial symptoms. •Look particularly for respiratory, and ocular involvement. •Esophageal burns may present with normal oral exam. 	<ul style="list-style-type: none"> •Copious irrigation with water. If base involved, continuous irrigation until surface pH neutral 5 min after last irrigation (topical eye anesthesia required for effective eye irrigation, e.g., proparacaine, consider Morgan lens). •Oxidizers: consult poison control. •HF or white phosphorus - Calcium IV if dysrhythmias (Calcium chloride 1 amp via large bore IV, repeat as needed).
CHOLINERGIC	Nerve agents Organophosphates Carbamate pesticides	<ul style="list-style-type: none"> •Allows uncontrolled persistent nerve stimulation by poisoning acetylcholinesterase. 	<p>'DUMBELS'</p> <ul style="list-style-type: none"> •Diarrhea •Urination •Miosis •Bradycardia •Bronchorrhea •Bronchospasm •Emesis •Lacrimation •Secretion •Sweating <p>•Critical findings: miosis (small pupils), excess secretions, and respiratory distress.</p>	<ul style="list-style-type: none"> •DECON- (poses threat to rescuers from contact/vapor) •ABCs including intubation if required. •Atropine— 3-5 mg per dose IM/IV (0.1mg/kg) REPEAT as needed to control secretions and allow for ventilations. •Pralidoxime - 1 - 2g IV or 25 mg/kg (not required for carbamate exposure) over 10 min, repeat at 30 min if still critically ill or exhibiting fasciculations, seizures or general weakness. OR—Mark 1 kits x 2-3 IM for severe poisoning (CAN be given through clothing). •Benzodiazepines (e.g. midazolam, lorazepam) – for all severe poisonings IV or IM.
HYDROCARBONS AND HALOGENATED HYDROCARBONS	Gasoline Toluene Lamp oil Carbon tetrachloride Refrigerants	<ul style="list-style-type: none"> •CNS and myocardial depressants, increase risk of dysrhythmia with adrenergic drugs. •Certain halogenated hydrocarbons have specific toxic effects. (Methylene chloride produces CO) in body) 	<ul style="list-style-type: none"> •Somnolence, agitation, vomiting, hypoxia. •Some agents may cause severe GI burns. •Inhaled agents can cause hypoxemia. 	<ul style="list-style-type: none"> •Flammable and explosive— control residual on clothing. •Supportive treatment, avoid beta-agonists if possible. •Aggressive eye irrigation if ocular exposure. •Lidocaine or amiodarone per ACLS doses for ventricular dysrhythmias.
IRRITANT GASES	Ammonia Chlorine Phosgene	<ul style="list-style-type: none"> •Irritates respiratory tract, no major systemic effects. Make sure HF is not involved (see corrosives). •Ammonia is highly water soluble = immediate upper airway symptoms •Chlorine is moderately water soluble= upper and lower airway symptoms (may be delayed). •Phosgene is less water soluble = delayed and mostly lower airway symptoms. 	<ul style="list-style-type: none"> •Airway irritation •Stridor •Airway swelling •Eye irritation •Immediate or delayed pulmonary edema. 	<ul style="list-style-type: none"> •Supportive airway management, (may include oxygen, bronchodilators, BiPAP or intubation). •Analgesic/anesthetic eye drops, observation.
MIXED LOAD or UNIDENTIFIED CARGO	<ul style="list-style-type: none"> •Unmarked containers, •Transporting vehicle not properly marked. •Transporting vehicle properly marked with numerous chemicals on board. 	<p>Unknown</p> <p>** Can be any combination depending on the cargo</p>	<ul style="list-style-type: none"> •Inhalation, ingestion, or contact with substance may cause severe injury, disease, or death. •High concentration of gas may cause asphyxiation without warning. •Contact may cause burns to skin and eyes. •Fire or contact with water may produce irritating, toxic, and/or corrosive gases. 	<ul style="list-style-type: none"> •Move victim to fresh air. •Supportive airway management, (may include oxygen, bronchodilators, BiPAP or intubation). •Remove and isolate contaminated clothing and shoes. •*In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. •Ensure patient is decontaminated properly. •Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.