Early Considerations!
Collect intelligence, Document signs and symptoms of victims, Evaluate scene & situation, Potential explosives should be evaluated by the local bomb squad, Cordon off area, Isolate, Evacuate, Disable HVAC, Seal doors and cracks, Delineate hotzone (wind direction and intensity), Turn on radiation meter while preparing entry, Approach uphill/upwind/upstream, Follow H&S plan, Sampling plan, & Decontamination procedures for personnel/sample containers/equipment, consult with Incident Commander and law enforcement

Calibrate instruments/Collect background readings

Team enters hot zone

Team dons Level A or B PPE (consult with H&S Manager)

(Video/photo documentation)

Combustible Atmosphere and Oxygen

- O₂ Normally 20.8%
- CGI > 10% LEL
- O₂ < 19.5% or O₂ > 23.5%

Radiological Radiation Background Normally 5-15 µR/hr

- > 0.1 mR/hr
- > 100 µR/hr
- Continuous ambient reading

Chemical Agents Tests

- (POS) Biological Potential
- (NEG) Chemical Agents

Biological** Potential Biological Agent

- (POS) Biological Agents
- (NEG) Chemical Agents

Industrial Chemical Field Tests

Send to Chemical Agent Lab ***

Send to commercial chemical lab ***

Send to Biological Lab ***

** If the situation is suspicious send samples to biological lab.

*** Send to laboratory if radiation is less than 3 times background. If above, consult with laboratory prior to shipping.
CHEMICAL AGENTS TESTS

Agents Identified:
- Nerve G and V
- Blister H and L
- Pepper Spray/Mace

Agents Identified: Nerve G and V
- Phosphorus
- Sulfur

Phosphoric Acid Ester
- Nerve agents (G, VX)

Thioether
- Blister agents (H, HD)

Organic Basic Nitrogen Compounds
- Blister agents (HN)

Organic Arsenic Compounds
- Lewisite (L)

Organic Arsenic Compounds
- Lewisite (L)

Arsine

HCN

Phosgene

Chlorine

SpillFyter Test Strip
- Indicates:
  - Acid/Base Oxidizers Fluoride
  - Organic solvents/petroleum distill.
  - Iodine/bromine/chlorine

Optional Hazcat Tests:
- Hexane solubility (to determine organic compounds)
- Peroxide test (possible shock sensitive crystals)
- Ammonia test

If a solid is negative for all tests, run a protein, starch, and sugar test.

Industrial Chemical Quick Guide
More detailed tests can be conducted using the detailed hazard categorization test flow chart.

INDUSTRIAL CHEMICAL FIELD TESTS

always use multiple detection technologies

**CHEMICAL AGENTS TESTS**

**AP2C**, S4PE with scraper attachment

**Air/Vapor/Liquid/Solid**

**Agents Identified:**
- Nerve G and V
- Blister H (sulfur)

**Drager Tubes**

**Air/Vapor**

**Phosphoric Acid Ester**
- Nerve agents (G, VX)

**Thioether**
- Blister agents (H, HD)

**Organic Basic Nitrogen Compounds**
- Blister agents (HN)

**Organic Arsenic Compounds**
- Lewisite (L)

**Organic Arsenic Compounds**
- Lewisite (L)

**Arse**

**HCN**

**Phosgene**

**Chlorine**

**Agents Identified:**
- Blood Agent Lewisite Nerve (G)
- Blister (H)

**APD2000**

**S4PE with scraper attachment**

**Air/Vapor**

**Agents Identified:**
- Nerve G and V
- Blister H and L
- Pepper Spray/Mace

**M8 Paper**

**Liquid**

**YELLOW**

**NERVE (G)**

**NERVE (V)**

**BLISTER (H)**

**NERVE (G,V)**

**RED**

**NERVE (G,V)**

**BLISTER (H,L)**

**RED/PINK**

**Agents Identified:**
- Blood Agent Lewisite Nerve (G)
- Blister (H)

**Air/Vapor**

**Agents Identified:**
- Nerve G and V
- Blister H and L
- Pepper Spray/Mace

**Drager Tubes**

**Air/Vapor**

**Phosphoric Acid Ester**
- Nerve agents (G, VX)

**Thioether**
- Blister agents (H, HD)

**Organic Basic Nitrogen Compounds**
- Blister agents (HN)

**Organic Arsenic Compounds**
- Lewisite (L)

**Phosgene**

**Hydrocyanic acid**

**Chlorine**

**Portable GC/MS**

- Hazmat ID
- Travel IR

**Portable IR**

- Hazmat ID
- Travel IR

**M256 Kits**

**Air/Vapor**

**Agents Identified:**
- Blood Agent Lewisite Nerve (G)
- Blister (H)

**SPM Tape Meter**

**Air/Vapor**

**Agents Identified:**
- Blood Agent Lewisite Nerve (G)
- Blister (H)

**Hapsite**

**Portable**

**GC/MS**

- Hazmat ID
- Travel IR

**Drager Tubes**

**Air/Vapor**

**Phosphoric Acid Ester**
- Nerve agents (G, VX)

**Thioether**
- Blister agents (H, HD)

**Organic Basic Nitrogen Compounds**
- Blister agents (HN)

**Organic Arsenic Compounds**
- Lewisite (L)

**Organic Arsenic Compounds**
- Lewisite (L)

**Arsine**

**HCN**

**Phosgene**

**Chlorine**

**SpillFyter Test Strip**
- Indicates:
  - Acid/Base Oxidizers Fluoride
  - Organic solvents/petroleum distill.
  - Iodine/bromine/chlorine

**If a solid is negative for all tests, run a protein, starch, and sugar test.**

**Industrial Chemical Quick Guide**
More detailed tests can be conducted using the detailed hazard categorization test flow chart.

- pH Test Results
  - pH <5
  - pH >8

- Oxidizer
  - YES
  - NO

- ACID
  - PEROXIDE TEST
  - YES
  - NO

- Cyanide and Sulfide
  - YES
  - NO

- Possible Reactive CN- or S-
  - POSSIBLE PCBs

- Chlorinated compound
  - YES
  - NO

- Chlor-n-oil or Bielstein
  - YES
  - NO

- Bielstein
  - BROWN oil-like material
  - YES
  - NO

- Possible Hydrocarbon
  - POSSIBLE PCBs

- Possible Hydrocarbon
  - POSSIBLE PCBs

- Peroxide test (possible shock sensitive crystals)
- Ammonia test
- Protein, starch, and sugar test

- MultiWARN, SPM, Drager, CMS, MultiRAE

- Hydrocarbon
- Organic Arsenic Compounds
- Lewisite (L)
- Phosgene
- Chlorine

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