

Initial Isolation Distances

Solid = 75'
 Liquid = 150'
 Gas = 300'

Flammables = 1000'
 Explosives = 1000'

PPE is mission driven
 Rescue = Turnouts
 Plumbing = HazMat Suit

>10% LEL = Turnouts

Molecular Weight of Air = 29
 Vapor Density (RgasD) - Air = 1
 Specific Gravity - Water = 1

Responder Protection

F Paper (Wet)
 pH Paper (Wet)
 KI Paper
 O₂ Meter
 CGI
 Temp Gun / TIC
 Radiation Meter
 (Ion Chamber or Dosimeter)

Public Protection

M8 / M9
 PID
 FID / HC tube
 Compound Spec Tube
 Compound Spec Meter

Solubility

< or = 10% - Use water to ventilate and push vapors
 > 10% - Use water stream to absorb

Radioactive Material DOT ERG
 161, 162, 163, 164, 165, 166
 166 = Level A HazMat Suit

Corrosive Gases DOT ERG

118 (>7)
 123, 124, 125 (<7)
 All Require Level A HazMat Suit

Unidentified Cargo or Mixed Load

Use DOT ERG Guide 111

Vapor Pressure of Water = 25 mmHg
 VP of Boiling Water = 760 mmHg (1 atm)
 > 760 mmHg = Gas
 > 40 mmHg = Significant Volatilization

1% = 10,000 ppm

When figuring Oxygen displacement
 % O₂ displaced x 10,000 x 5 = ppm of chemical displacing the oxygen



Hydrogen
 1 W
 H

Lithium
 3 W
 Li

Beryllium
 4 W
 Be

Acidic
 Neutral
 Caustic

Boron
 5
 B

Carbon
 6
 C

Nitrogen
 7
 N

Oxygen
 8
 O

Fluorine
 9
 F

Helium
 2
 He

Neon
 10
 Ne

Argon
 18
 Ar

Krypton
 36
 Kr

Xenon
 54
 Xe

Radon
 86
 Rn

ASPHYXIANTS

LEVEL A FREONS

Sodium
 11 W
 Na

Magnesium
 12 W
 Mg

Aluminum
 13
 Al

Silicon
 14
 Si

Phosphorus
 15
 P

Sulfur
 16
 S

Chlorine
 17
 Cl

Potassium
 19 W
 K

Calcium
 20 W
 Ca

Scandium
 21
 Sc

Titanium
 22
 Ti

Vanadium
 23
 V

Chromium
 24
 Cr

Manganese
 25
 Mn

Iron
 26
 Fe

Cobalt
 27
 Co

Nickel
 28
 Ni

Copper
 29
 Cu

Zinc
 30
 Zn

Gallium
 31
 Ga

Germanium
 32
 Ge

Arsenic
 33
 As

Selenium
 34
 Se

Bromine
 35
 Br

Rubidium
 37 W
 Rb

Strontium
 38 W
 Sr

Yttrium
 39
 Y

Zirconium
 40
 Zr

Niobium
 41
 Nb

Molybdenum
 42
 Mo

Technetium
 43
 Tc

Ruthenium
 44
 Ru

Rhodium
 45
 Rh

Palladium
 46
 Pd

Silver
 47
 Ag

Cadmium
 48
 Cd

Indium
 49
 In

Tin
 50
 Sn

Antimony
 51
 Sb

Tellurium
 52
 Te

Iodine
 53
 I

Cesium
 55 W
 Cs

Barium
 56 W
 Ba

Lanthanum
 57
 La

Hafnium
 72
 Hf

Tantalum
 73
 Ta

Tungsten
 74
 W

Rhenium
 75
 Re

Osmium
 76
 Os

Iridium
 77
 Ir

Platinum
 78
 Pt

Gold
 79
 Au

Mercury
 80
 Hg

Thallium
 81
 Tl

Lead
 82
 Pb

Bismuth
 83
 Bi

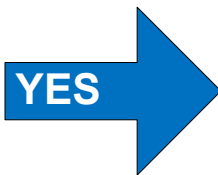
Polonium
 84
 Po

Astatine
 85
 At

Water Reactive

Is the **FIRST** name of the chemical listed below?

Aluminum
Antimony
Barium
Beryllium
Bismuth
Calcium
Cesium
Chromium
Cobalt
Copper
Germanium
Hafnium
Iron
Lead
Lithium
Magnesium
Manganese
Mercury
Molybdenum
Nickel
Osmium
Potassium
Radium
Rhodium
Rubidium
Silver
Sodium
Strontium
Tantalum
Tin
Titanium
Tungsten
Uranium
Vanadium
Yttrium
Zinc
Zirconium



Use **RED** or **BLUE** SOG

Expect

Gas – 300' to 1000' Isolation
Vapors are heavier than air
Flammable (LEL)
May Polymerize
Has an ionization potential
Acidic
Toxic
Radioactive

Flammable Name Clues

acet	hex
acryl	iso
allyl	meth
benz	napht
but	non
dec	oct
eth	pent
form	phen
fur	prop
gly	vinyl
hept	

Polymerize Name Clues

Name Clues

acryl
allyl
styrene
vinyl

Chemical Formula Clues

Double Bond =
Triple Bond ≡

STOPPING POINTS

>10% LEL
Increase in Temperature (temp gun / TIC)
Indication on wet pH
Radiation > 2 mR / hr
> 23% oxygen
Indication on KI starch paper

ABSOLUTE STOPPING POINT!!!

Indication on F paper (wet or dry).
No bunker gear. No viable victims.
No line of sight rescue!!!

Expect

Solid – 75' Isolation
Dust heavier than air
Non-flammable
No ionization potential
Caustic
Toxic
Radioactive

Water Reactive Name Indicators

Barium
Beryllium
Calcium
Cesium
Lithium
Magnesium
Potassium
Rubidium
Sodium
Strontium

Level A Hazard Name Indicators (corrosive gases)

Ammonia
Boron
Bromine
Carbonyl
Chlorine
Cyanogen
Fluorine
Hydrogen
Nitric
(Di)jNitrogen

Nitrosyl
Oxygen
Perchloryl
(Di) Phosgene
Phosphorous
Sulfur(yl)
Selenium
Silicon
Tellurium
Trifluoroacetyl

HazMat Size Up

