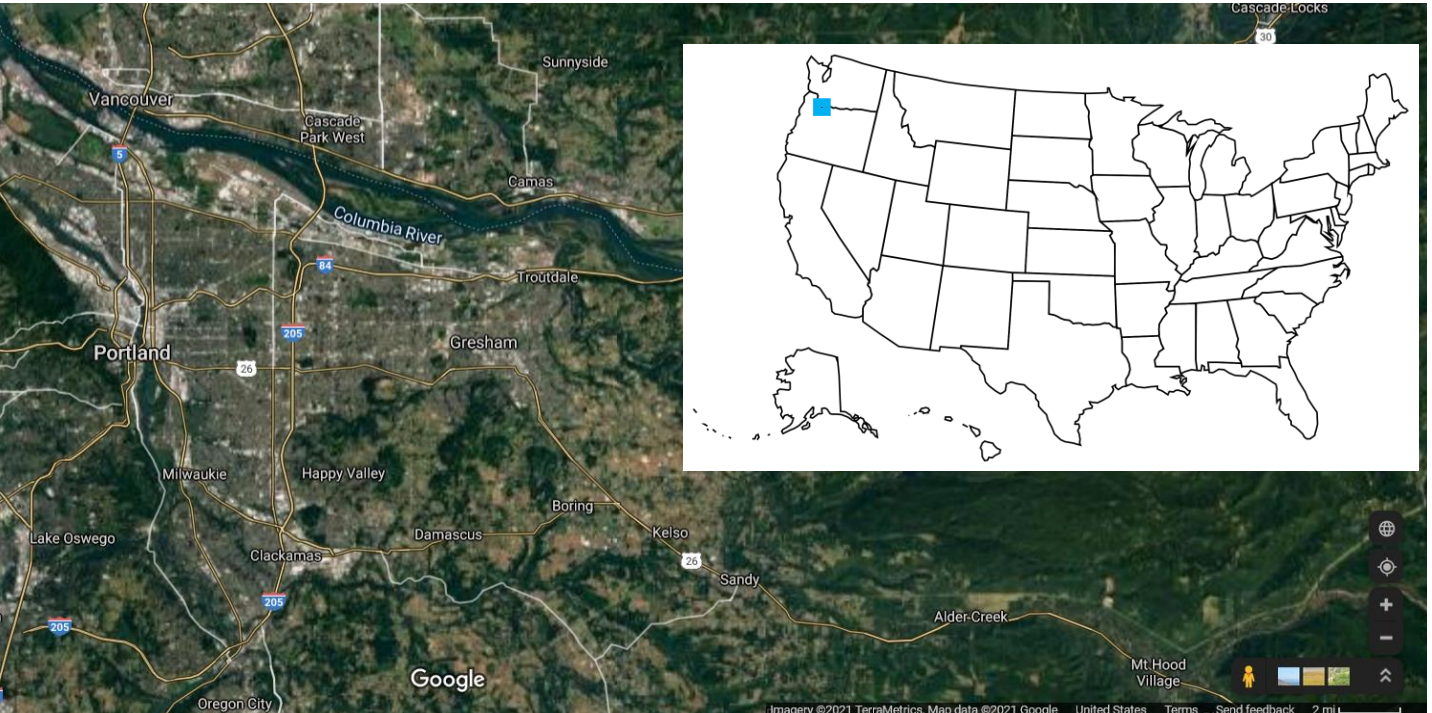
Impacts of Chemical Weapons on the Cottonwood School of Civics and Science

Dr. Juniper L. Simonis (they/them/theirs)
DAPPER Stats: Owner & Lead Scientist
Chemical Weapons Research Consortium: Founding Member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Vancouver
Cascade Park West
5
Camas
Columbia River
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Troutdale
205
Gresham
Portland
26
Milwaukie
Happy Valley
Boring
Lake Oswego
Damascus
Kelso
Clackamas
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Sandy
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Alder Creek
Mt Hood Village
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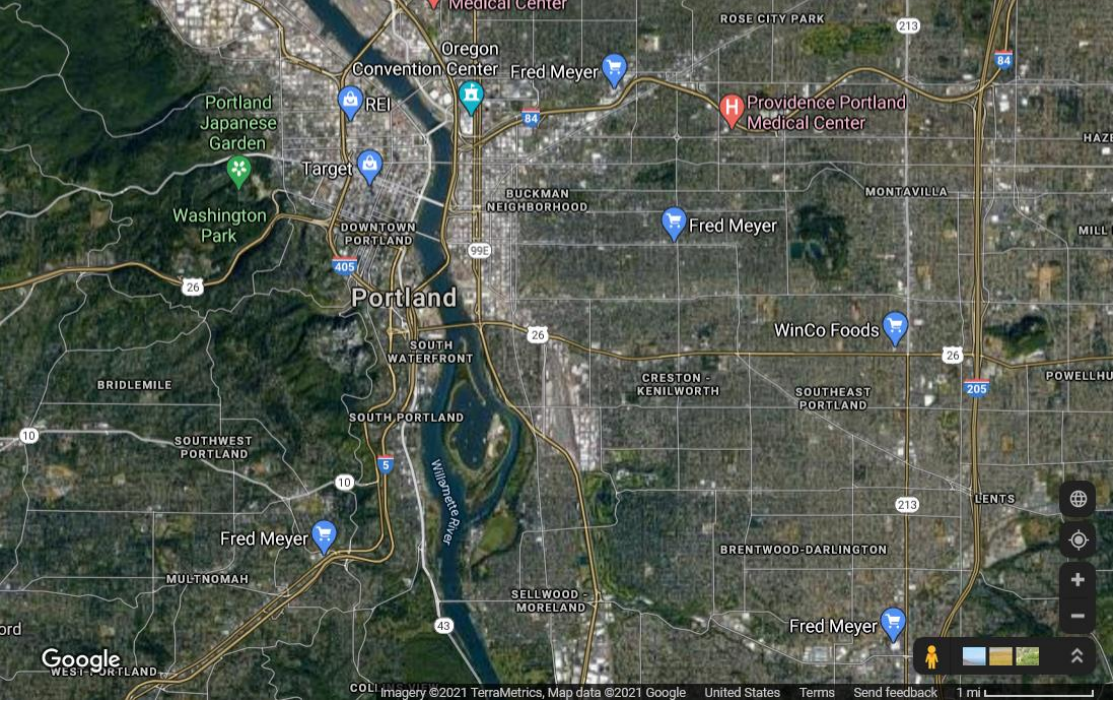
Medical Center
ROSE CITY PARK
Oregon Convention Center
Fred Meyer
REI
Providence Portland Medical Center
Portland Japanese Garden
Target
BUCKMAN NEIGHBORHOOD
MONTAVILLA
Washington Park
DOWNTOWN PORTLAND
Fred Meyer
Portland
WinCo Foods
SOUTH WATERFRONT
BRIDLEMILE
CRESTON - KENILWORTH
SOUTHEAST PORTLAND
SOUTH PORTLAND
SOUTHWEST PORTLAND
Willamette River
LENTS
Fred Meyer
BRENTWOOD-DARLINGTON
MULTNOMAH
SELLWOOD - MORELAND
Fred Meyer
Google
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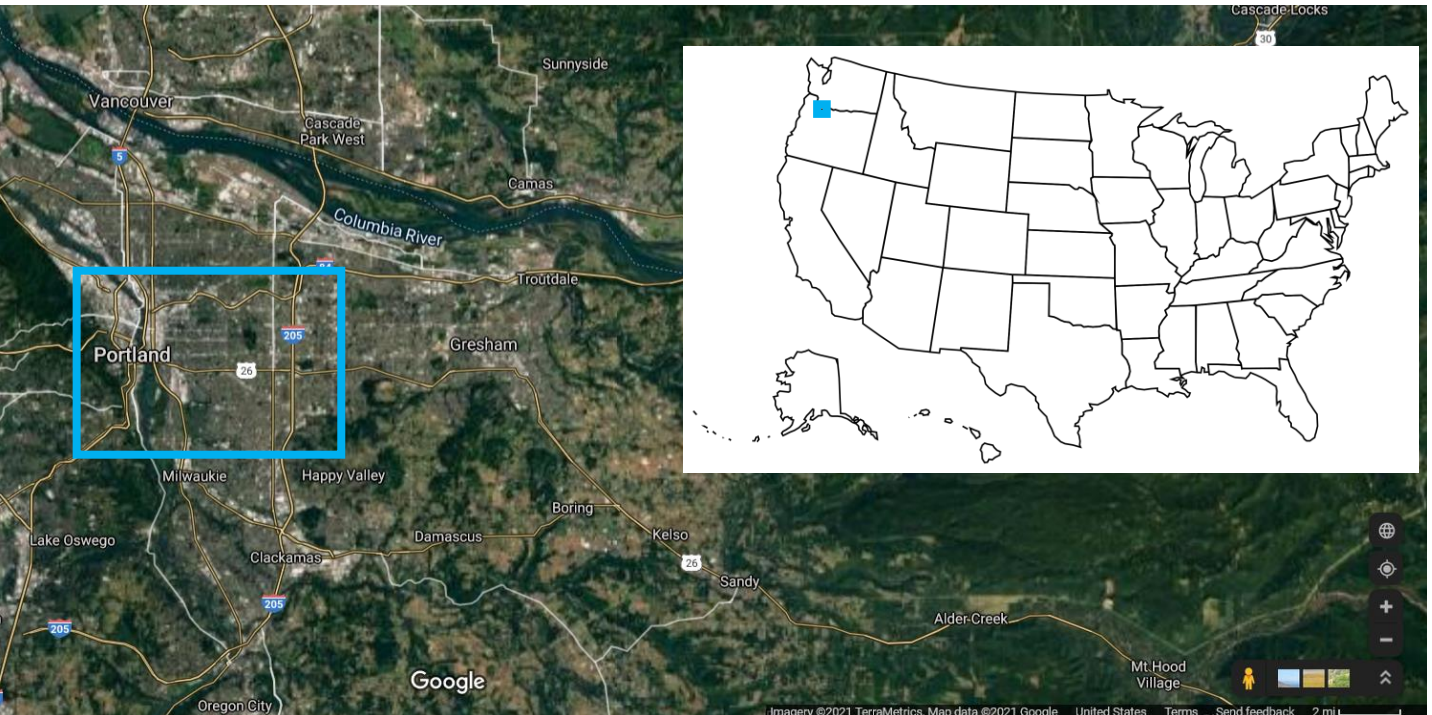
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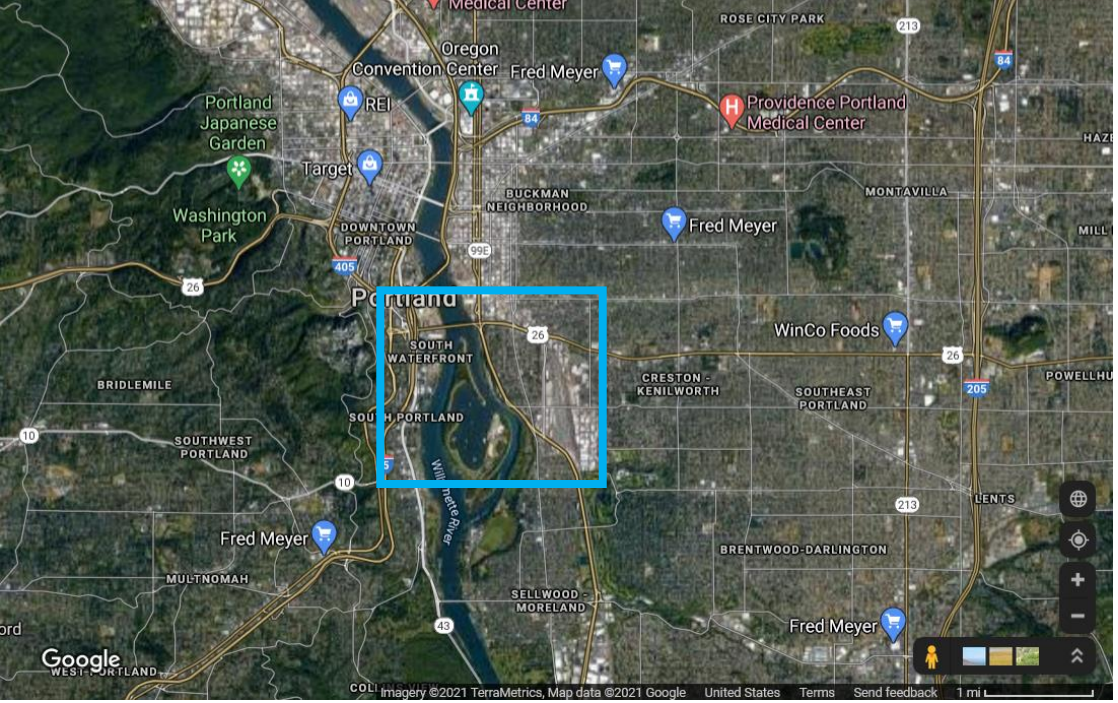
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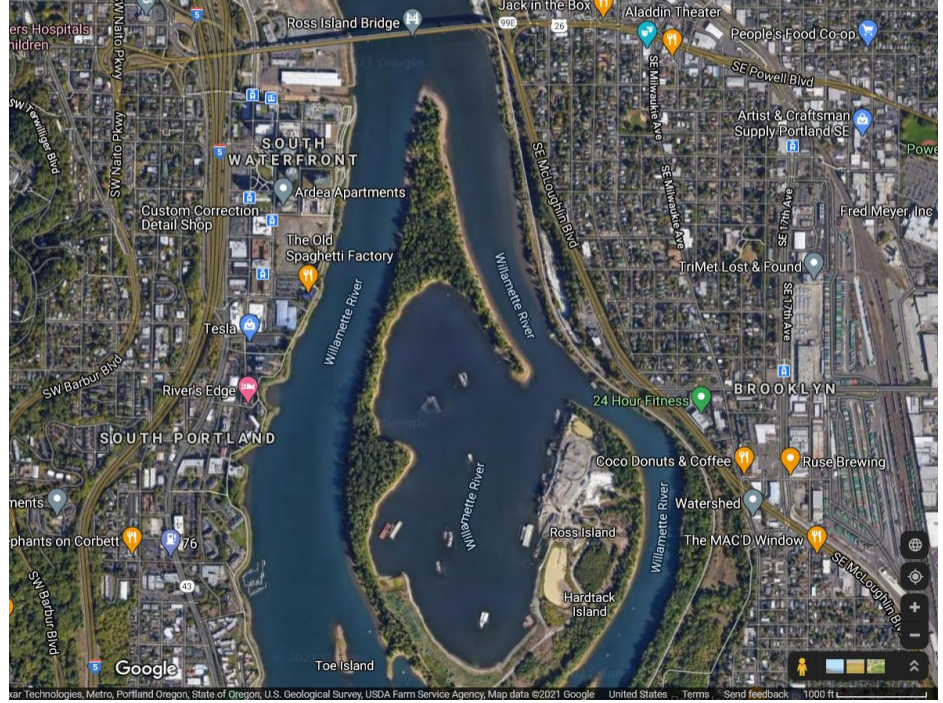
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Aladdin Theater
People's Food Co-op
SE Powell Blvd
Artist & Craftsman Supply Portland SE
SOUTH WATERFRONT
Ardea Apartments
Custom Correction Detail Shop
The Old Spaghetti Factory
Fred Meyer, Inc
TriMet Lost & Found
Willamette River
Tesla
SW Barbur Blvd
River's Edge
24 Hour Fitness
BROOKLYN
SOUTH PORTLAND
Coco Donuts & Coffee
Ruse Brewing
Watershed
Ross Island
The MAC'D Window
Hardtack Island
Toe Island
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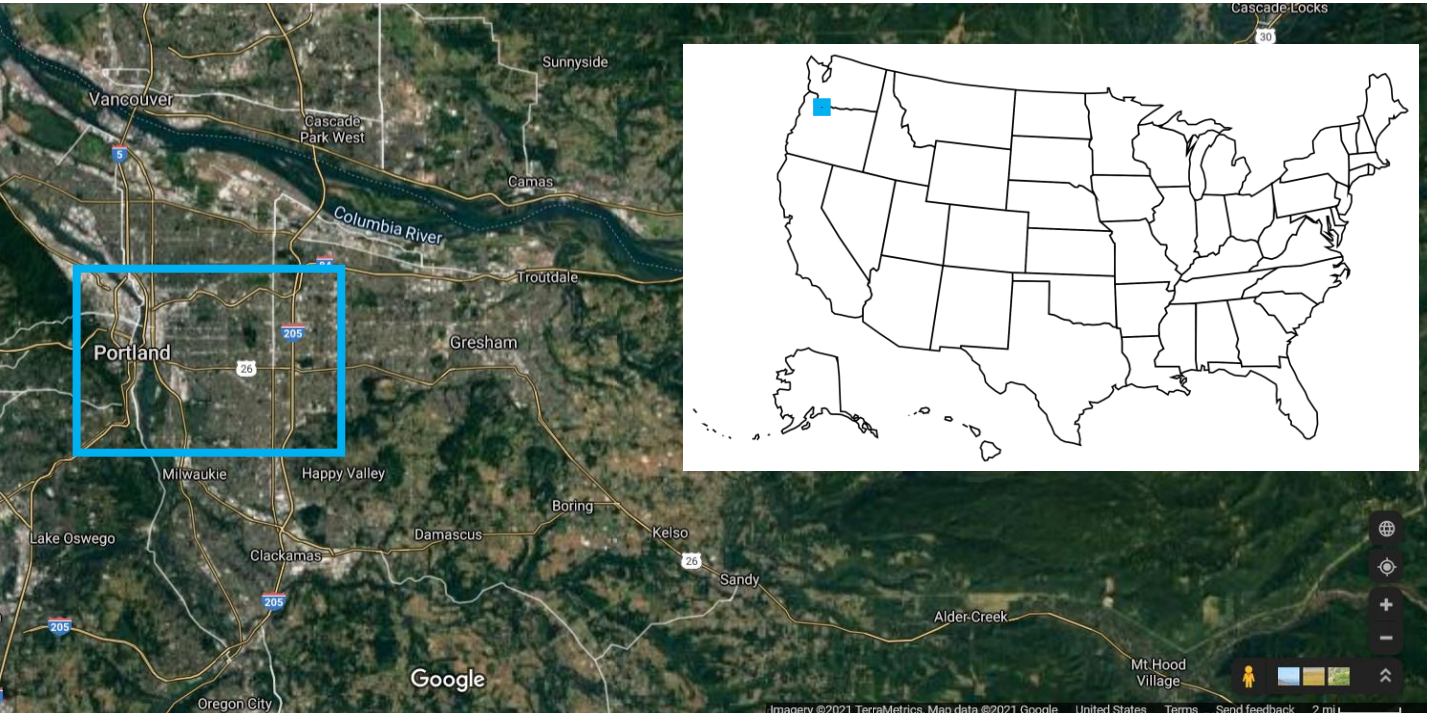
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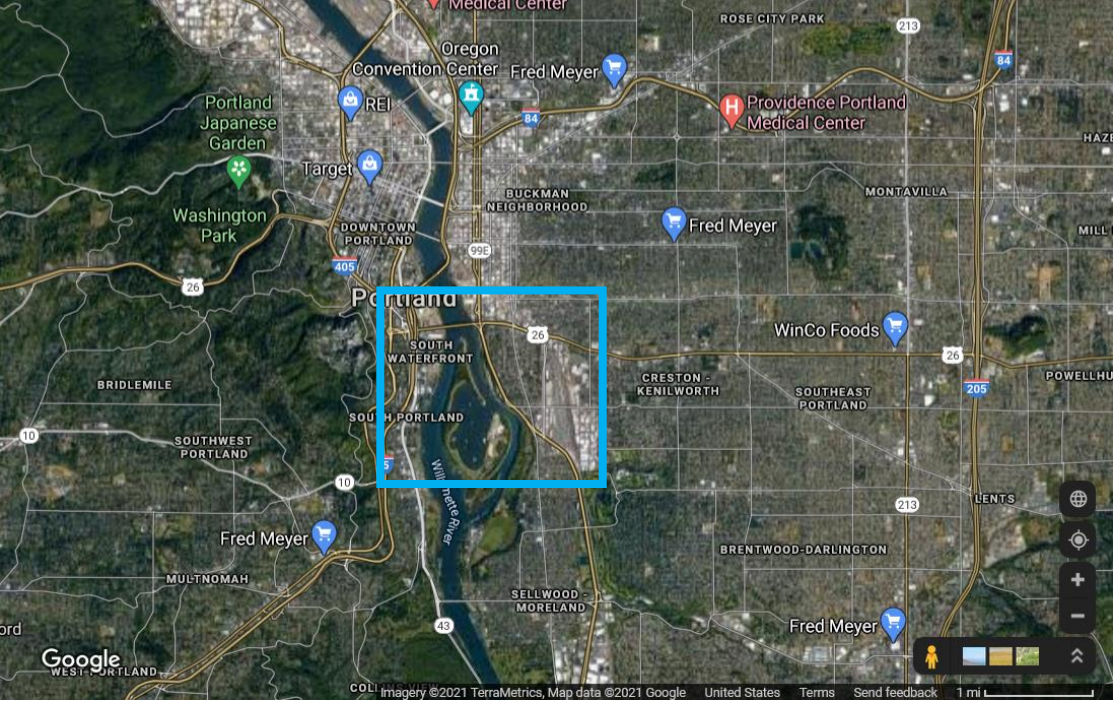
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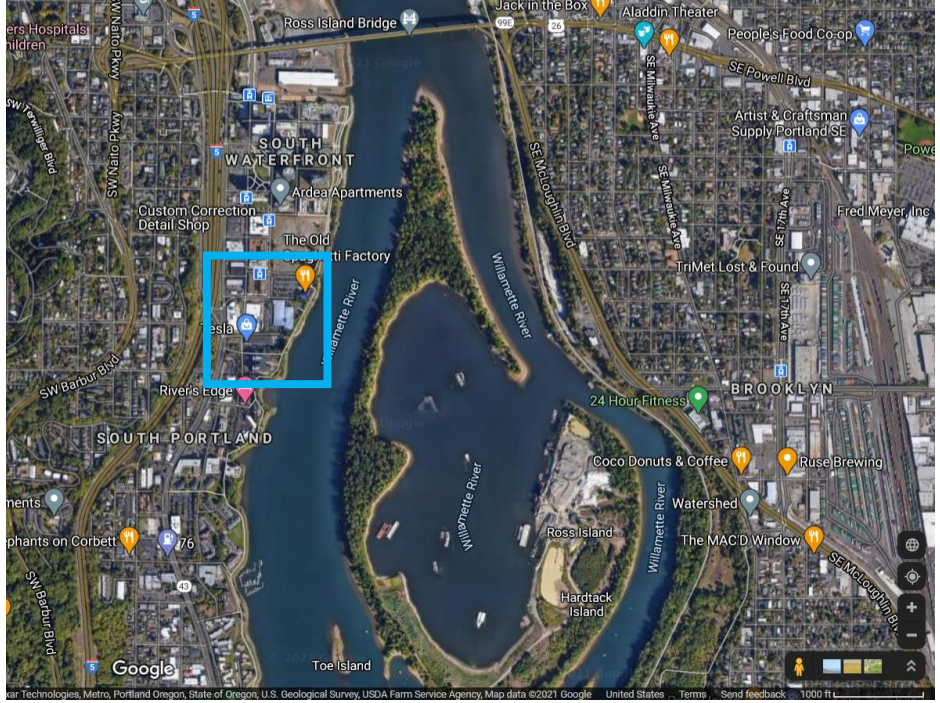
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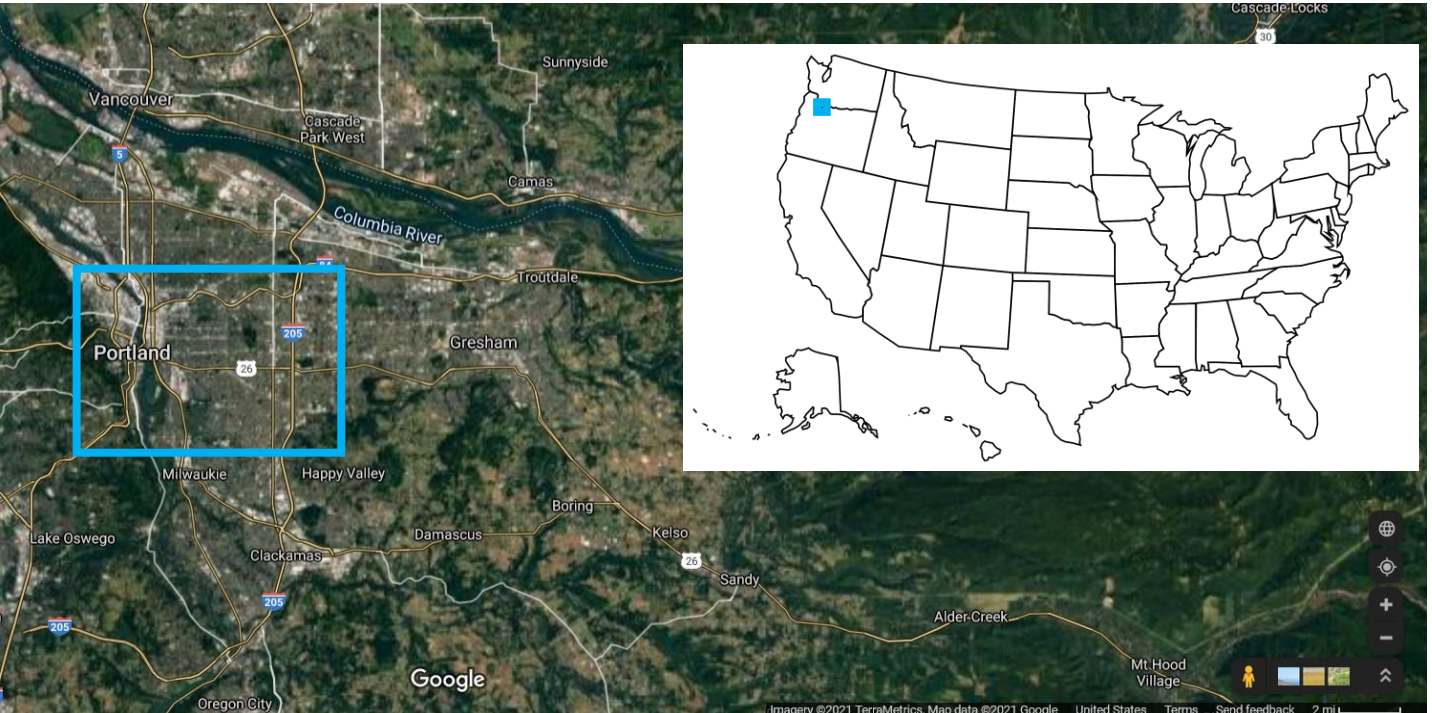
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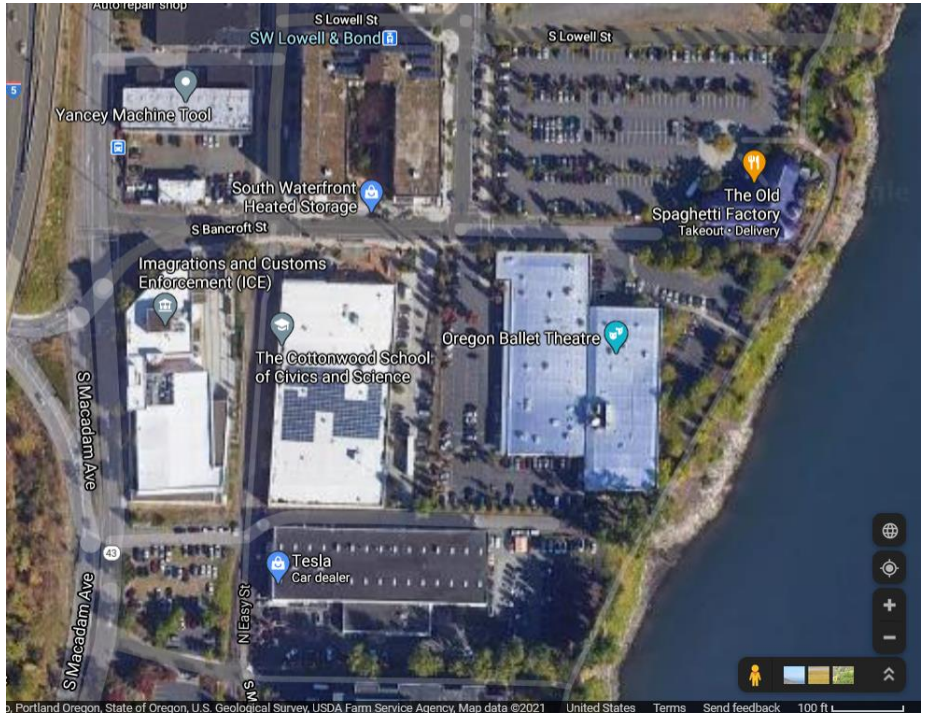
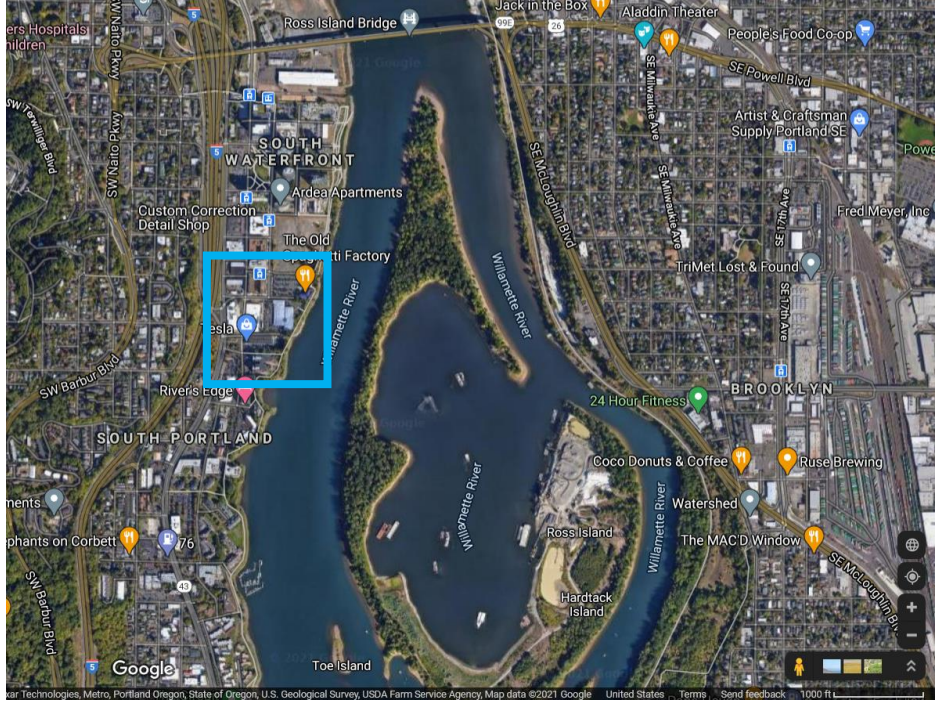

S Lowell St
SW Lowell & Bond
Yancey Machine Tool
South Waterfront Heated Storage
The Old Spaghetti Factory
Takeout · Delivery
Imagrations and Customs Enforcement (ICE)
The Cottonwood School of Civics and Science
Oregon Ballet Theatre
S Macadam Ave
Tesla
Car dealer
N Easy St
Portland Oregon, State of Oregon, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 United States Terms Send feedback 100 ft



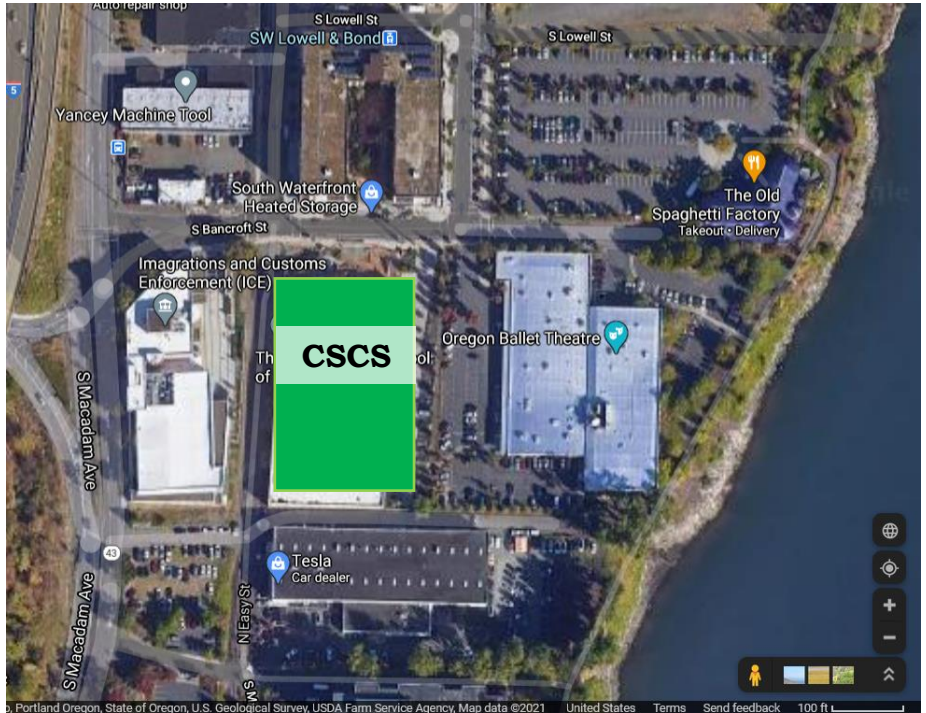
WHAT IS PLACE-BASED EDUCATION?

Learning Through Fieldwork and Service

The overarching philosophy of The Cottonwood School of Civics and Science is to create a community of learners that are deeply involved in developing a sense of place.

Place-based education helps students learn a broad range of concepts by connecting them, whenever possible, with the natural and social community in which students live and learn. When students are youngest and most concrete in their thinking, Place-based education strives to delve them deeply into the community allowing them to connect their learning to tangible experiences around them. So, the youngest students community, including their home, classroom and immediate neighborhood, is the focus of their work. As they grow and become more capable of abstract thought, learning moves out in concentric geographic rings. As students grow, their community expands to include Portland, Oregon, the United States and the world beyond.

"Place-based education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum. Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organizations, and environmental resources in the life of the school." (Sobel, 2004)




THE COTTONWOOD SCHOOL
OF CIVICS AND SCIENCE
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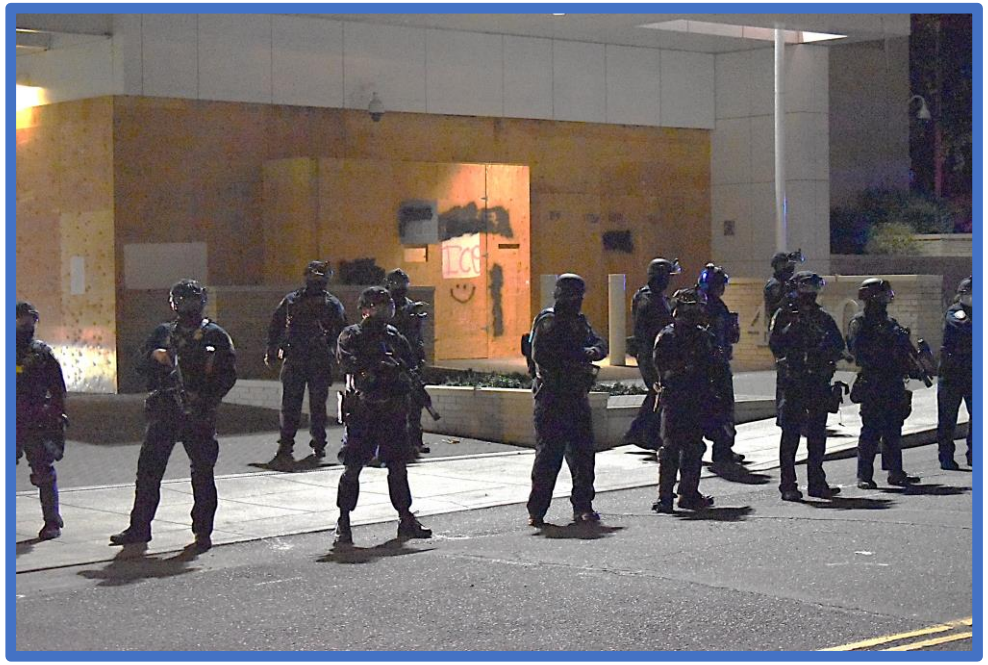
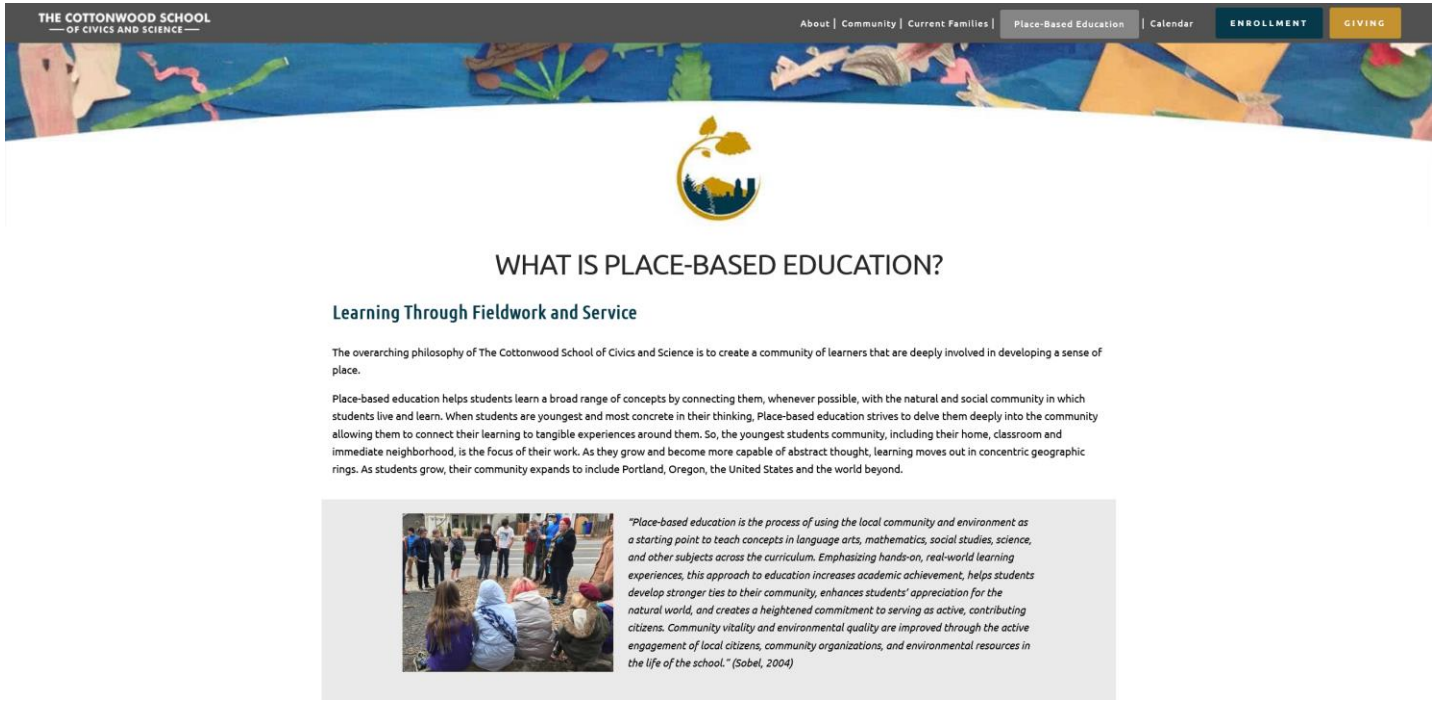
BLM
BLM
BLACK LIVES > WHITE DISCOMFORT
WHY CAN'T WE ALL LOVE
BLACK HUMANS MATTER




THE COTTONWOOD SCHOOL
OF CIVICS AND SCIENCE
About | Community | Current Families | Place-Based Education | Calendar
ENROLLMENT
GIVING
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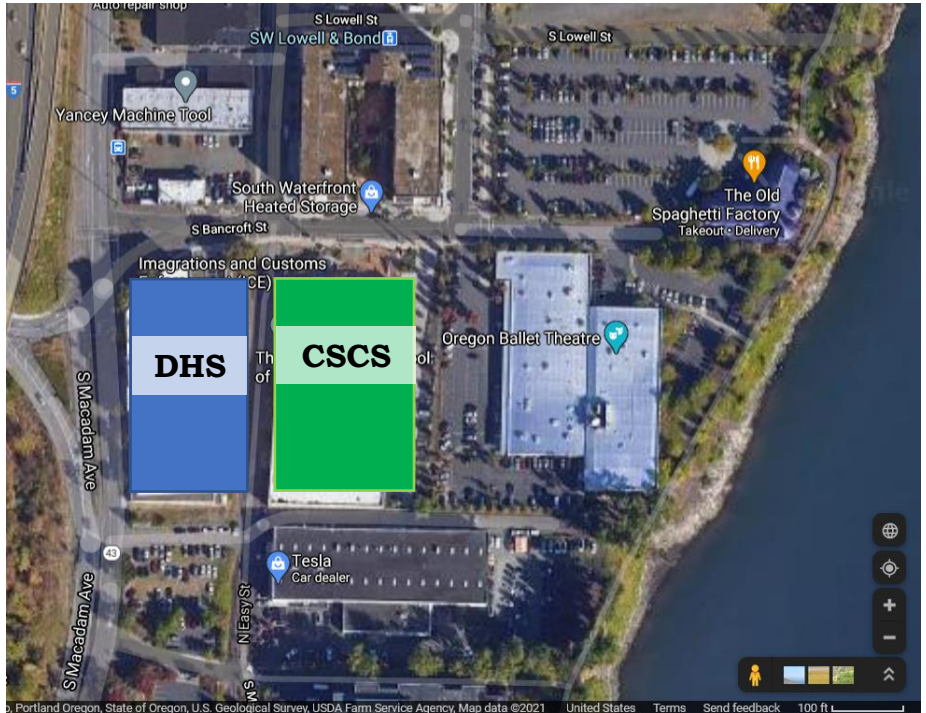
S Lowell St
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DHS
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Oregon Ballet Theatre
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Tesla
Car dealer
S Macadam Ave
N Easy St
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The Cottonwood School has experienced at least 16 days of chemical weapons deployment by Department of Homeland Security since August 2020

2020

July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

2021

January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
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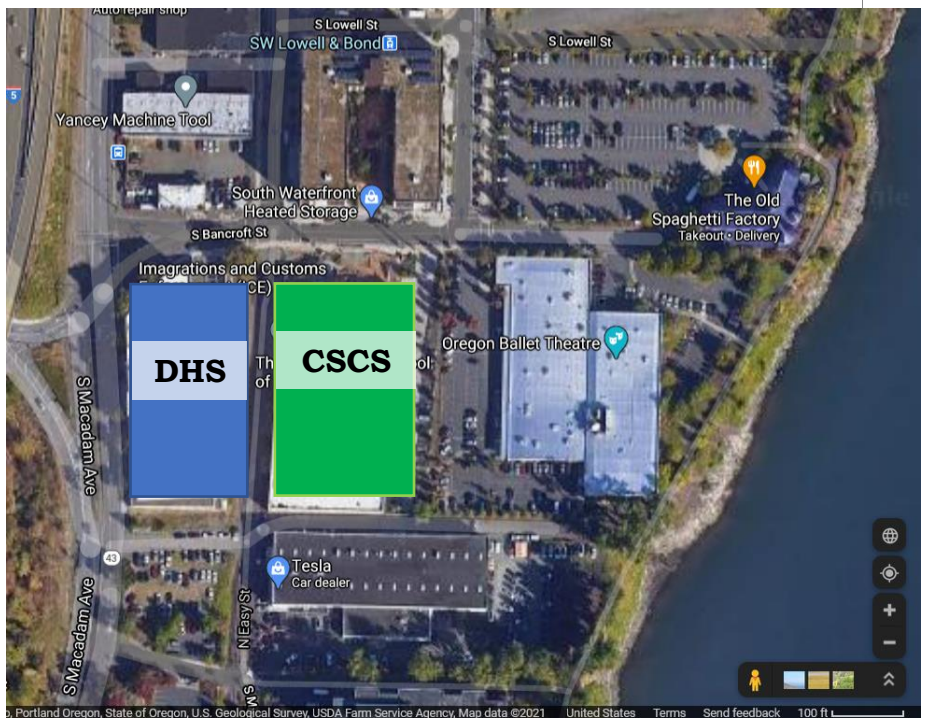
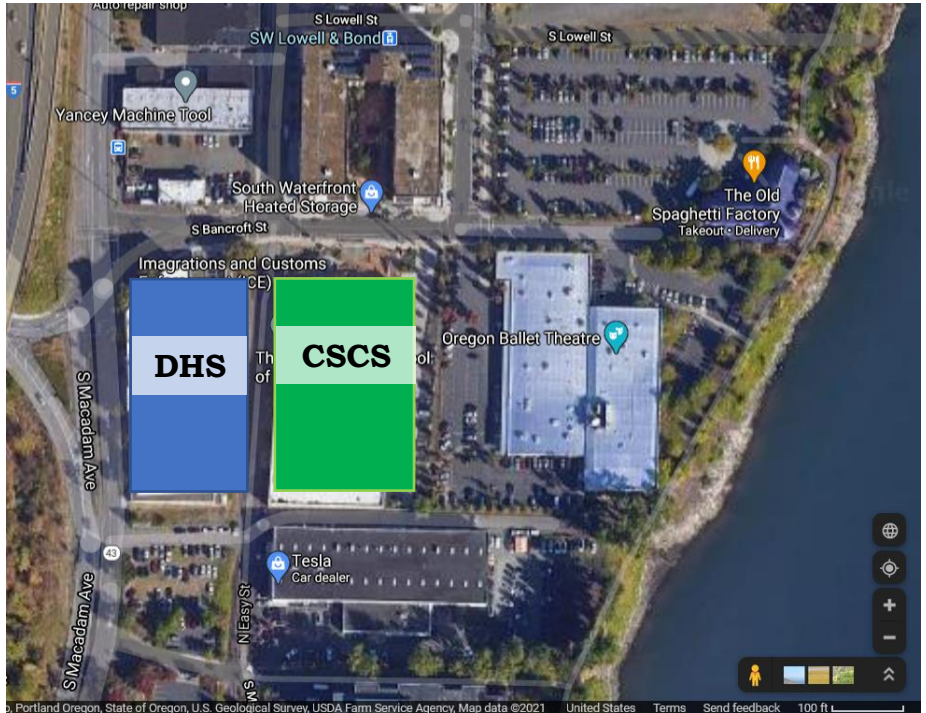
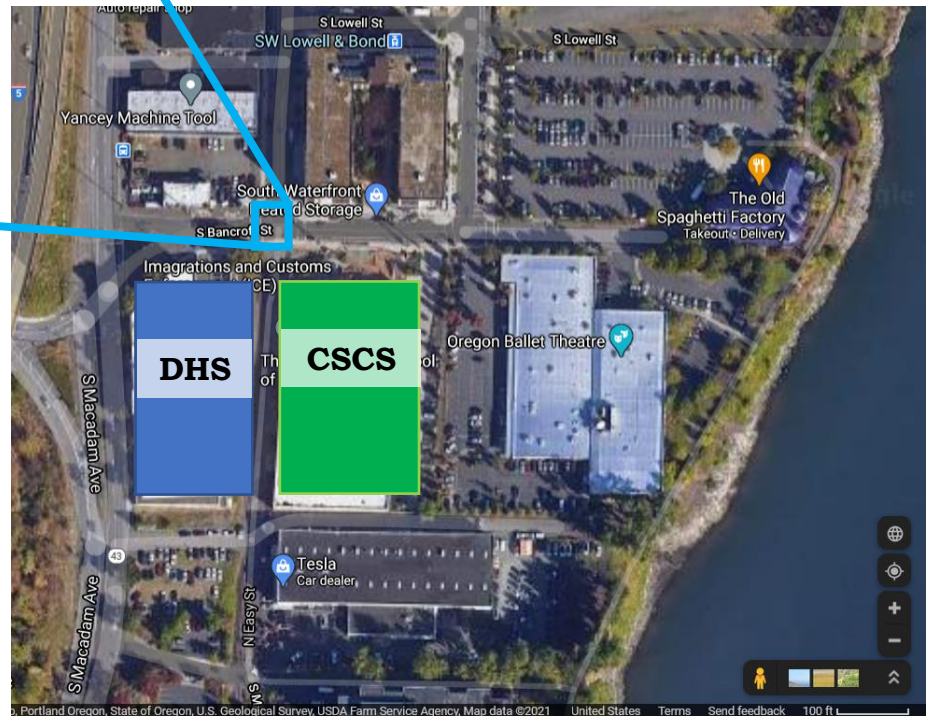


Often deployment is directly adjacent to the school



Often deployment is directly adjacent to the school…with chemicals blowing onto grounds



Often deployment is directly adjacent to the school…with chemicals blowing onto grounds

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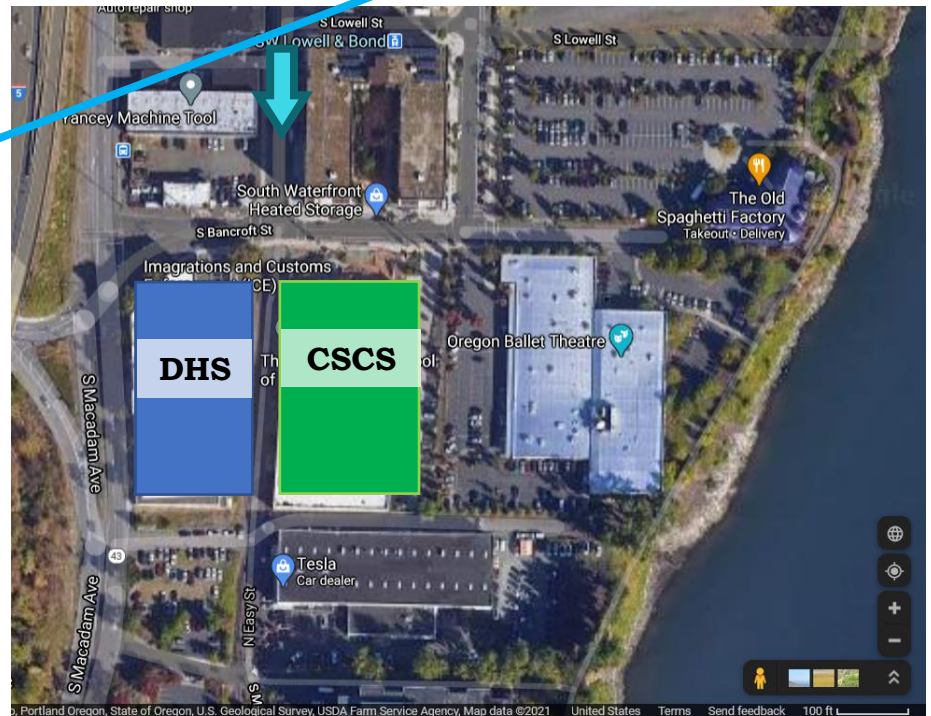
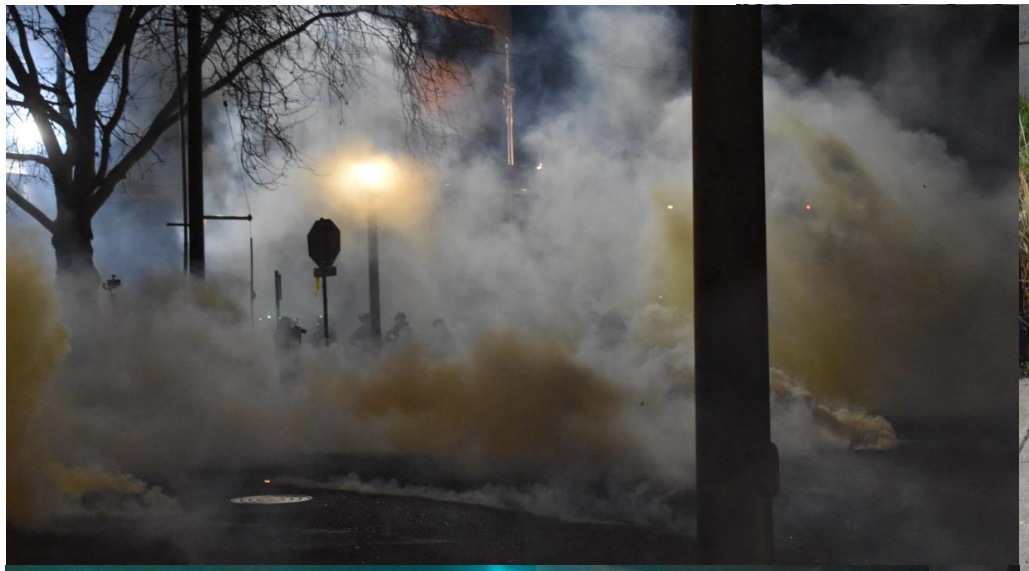


Often deployment is directly adjacent to the school…with chemicals blowing onto grounds

source: https://twitter.com/eats_master/status/1353553046236590080

Often deployment is directly adjacent to the school…leaving active chemical residues



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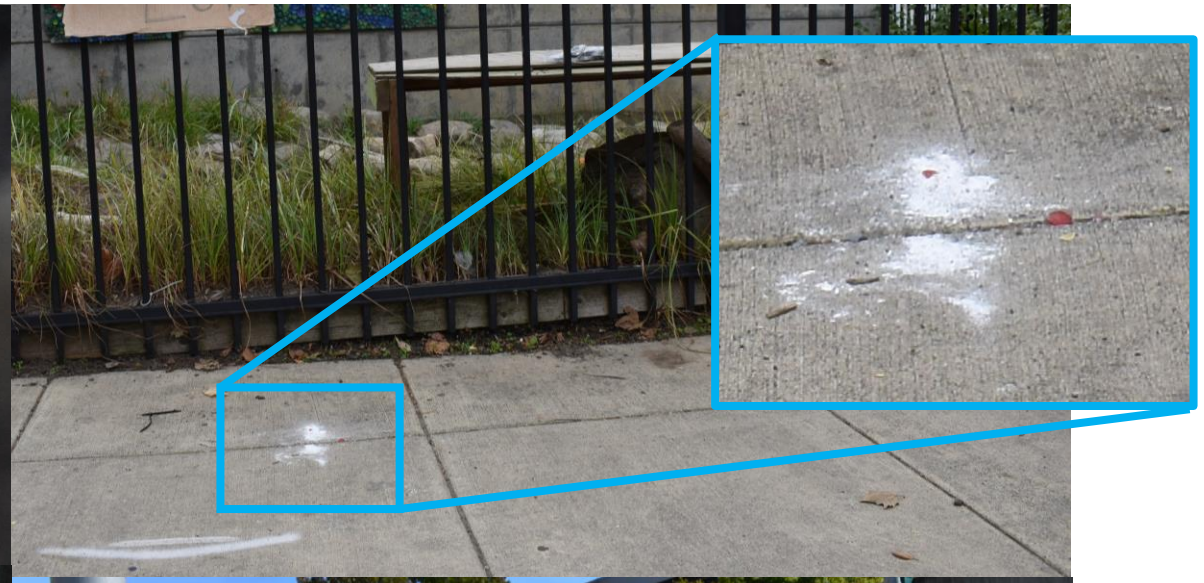
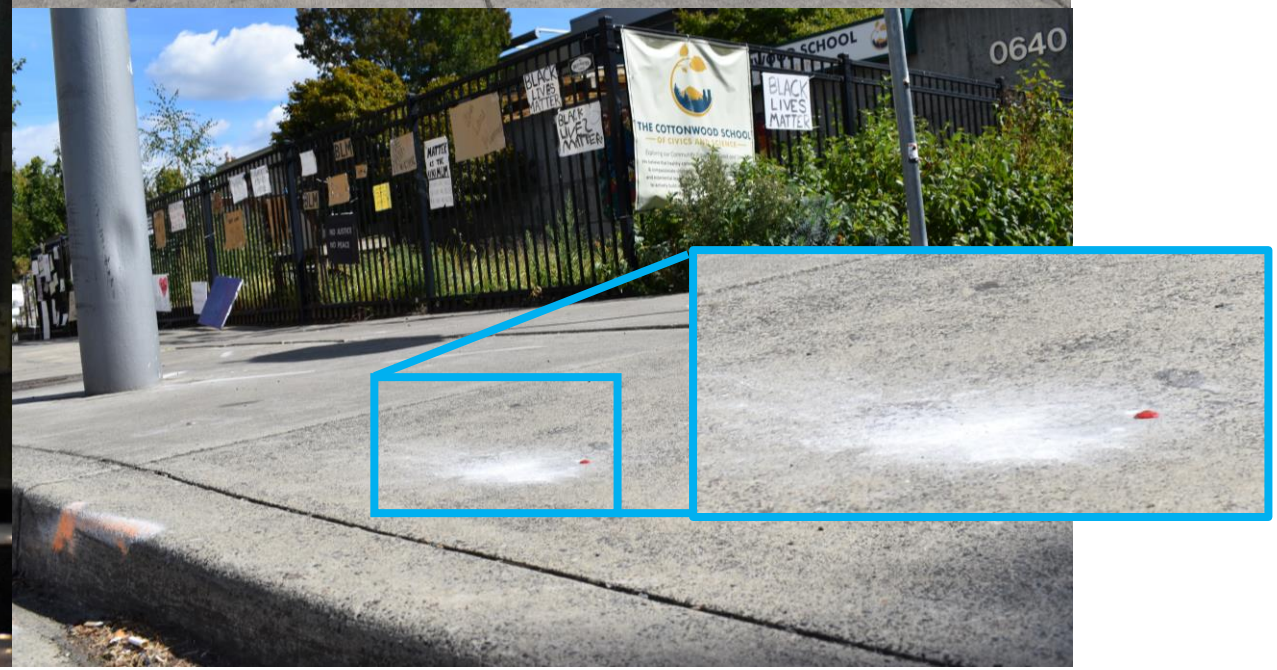




…and sometimes weapons land ***inside*** the school yard

…and sometimes weapons land ***inside*** the school yard

…and sometimes weapons land ***inside*** the school yard

8-31-2020

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 9004-70-0 EC number: 603-037-0	Nitrocellulose, colloided, granular Expl. 1.1, H201	50-100%
CAS: 85-98-3 EINECS: 201-645-2	1,3-diethyldiphenylurea Acute Tox. 4, H302 Aquatic Chronic 3, H412	5-10%
CAS: 7439-89-6 EINECS: 231-096-4	iron substance with a Community workplace exposure limit	5-10%
CAS: 7440-50-8 EINECS: 231-159-6	copper substance with a Community workplace exposure limit	1-5%
CAS: 122-39-4 EINECS: 204-539-4 Index number: 612-026-00-5	diphenylamine Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 STOT RE 2, H373 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	1-5%
CAS: 7440-66-6	zinc metal Aquatic Acute 1, H400; Aquatic Chronic 1, H410	1-5%
CAS: 15245-44-0 EINECS: 239-290-0 Index number: 609-019-00-4	lead 2,4,6-trinitro-m-phenylene dioxide/ lead styphnate Unst. Expl., H200 Repr. 1A, H360Df; STOT RE 2, H373 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Acute Tox. 4, H302; Acute Tox. 4, H332	< 1,0%

· **SVHC**	
15245-44-0	lead 2,4,6-trinitro-m-phenylene dioxide/ lead styphnate

MODEL: 6325 SKU: 1012225

EXACT IMPACT™ 40 MM STANDARD RANGE SPONGE ROUND

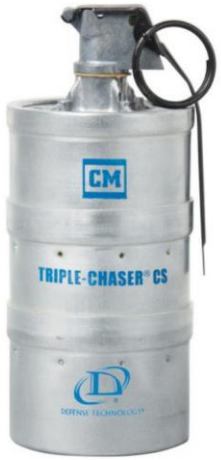
The eXact iMpact™ 40 mm Sponge Round is a point-of-aim, point-of-impact direct-fire round. This lightweight, high-speed projectile consisting of a plastic body and sponge nose that is spin stabilized via the incorporated rifling collar and the 40 mm launcher's rifled barrel. The round utilizes smokeless powder as the propellant, and, therefore, have velocities that are extremely consistent. Used for Crowd Control, Patrol, and Tactical Applications.

FIND A DEALER →

PROP 65 WARNING

…and sometimes weapons land ***on*** the school

…and sometimes weapons land ***on*** the school



MODEL: 1026 SKU: 1012309

TRIPLE-CHASER® SEPARATING CANISTER, CS

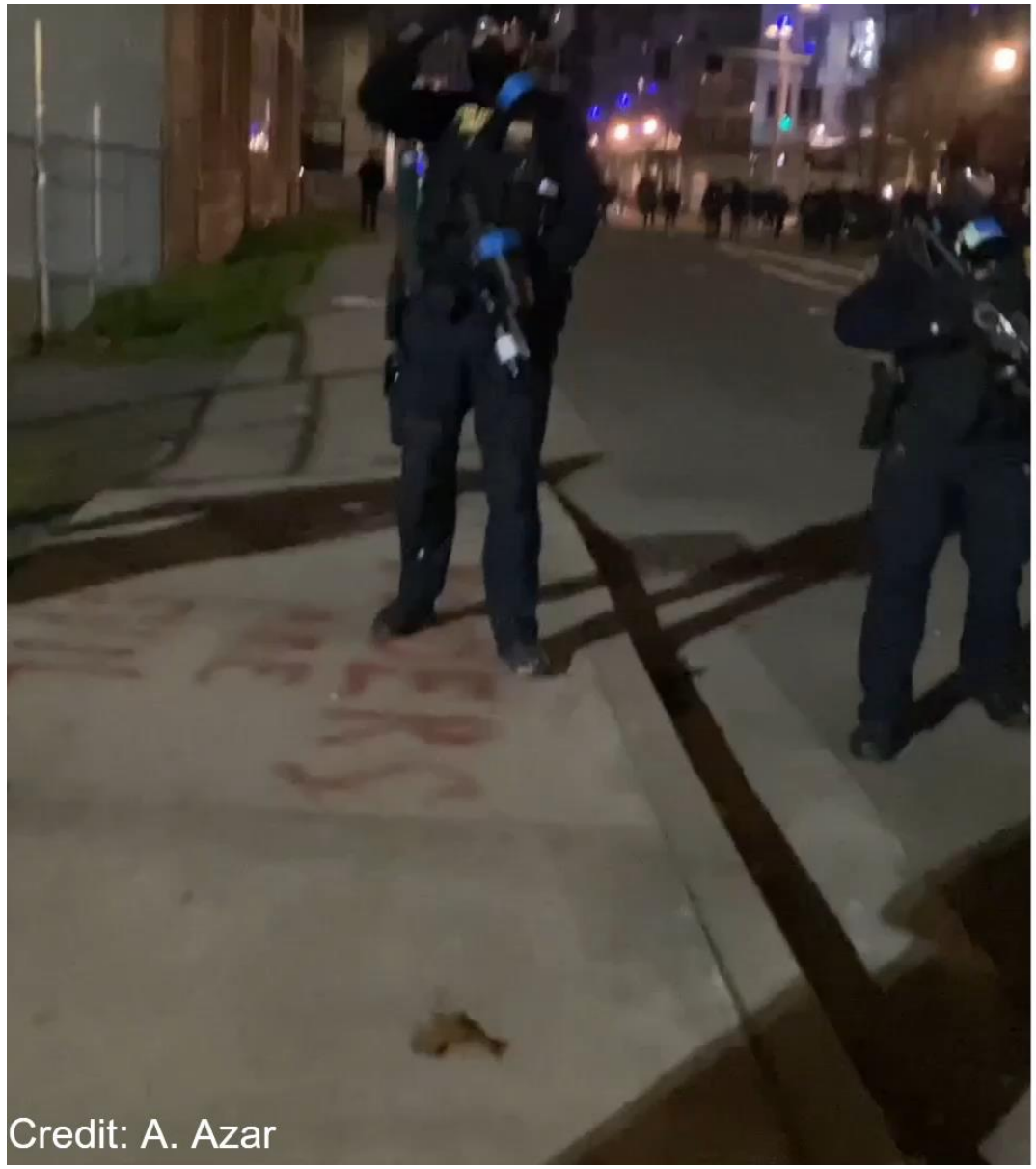
The Triple-Chaser® CS consists of three separate canisters pressed together with separating charges between each. When deployed, the canisters separate and land approximately 20 feet apart allowing increased area coverage in a short period of time. This grenade can be hand thrown or launched from a fired delivery system. The grenade is 6.5 in. by 2.7 in. and holds an approximately 3.2 oz. of active agent payload. It has an approximate burn time of 20-30 seconds.

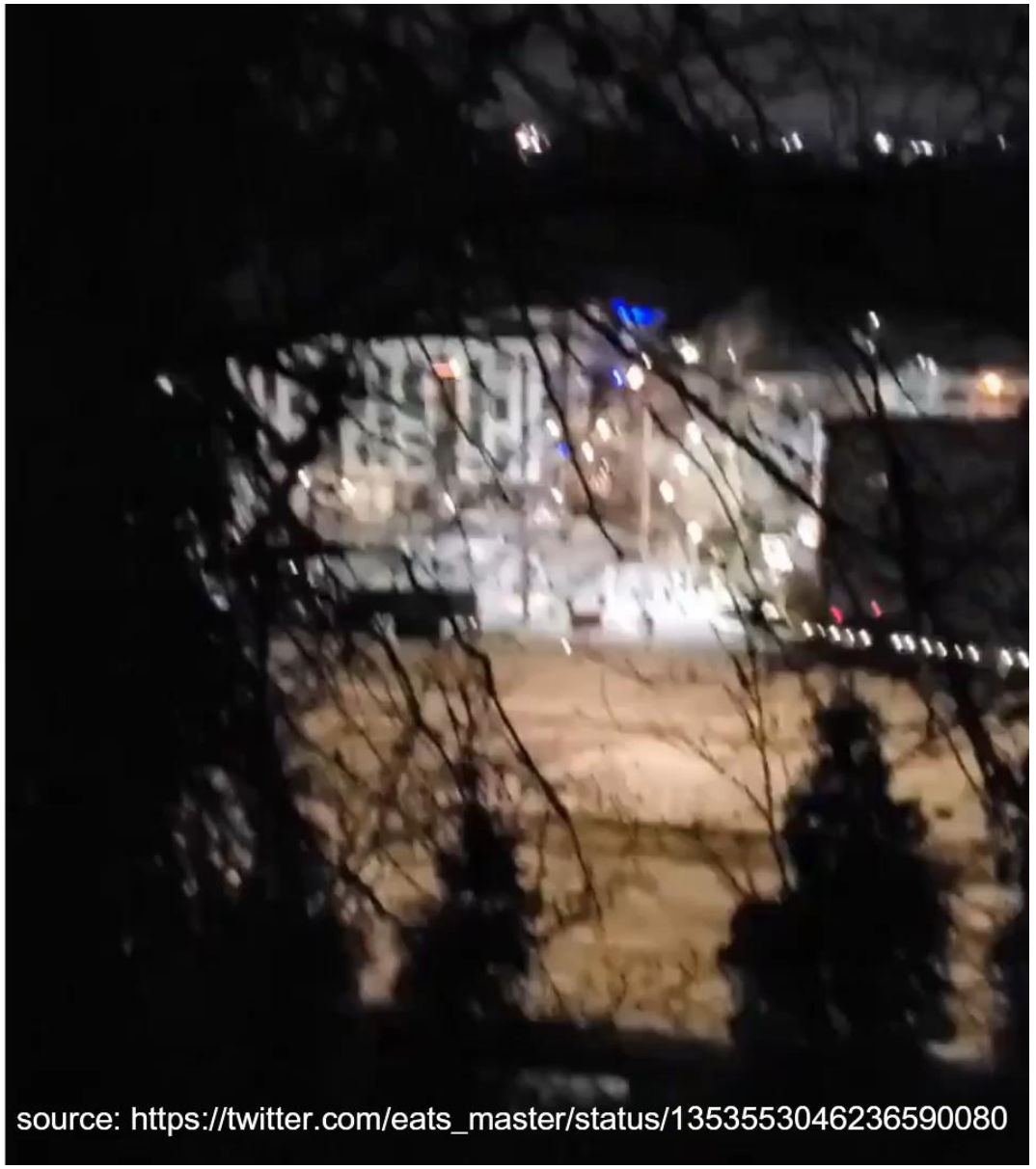
FIND A DEALER →

PROP 65 WARNING

...and sometimes weapons land ***on*** the school

1-23-2021





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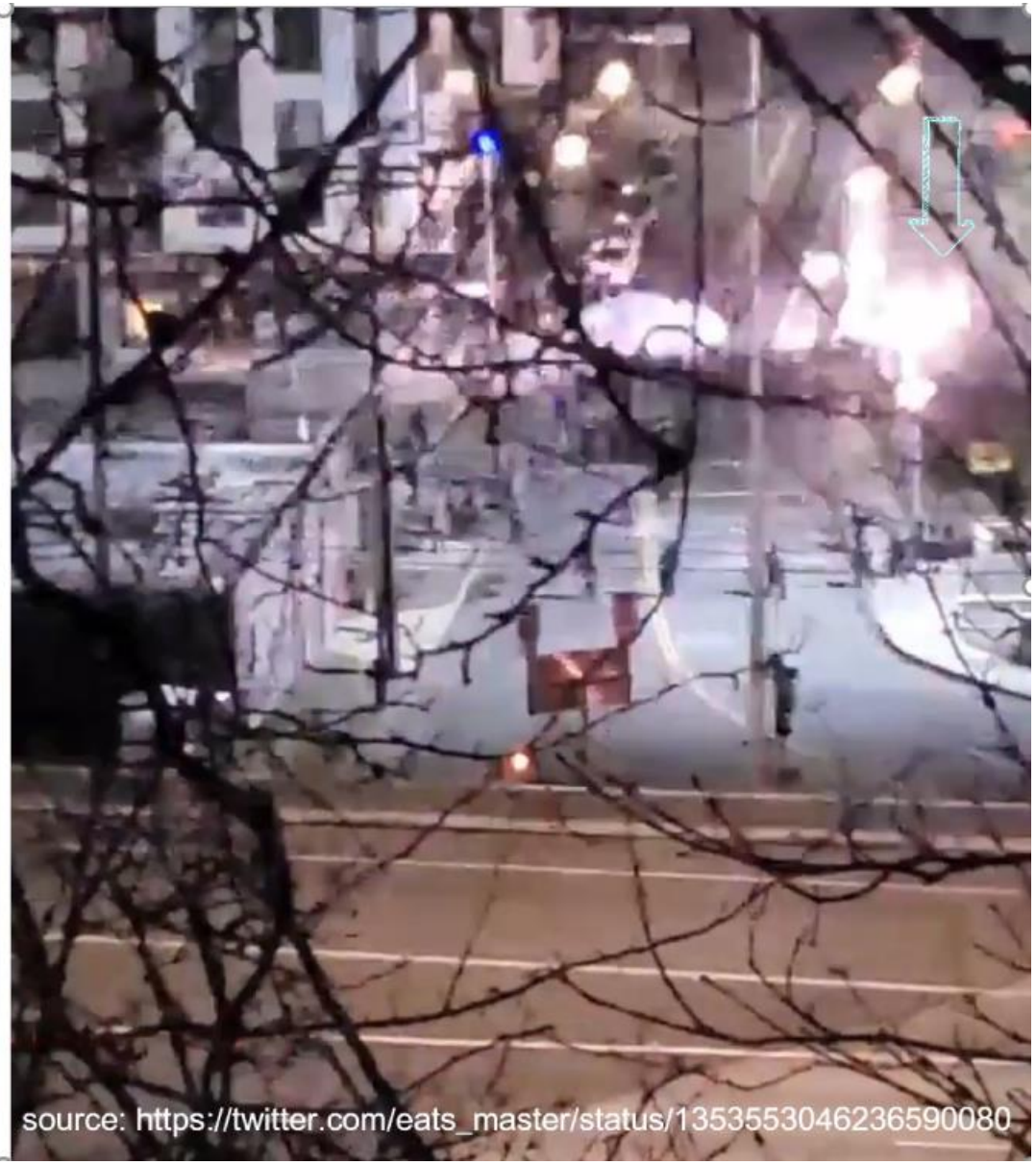
1-23-2021



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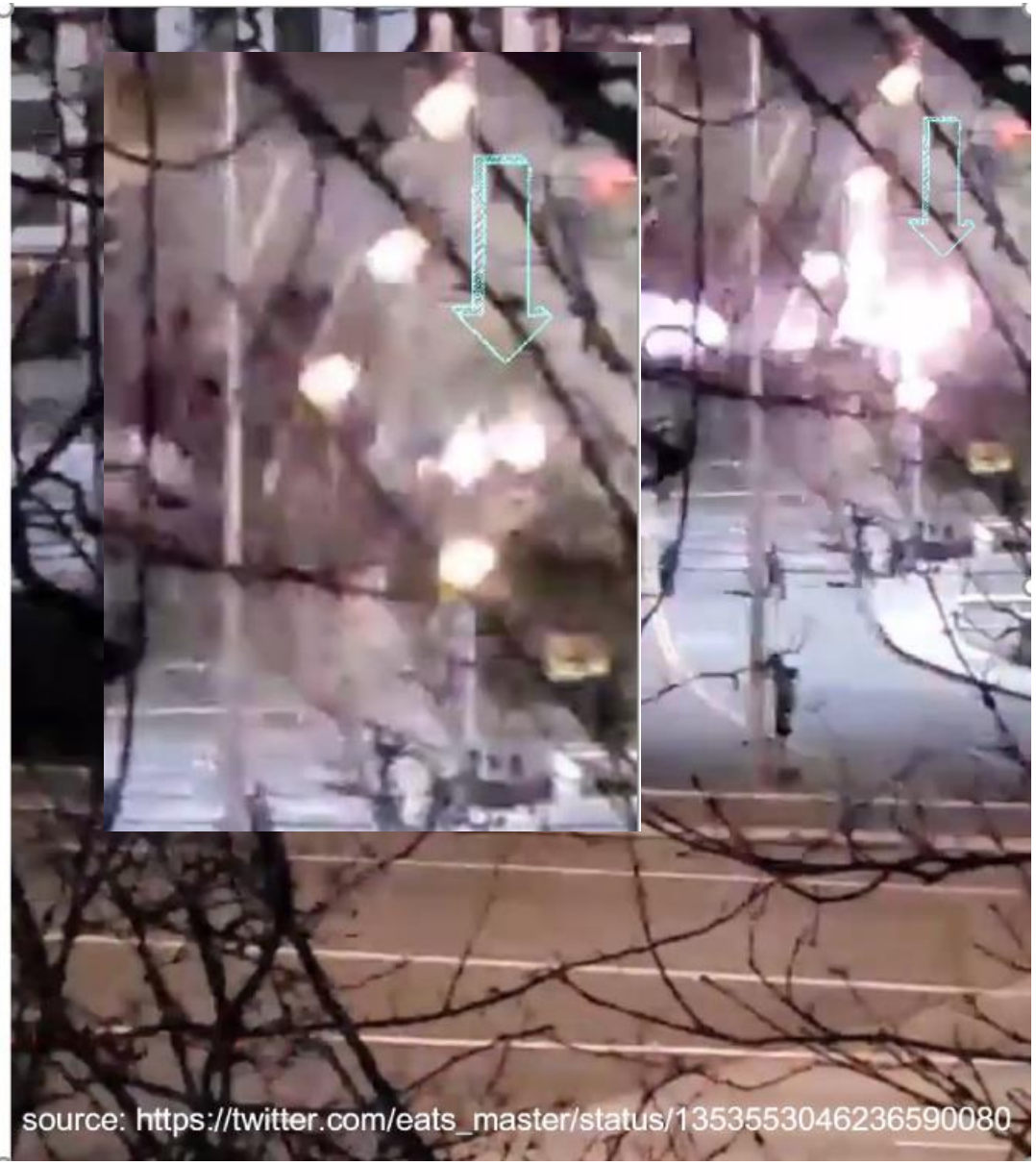

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1-23-2021

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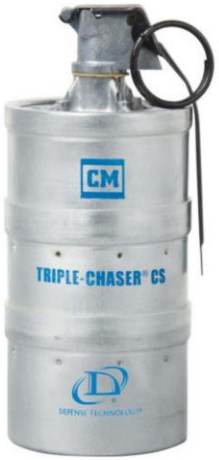


MODEL: 1026 SKU: 1012309

TRIPLE-CHASER® SEPARATING CANISTER, CS

The Triple-Chaser® CS consists of three separate canisters pressed together with separating charges between each. When deployed, the canisters separate and land approximately 20 feet apart allowing increased area coverage in a short period of time. This grenade can be hand thrown or launched from a fired delivery system. The grenade is 6.5 in. by 2.7 in. and holds an approximately 3.2 oz. of active agent payload. It has an approximate burn time of 20-30 seconds.

FIND A DEALER →

PROP 65 WARNING

…and sometimes weapons land ***on*** the school

TRIPLE-CHASER® GRENADE
CONTINUOUS DISCHARGE
OC, CN, CS AND SAF-SMOKE™

DEFENSE TECHNOLOGY®

PRODUCT SPECIFICATIONS	
Diameter	2.70 in / 6.9 cm
Length	6.50 in / 16.5 cm
Fuze	M201A1 Type
Active Agent	OC 1.06 oz / 30 g CN/CS 3.2 oz / 92 g
Discharge Time	20 – 30 Seconds
Launchable	Yes
Part No.	OC 1020 CN 1025 CS 1026 Saf-Smoke™ 1027
Warranty	5 years from date of manufacture

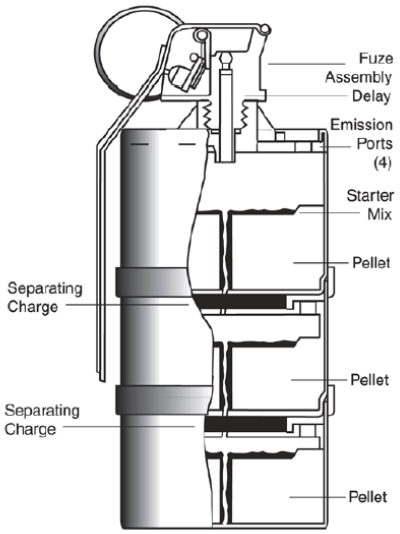
ALL SPECIFICATIONS ARE AVERAGES AND SUBJECT TO CHANGE

The Triple-Chaser® Grenade is a fast burning, medium volume canister. It is a pyrotechnic grenade consisting of three (3) separate canisters pressed together with separating charges between each section. When deployed, this grenade will separate into three (3) distinct sub-munitions spaced approximately 20 feet apart – allowing increased area coverage in a short period of time, from one deployment. Terrain and surface conditions can affect the distance of the separating sub-munitions.

Designed specifically for outdoor use in crowd management situations, the Triple-Chaser® utilizes the larger style canister, but is segmented into three (3) distinct sub-munitions. This device should be deployed in an underhand method that keeps the grenade body moving sideward towards the deployment site. This will assist in delivering the sub-canisters along a line, from left to right, well ahead of the grenadier. Its separating function and relatively quick burn time minimizes throwback potential. The device should be deployed utilizing wind advantage.

It should NOT be deployed onto rooftops, in crawl spaces, or indoors due to its fire-producing capability. Hand throw or launch. Launching of grenades will provide deploying officers additional stand-off distances. Affords good coverage for large outdoor areas.

In the smoke configuration, it can be utilized as a carrying agent (multiplier) for smaller OC, CN or CS munitions, or for concealing the movement of agency personnel. It may also be used as a distraction to focus attention away from other activities.



⚠ WARNING

This product can expose you to chemicals including Lead Salts and Hexavalent Chromium, which are known to the State of California to cause cancer, and Lead Salts, which are known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

CM

OUTDOORS

BURNING

PYROTECHNIC

WARNING: THIS PRODUCT IS TO BE USED ONLY BY AUTHORIZED AND TRAINED LAW ENFORCEMENT, CORRECTIONS, OR MILITARY PERSONNEL. THIS PRODUCT MAY CAUSE SERIOUS INJURY OR DEATH TO YOU OR OTHERS. THIS PRODUCT MAY CAUSE SERIOUS DAMAGE TO PROPERTY. HANDLE, STORE AND USE WITH EXTREME CARE AND CAUTION. USE ONLY AS INSTRUCTED.

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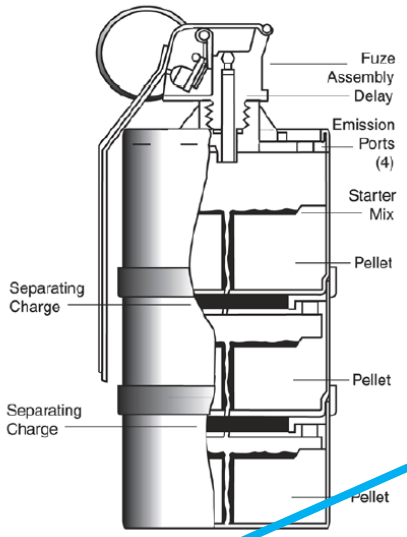

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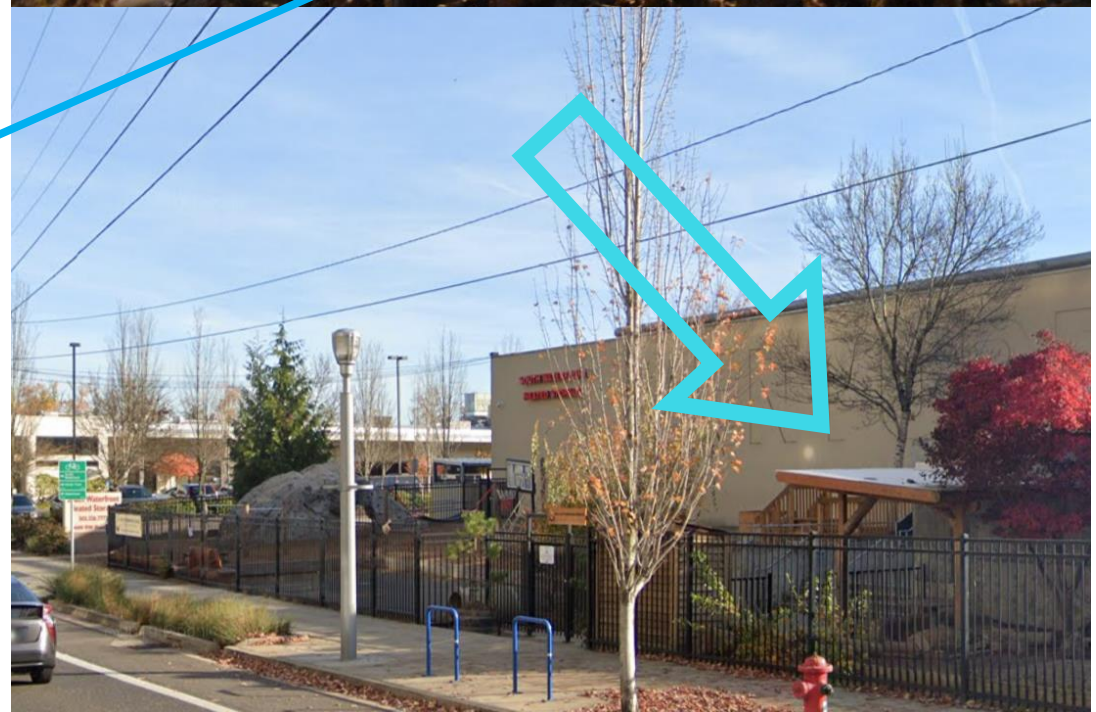

…and sometimes weapons land ***on*** the school

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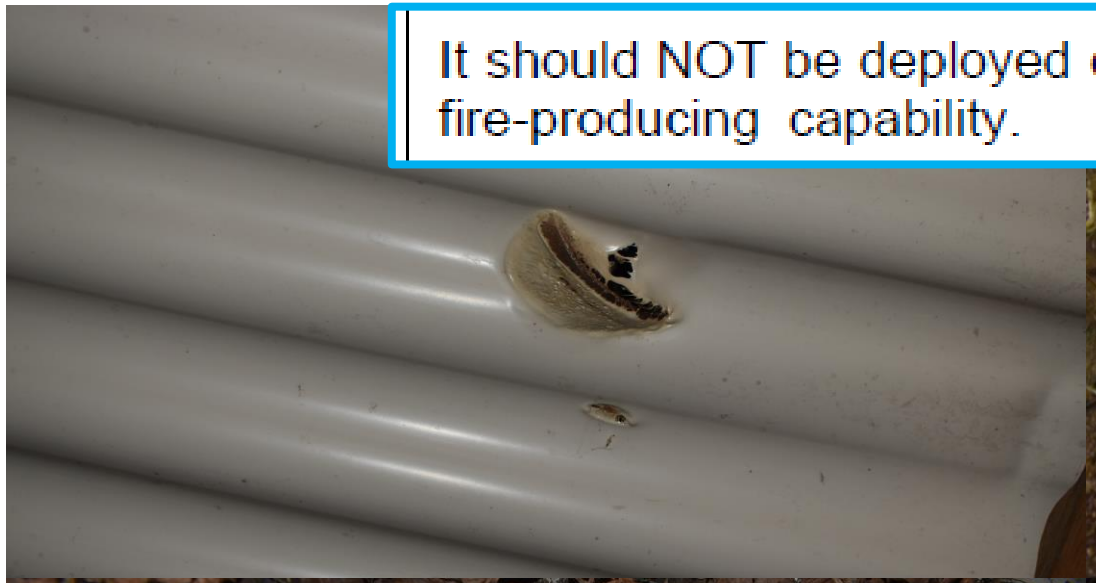

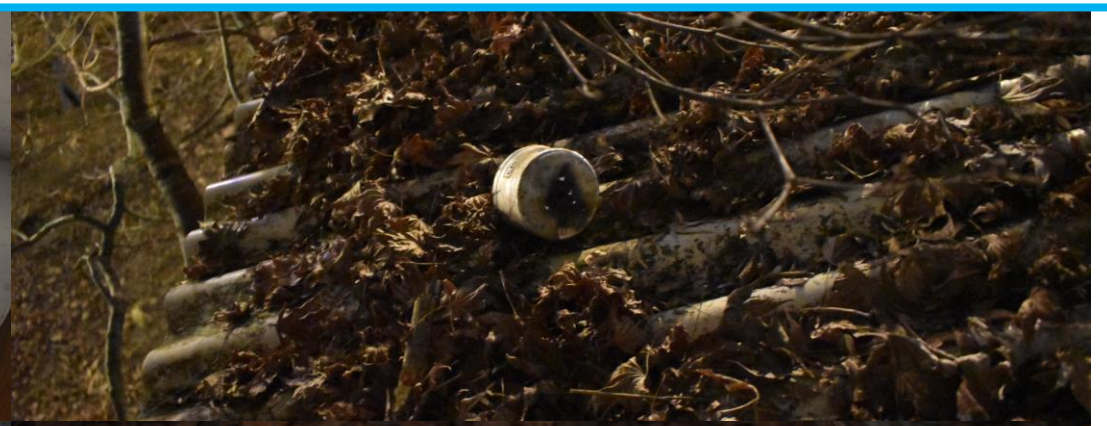

[can burn wet grass]

[can burn wet grass]

…and sometimes weapons land ***on*** the school

…and sometimes weapons land ***inside*** the school yard

https://twitter.com/titoblanco/status/1353240663127519233

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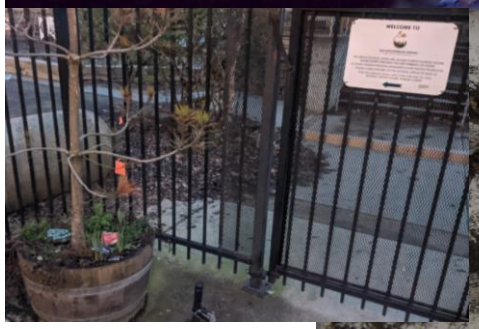

…and sometimes weapons land ***inside*** the school yard

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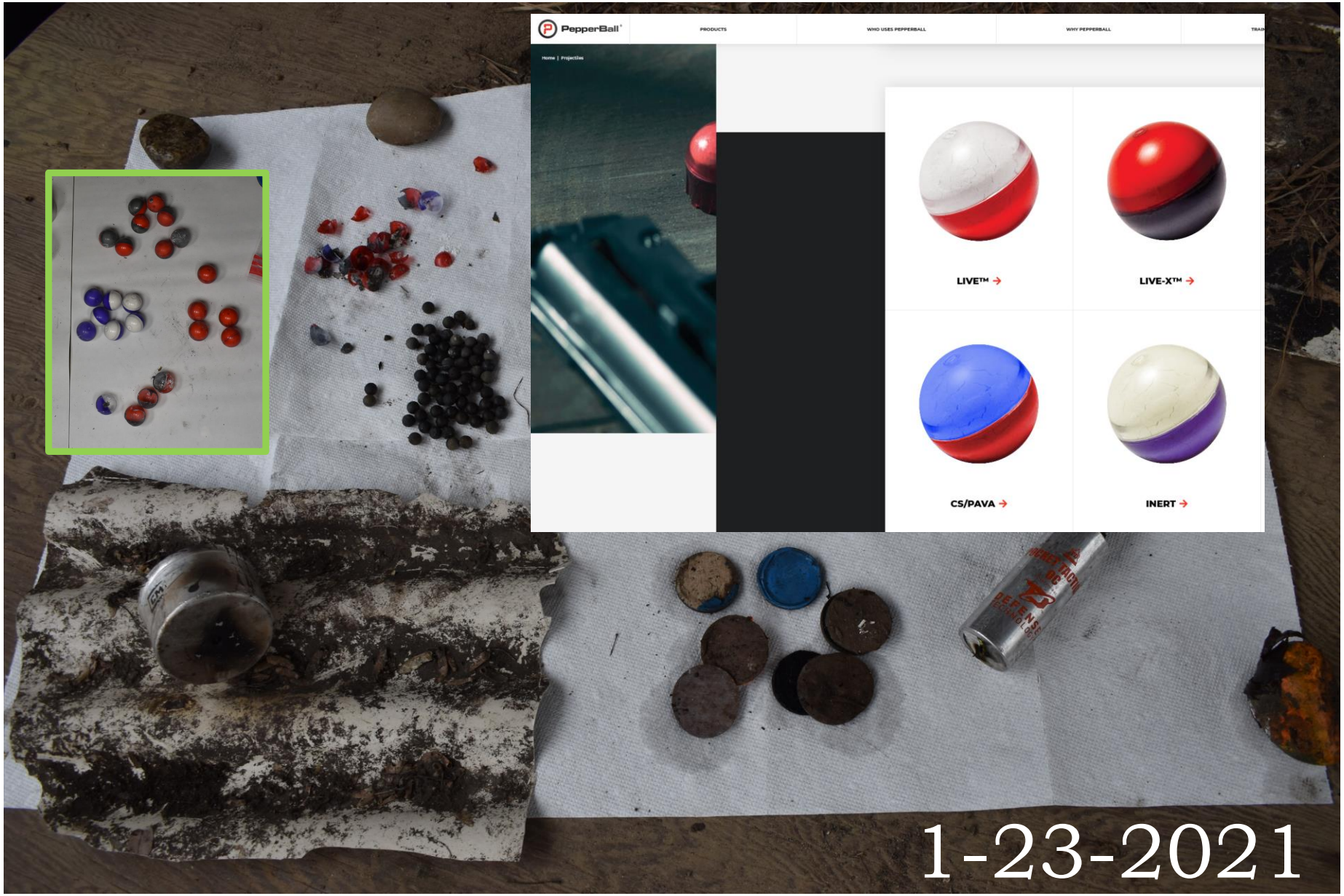

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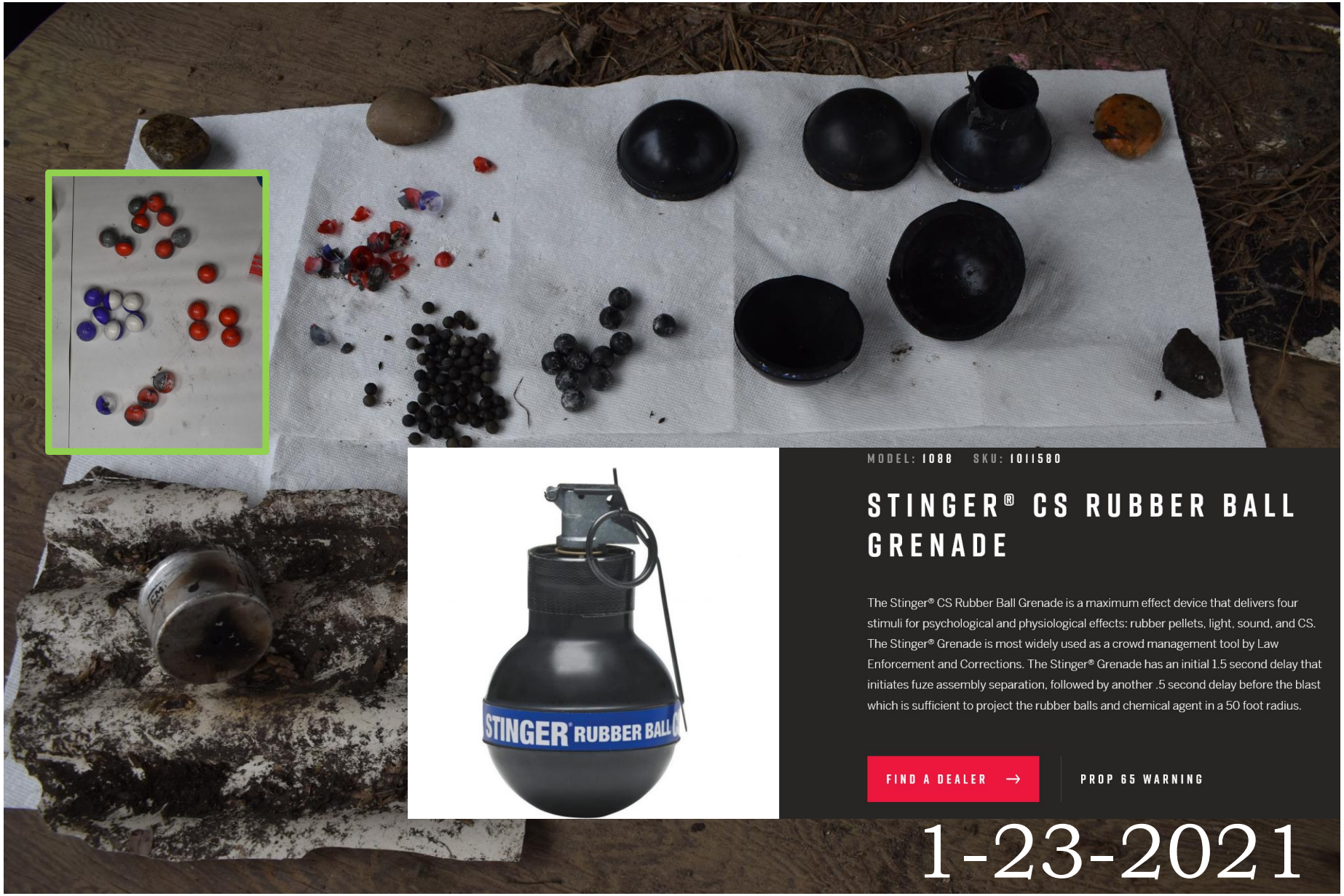

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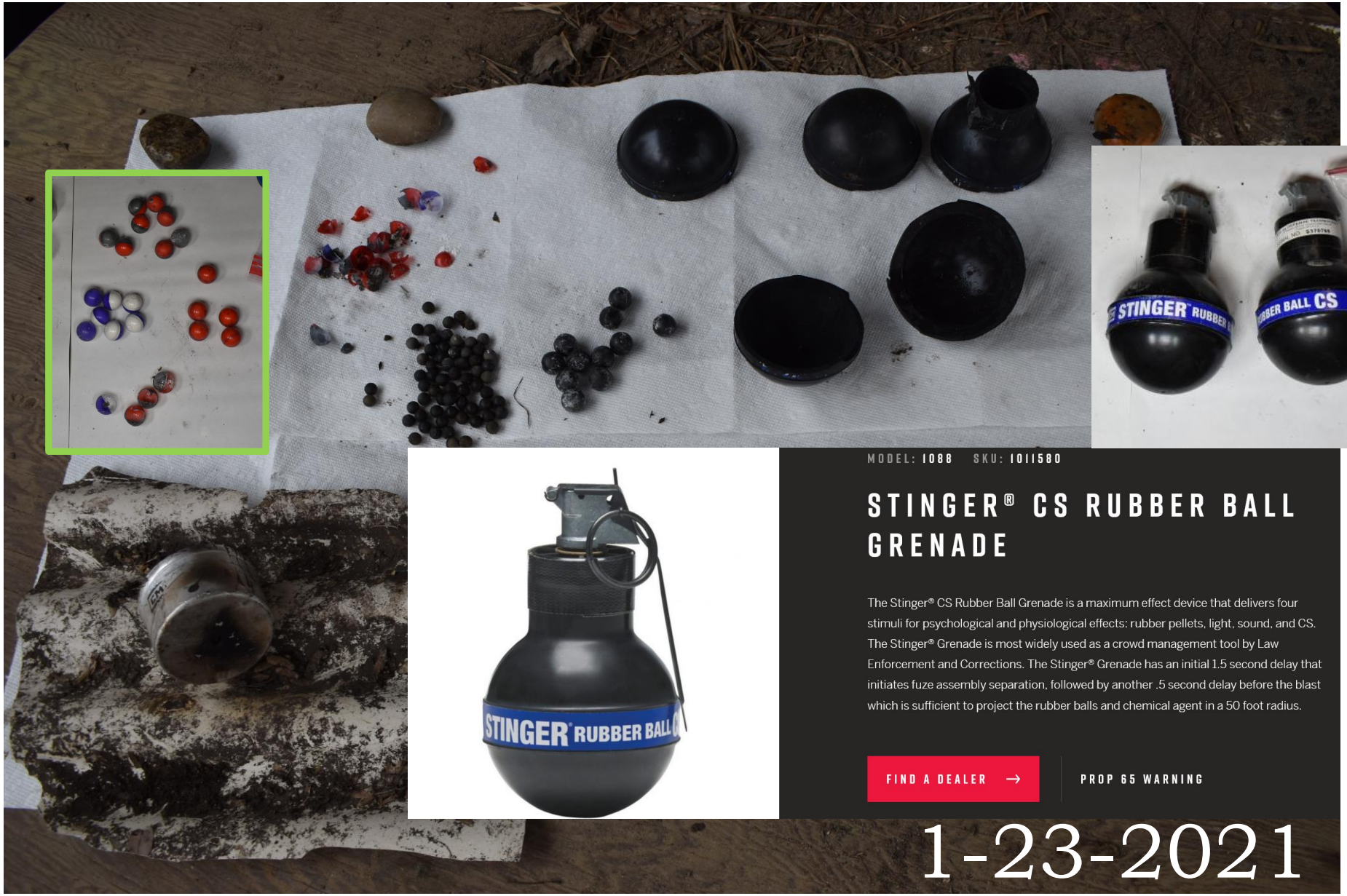


…and sometimes weapons land ***inside*** the school yard

40MM SKAT SHELL®
OC, CN, CS AND SAF-SMOKE™

DEFENSE TECHNOLOGY®

PRODUCT SPECIFICATIONS	
Diameter	1.60 in / 40mm
Length	4.80 in / 12.2 cm
Maximum Range	80 – 100 yards / 73.2 – 91.4 meters
Active Agent	OC 0.18 oz / 5.2 g CN/CS 0.90 oz / 25.2 g
Discharge Time	10 – 25 seconds
Part No.	OC 6170 CN 6171 CS 6172 Saf- Smoke™ 6173
Warranty	5 years from date of manufacture

ALL SPECIFICATIONS ARE AVERAGES AND SUBJECT TO CHANGE

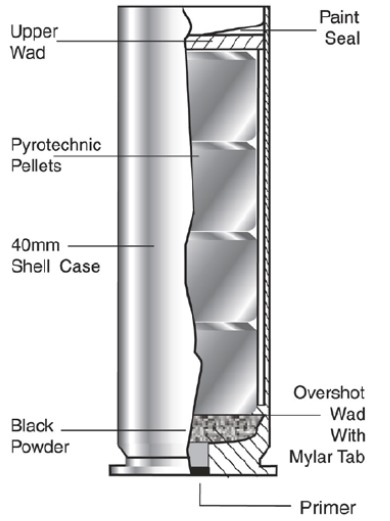
The 40mm Skat Shell® incorporates an aluminum shell and utilizes black powder as the propellant. The 40mm Skat Shell® is designed to deliver multiple chemical or smoke canisters from a 40mm launcher down range to the intended target zone.

The 40mm Skat Shell® is most widely used as a crowd management tool for the rapid and broad deployment of chemical agent from a 40mm launcher by a single grenadier. The 40mm Skat Shell® contains four (4) separate sub-munitions that function individually once the round is discharged.

The small scattering effect and the rapid burning of the sub-munition canisters provide a wide area of coverage and minimizes the throwback potential.

This round may be fired in the air at an angle of approximately 25 - 30 degrees to achieve maximum stand-off distance, or it may be skip fired into the target area from lesser distances. When launching, it is recommended to have a spotter to ensure no canisters land on rooftops or other areas of fire concern. It is also recommended to have a spotter to ensure that the canisters do not enter windows or doorways when skip fired.

The 40mm Skat Shell® is designed for outdoor use and has fire producing capability. It is not intended for barricade penetration. Do NOT fire directly at personnel, as serious injury or death may result.



⚠ WARNING
This product can expose you to chemicals including

source: https://twitter.com/eats_master/status/1353553046236590080

Agents & Impacts

Agents & Impacts

GHS hazard pictograms

From Wikipedia, the free encyclopedia

GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

Fourth revised edition

UNITED NATIONS
New York and Geneva, 2011

Agents & Impacts

GHS hazard pictograms

From Wikipedia, the free encyclopedia

Physical hazards pictograms [edit source]

Pictogram	Usage
 GHS01: Explosive	• Unstable explosives • Explosives, divisions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6 • Self-reactive substances and mixtures, types A, B • Organic peroxides, types A, B *Further information: Explosive material* e.g. azidoazide azide, TNT, chromyl chloride, nitroglycerin
 GHS02: Flammable	• Flammable gases, category 1 • Flammable aerosols, categories 1, 2 • Flammable liquids, categories 1, 2, 3, 4 • Flammable solids, categories 1, 2 • Self-reactive substances and mixtures, types B, C, D, E, F • Pyrophoric liquids, category 1 • Pyrophoric solids, category 1 • Combustible solids, category 3 • Combustible liquids, category 3 • Self-heating substances and mixtures, categories 1, 2 • Substances and mixtures, which in contact with water, emit flammable gases, categories 1, 2, 3 • Organic peroxides, types B, C, D, E, F *Further information: Flammability* e.g. acetone, methanol, generally most solvents.
 GHS03: Oxidizing	• Oxidizing gases, category 1 • Oxidizing liquids, categories 1, 2, 3 • Oxidizing solids, categories 1, 2, 3 *Further information: Oxidizing agent* e.g. sulfur dioxide, most halogens, potassium permanganate, nitric acid
 GHS04: Compressed Gas	• Compressed gases • Liquefied gases • Refrigerated liquefied gases • Dissolved gases • e.g. liquid nitrogen, liquid oxygen, liquid helium
 GHS05: Corrosive	• Corrosive to metals, category 1 *Further information: Corrosive substance* Strong acids/bases (nitric acid, sodium hydroxide), calcium oxide, anhydrous zinc chloride **can** be corrosive
no pictogram required	• Explosives, divisions 1.5, 1.6 • Flammable gases, category 2 • Self-reactive substances and mixtures, type G (see HAZMAT Class 4 Flammable solids) • Organic peroxides, type G

Health hazards pictograms [edit source]

Pictogram	Usage
 GHS06: Toxic	• Acute toxicity (oral, dermal, inhalation), categories 1, 2, 3 • e.g. Manganese Heptoxide (fire diamond rating at health hazard is 4)

 GHS07: Harmful	• Acute toxicity (oral, dermal, inhalation), category 4
	• Skin irritation, categories 2, 3
	• Eye irritation, category 2A
	• Skin sensitization, category 1
	• Specific target organ toxicity following single exposure, category 3
	  • Respiratory tract irritation
	  • Narcotic effects
	Not used[3]
	• with the "skull and crossbones" pictogram
	• for skin or eye irritation if:
	  • the "corrosion" pictogram also appears
	  • the "health hazard" pictogram is used to indicate respiratory sensitization

 GHS08: Health hazard	• Respiratory sensitization, category 1 • Germ cell mutagenicity, categories 1A, 1B, 2 • Carcinogenicity, categories 1A, 1B, 2 • Reproductive toxicity, categories 1A, 1B, 2 • Specific target organ toxicity following single exposure, categories 1, 2 • Specific target organ toxicity following repeated exposure, categories 1, 2 • Aspiration hazard, categories 1, 2 • e.g. Chromium
no pictogram required	• Acute toxicity (oral, dermal, inhalation), category 5 • Eye irritation, category 2B • Reproductive toxicity – effects on or via lactation

Physical and health hazard pictograms [edit source]

Further information: Corrosive substance

Pictogram	Usage
 GHS05: Corrosive	• Explosives, divisions 1.5, 1.6 • Flammable gases, category 2 • Self-reactive substances and mixtures, type G (see HAZMAT Class 4 Flammable solids) • Organic peroxides, type G • Skin corrosion, categories 1A, 1B, 1C • Serious eye damage, category 1

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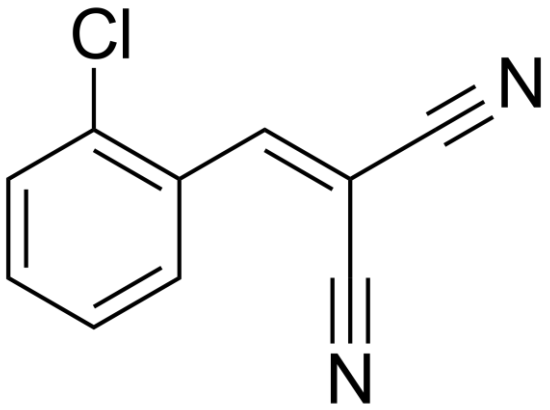
Environmental hazards pictograms [edit source]

Pictogram	Usage
 GHS09: Environmental hazard	• Acute hazards to the aquatic environment, category 1 • Chronic hazards to the aquatic environment, categories 1, 2 • Environmental toxicity, categories 1, 2
no pictogram required	• Acute hazards to the aquatic environment, categories 2, 3 • Chronic hazards to the aquatic environment, categories 3, 4

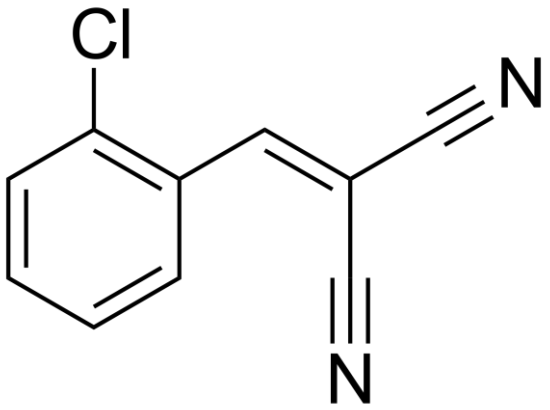
Agents & Impacts

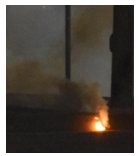
2-chlorobenzalmalononitrile (CS)
Endocrine disrupting

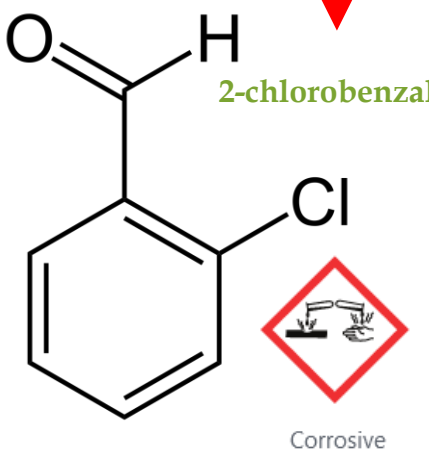
2-chlorobenzalmalononitrile (CS)



2-chlorobenzalmalononitrile (CS)

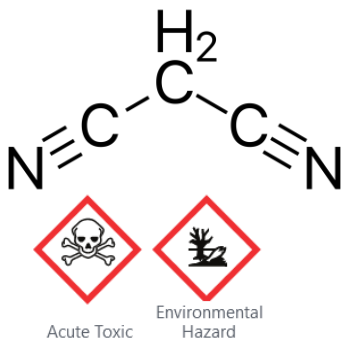


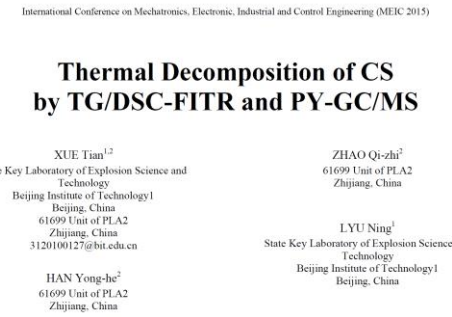




2-chlorobenzaldehyde

malononitrile





International Conference on Mechatronics, Electronic, Industrial and Control Engineering (MEIC 2015)

Thermal Decomposition of CS by TG/DSC-FITR and PY-GC/MS

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State Key Laboratory of Explosion Science and Technology
Beijing Institute of Technology1
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61699 Unit of PLA2
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HAN Yong-he[2]
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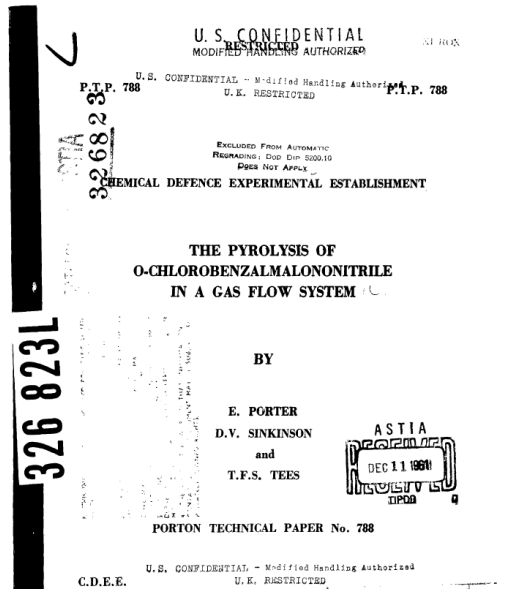

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P.T.P. 788 P.T.P. 788

326823

Excluded From Automatic Regrading; Dod Dir 5200.10 Does Not Apply

CHEMICAL DEFENCE EXPERIMENTAL ESTABLISHMENT

THE PYROLYSIS OF O-CHLOROBENZALMALONONITRILE IN A GAS FLOW SYSTEM

326 823L

BY

E. PORTER
D.V. SINKINSON
and
T.F.S. TEES

ASTIA RECEIVED DEC 11 1961 TIPDR

PORTON TECHNICAL PAPER No. 788

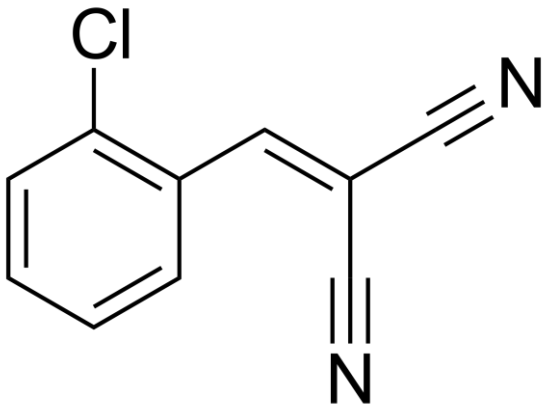
C.D.E.E. U.S. CONFIDENTIAL - Modified Handling Authorized U.K. RESTRICTED

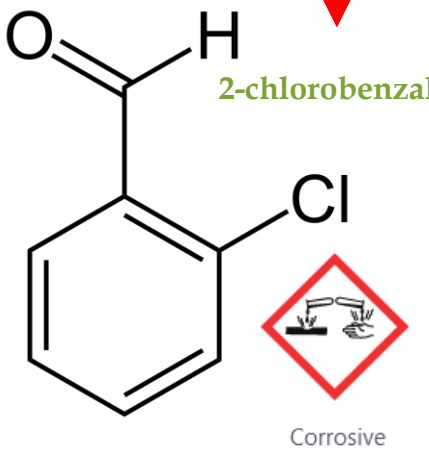
Journal of Occupational and Environmental Hygiene, 7: 352–357
ISSN: 1545-9624 print / 1545-9632 online
DOI: 10.1080/15459621003732721

Identification of Compounds Formed During Low Temperature Thermal Dispersion of Encapsulated o-Chlorobenzylidene Malononitrile (CS Riot Control Agent)

Joseph J. Hout,[1] Gary L. Hook,[2] Peter T. LaPuma,[3] and Duvel W. White[1]

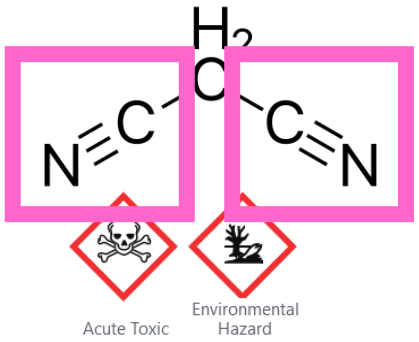
2-chlorobenzalmalononitrile (CS)



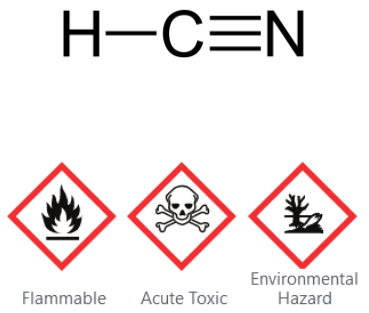


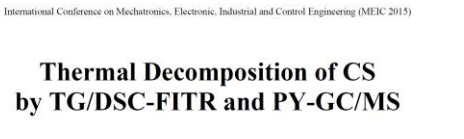
2-chlorobenzaldehyde

malononitrile



hydrogen cyanide





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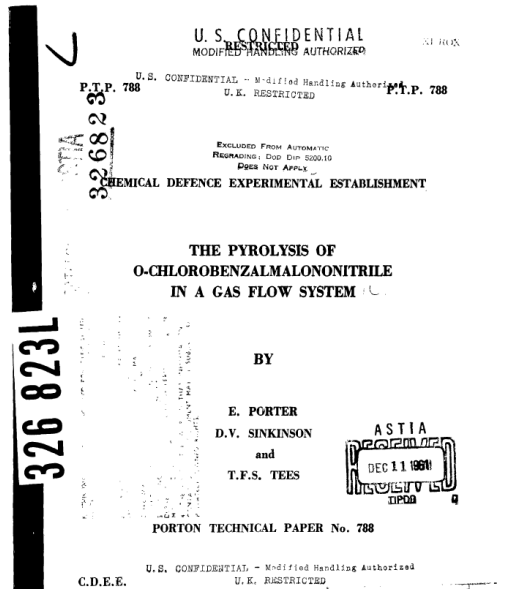

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QUANTIFICATION OF HYDROGEN CYANIDE GENERATED AT LOW TEMPERATURE O-CHLOROBENZYLIDENE MALONONITRILE (CS) DISPERSAL

by

Major Erin Johnson-Kanapathy

Thesis submitted to the Faculty of the
PMB Graduate Program
Uniformed Services University of the Health Sciences
In partial fulfillment of the requirements for the degree of
Master's of Science of Public Health

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Uniformed Services University of the Health Sciences (USU)

Motto	Learning to Care For Those In Harm's Way[1]
Type	Federal medical school
Established	1972
Affiliation	United States Army United States Navy United States Air Force U.S. Public Health Service Commissioned Corps
President	Richard W. Thomas, MD, DDS
Academic staff	1,087 (775 civilians; 312 military) More than 4,000 off-campus
Undergraduates	None
Postgraduates	About 1,200
Location	Bethesda, Maryland, United States 39.0012°N 77.0859°W
Campus	Suburban
Colors	Purple, gold and white
Website	usuhs.edu

From Wikipedia, the free encyclopedia

QUANTIFICATION OF HYDROGEN CYANIDE GENERATED AT LOW TEMPERATURE O-CHLOROBENZYLIDENE MALONONITRILE (CS) DISPERSAL

by

Major Erin Johnson-Kanapathy

Thesis submitted to the Faculty of the
PMB Graduate Program
Uniformed Services University of the Health Sciences
In partial fulfillment of the requirements for the degree of
Master's of Science of Public Health

Uniformed Services University of the Health Sciences (USU)

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Affiliation	United States Army United States Navy United States Air Force U.S. Public Health Service Commissioned Corps
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Undergraduates	None
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Location	Bethesda, Maryland, United States 39.0012°N 77.0859°W
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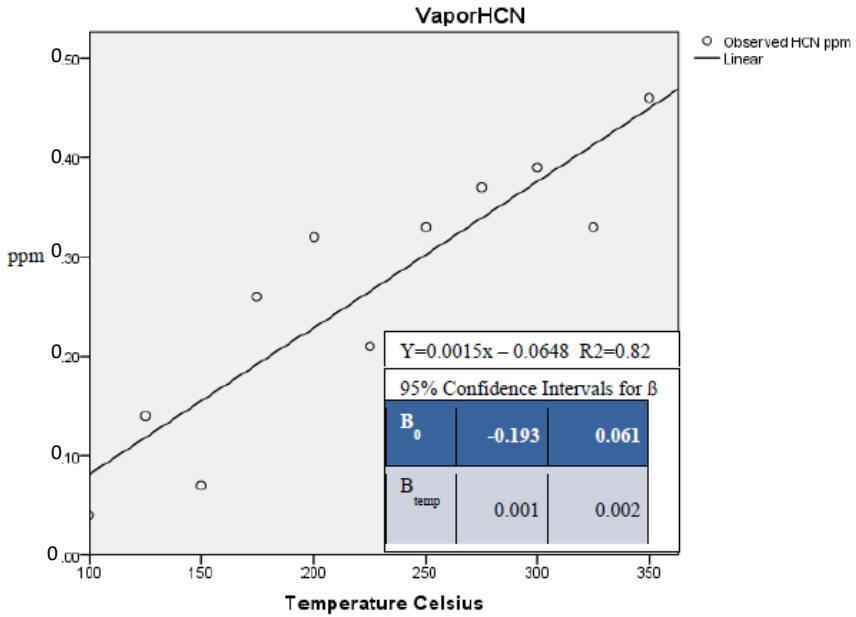
HCN Regression Analysis and Correlations

The concentration of vapor HCN increased linearly as the temperature of the CS dispersal increased. The coefficient of determination for this relationship (R^2) was 0.82.

Table 4-8 Vapor HCN Linear Regression



SPSS used for calculations

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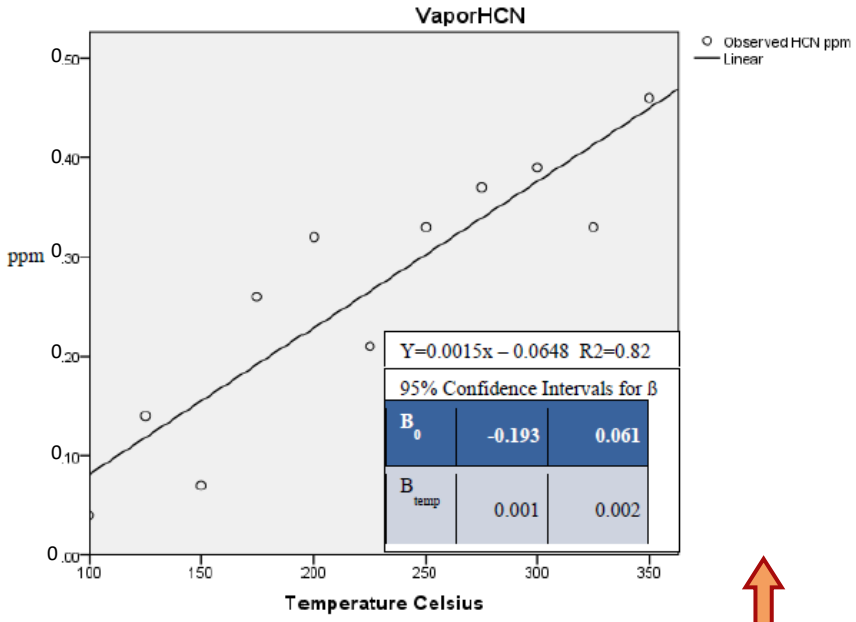

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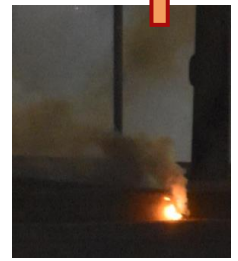

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CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

The National Institute for Occupational Safety and Health (NIOSH)

NIOSH Pocket Guide to Chemical Hazards

NIOSH Pocket Guide to Chemical Hazards

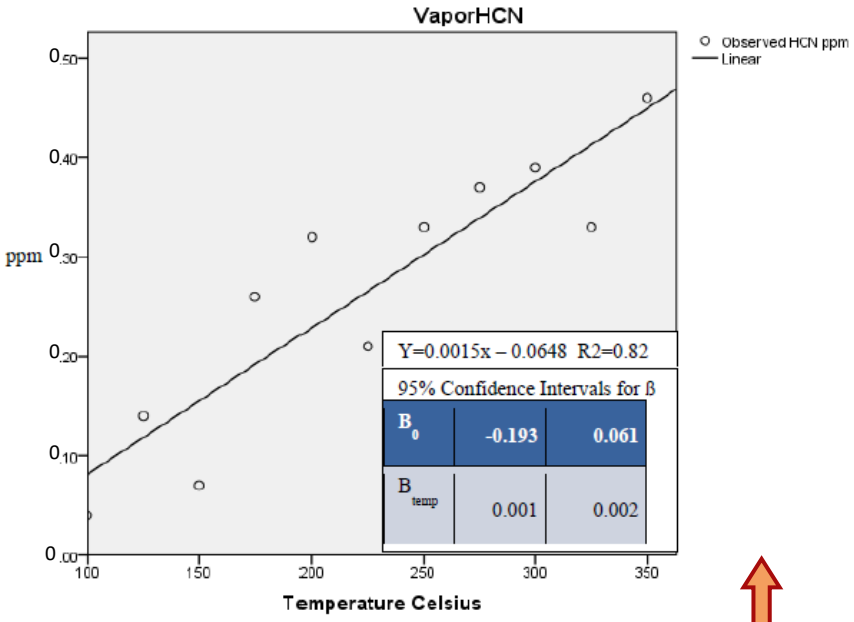
Introduction

Hydrogen cyanide

Exposure Limits

NIOSH REL
ST 4.7 ppm (5 mg/m³) [skin]
OSHA PEL
TWA 10 ppm (11 mg/m³) [skin] See Appendix G

Table 4-8 Vapor HCN Linear Regression



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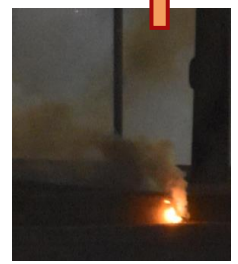

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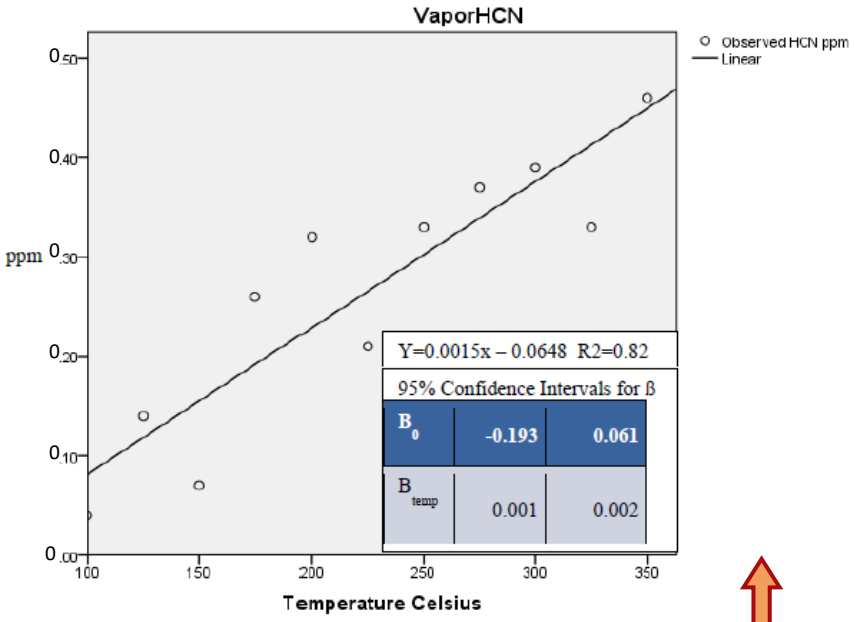
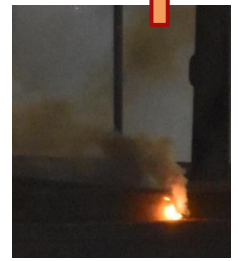


SPSS used for calculations

Figure 3-5 CS Placed Into Coffee Can

CS capsules being opened and emptied into coffee can on hot plate.



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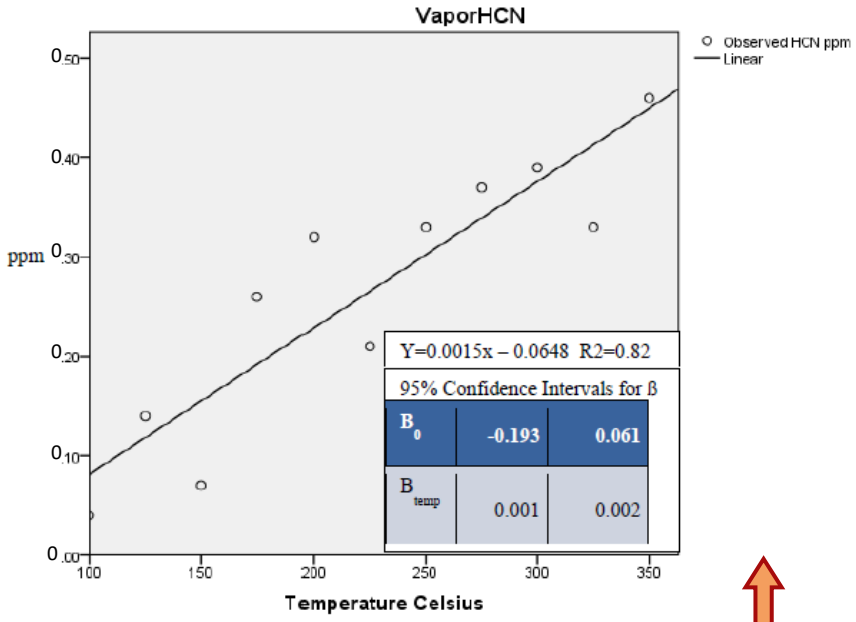
Though inhalation is a primary concern with HCN, dermal absorption also contributes to the overall exposure/dose and as with the case of CS, heat/humidity increases the absorption of HCN.(8) While those Soldiers who work with CS and/or in a CS atmosphere on a regular basis normally wear the M40 air purifying mask, the use of dermal protection is not as consistent as demonstrated in Figures 3-1 and 3-10 through 3-12.

Figure 3-5 CS Placed Into Coffee Can

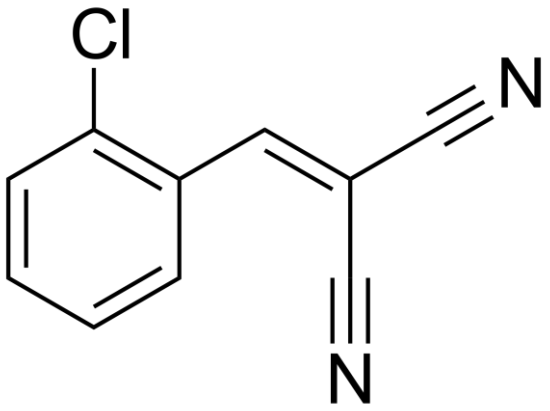
CS capsules being opened and emptied into coffee can on hot plate.

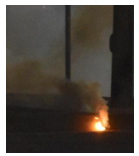
Table 4-8 Vapor HCN Linear Regression



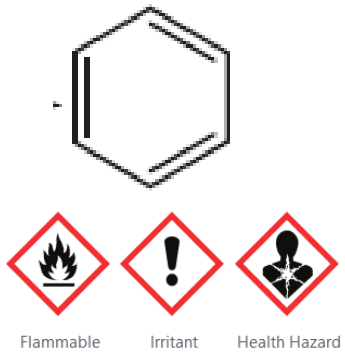
SPSS used for calculations

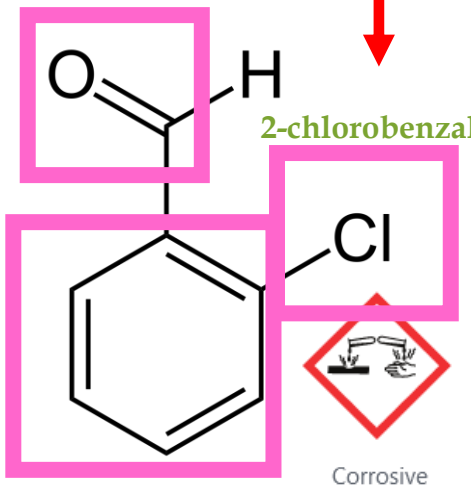
2-chlorobenzalmalononitrile (CS)



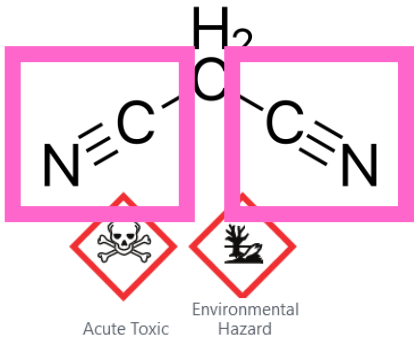


benzene

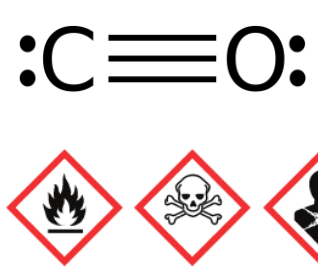




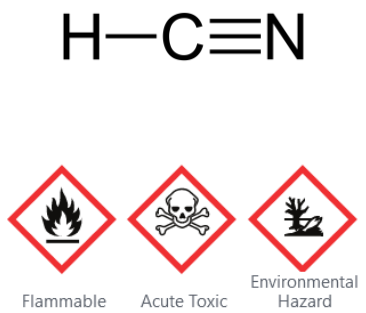
2-chlorobenzaldehyde



malononitrile

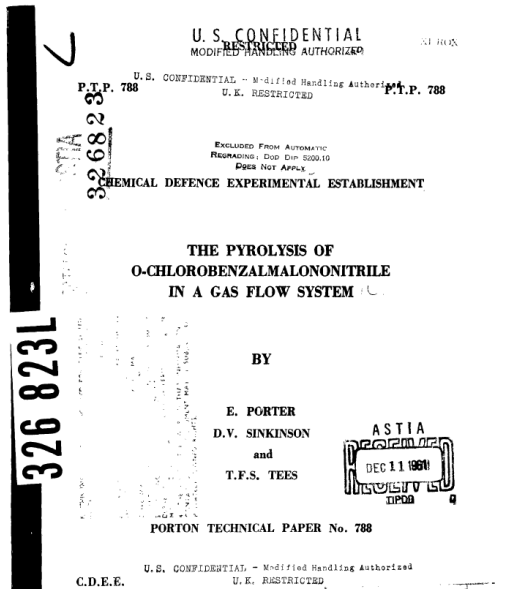


carbon monoxide



hydrogen cyanide

hydrogen chloride



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CHEMICAL DEFENCE EXPERIMENTAL ESTABLISHMENT

THE PYROLYSIS OF
O-CHLOROBENZALMALONONITRILE
IN A GAS FLOW SYSTEM

BY

E. PORTER
D.V. SINKINSON
and
T.F.S. TEES

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PORTON TECHNICAL PAPER No. 788

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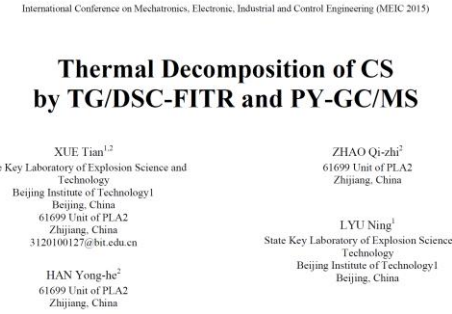

International Conference on Mechatronics, Electronic, Industrial and Control Engineering (MEIC 2015)

Thermal Decomposition of CS by TG/DSC-FITR and PY-GC/MS

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Journal of Occupational and Environmental Hygiene, 7: 352–357
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DOI: 10.1080/15459621003732721

Identification of Compounds Formed During Low Temperature Thermal Dispersion of Encapsulated o-Chlorobenzylidene Malononitrile (CS Riot Control Agent)

Joseph J. Hout,[1] Gary L. Hook,[2] Peter T. LaPuma,[3] and Duvel W. White[1]

Agents & Impacts

2-chlorobenzalmalononitrile (CS)

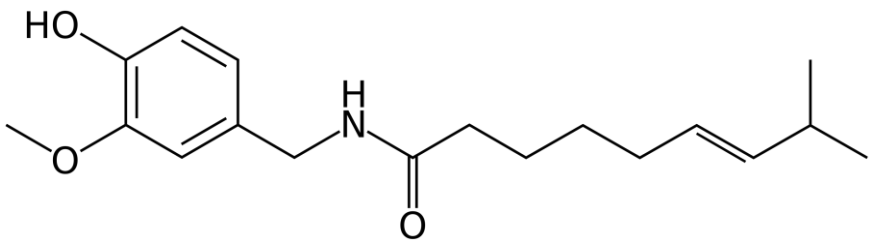
Endocrine disrupting

Capsaicinoids (Oleoresium Capsicum: OC)

Cancer causing & exacerbating

Asthma inducing

Capsaicinoids (Oleoresium Capsicum: OC)



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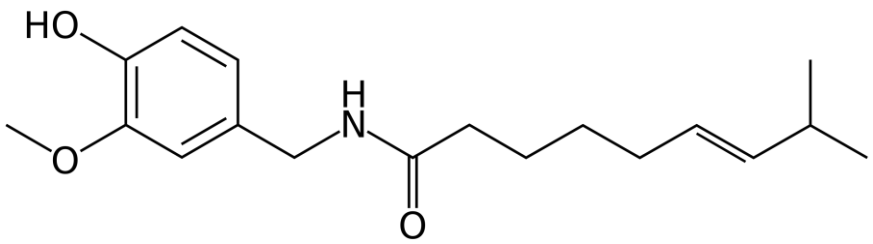

J. Agric. Food Chem. 1992, 40, 2263–2266 2263

Thermal Decomposition of Capsaicin. 1. Interactions with Oleic Acid at High Temperatures

David E. Henderson*
Chemistry Department, Trinity College, Hartford, Connecticut 06106
Susan K. Henderson
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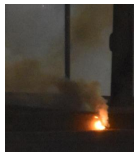
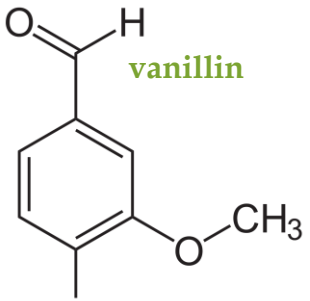
The thermal decomposition of capsaicin alone and in the presence of oleic acid was studied by GC–MS. Decomposition products of capsaicin included vanillin, methylnonenoic acid, and methylnonenamide. In mixture with oleic acid, two unique products, 9-octadecenamide and *N*-vanillyl-9-octadecenamide, are formed. The formation of expected oxidative decomposition products of oleic acid is suppressed by the presence of capsaicin.

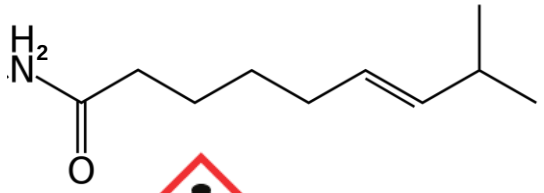


vanillin



Irritant

8-methyl-6-nonenamide



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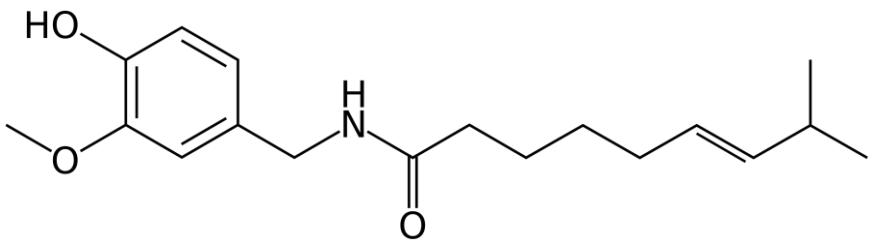

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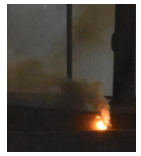
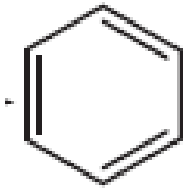
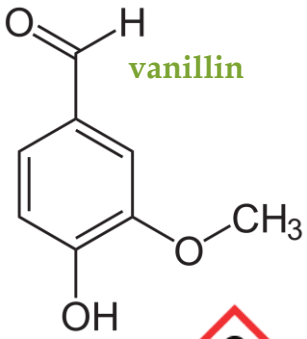
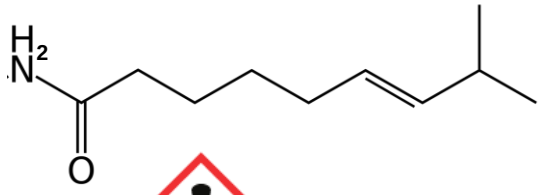






vanillin

8-methyl-6-nonenamide



carbon monoxide

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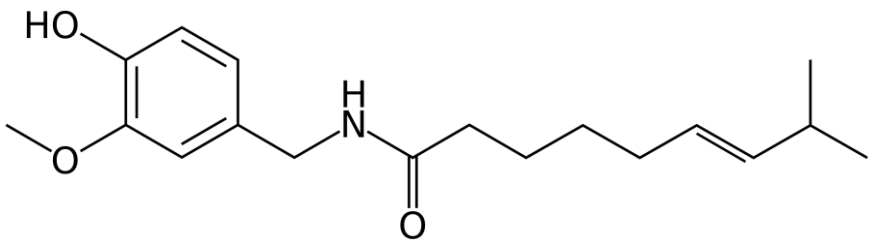
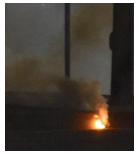


Corrosive Acute Toxic Irritant



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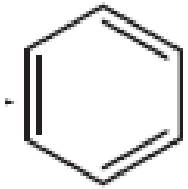
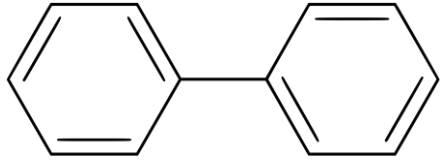


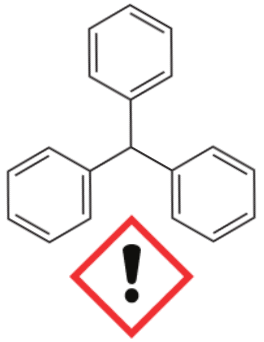
Flammable Irritant Health Hazard

biphenyl



Irritant Environmental Hazard

triphenylmethane



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Research paper

Theoretical study of the pyrolysis of vanillin as a model of secondary lignin pyrolysis

Meng Wang[a], Chao Liu[a,*], Xiaoxiao Xu[a], Qibin Li[b]
[a] Key Laboratory of Low-grade Energy Utilization Technologies and Systems, Ministry of Education, College of Power Engineering, Chongqing University, Chongqing 400044, China
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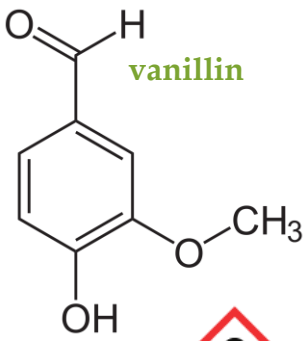
Density functional theory (DFT)

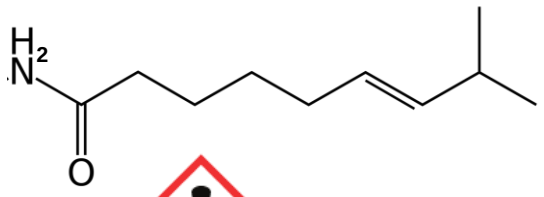
ABSTRACT
The unimolecular and bimolecular decomposition reactions in processes of vanillin pyrolysis were theoretically investigated by employing density functional theory (DFT) method at M06-2X/6-31 G+(d,p) level. The result shows that the homolytic cleavage of O–CH_3 bond could be the dominant initial step in the pyrolysis of vanillin. The hydrogen abstractions from functional groups of vanillin by the formed radicals play important roles in the formation of main products. Both formyl, hydroxyl and methoxyl group contribute to the formation of CO. Benzene is formed from the hydrogen addition reaction between hydrogen radical and phenol at high temperature.

vanillin



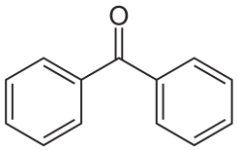
Irritant

8-methyl-6-nonenamide



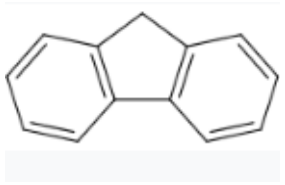
Irritant

benzophenone



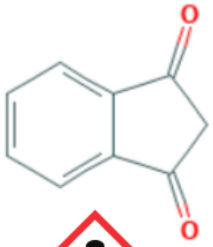
Health Hazard Environmental Hazard

fluorene



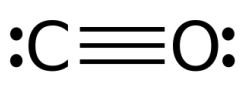
Irritant Environmental Hazard

1,3-indadione



Irritant

carbon monoxide



Flammable Acute Toxic Health Hazard

Agents & Impacts

2-chlorobenzalmalononitrile (CS)

- Endocrine disrupting

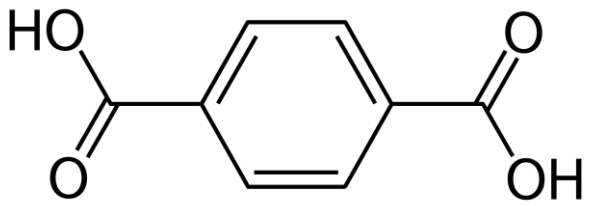
Capsaicinoids (Oleoresium Capsicum: OC)

- Cancer causing & exacerbating
- Asthma inducing

Terephthalic Acid

- **Organic solvent vapors**
- **Endocrine distruptors**

Terephthalic Acid (TA; “SAF”)



Irritant

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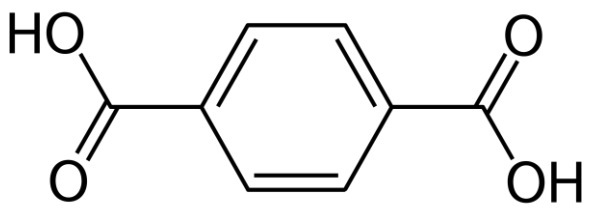


Irritant

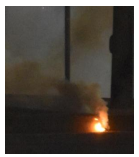
Comparative Study > Drug Chem Toxicol. 1997 Nov;20(4):293-302.
doi: 10.3109/01480549709003887.

Chemical and toxicological evaluation of pyrotechnically disseminated terephthalic acid smoke

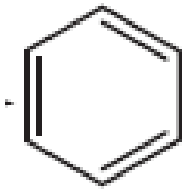
W T Muse Jr [1], J S Anthony, J D Bergmann, D C Burnett, C L Crouse, B P Gaviola, S A Thomson

Affiliations + expand

PMID: 9433658 DOI: 10.3109/01480549709003887



benzene

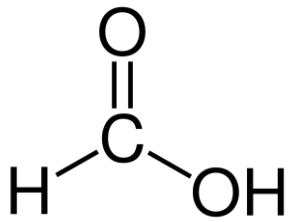


Flammable Irritant Health Hazard

carbon monoxide

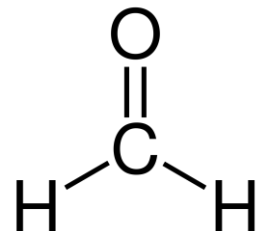
Flammable Acute Toxic Health Hazard

formic acid



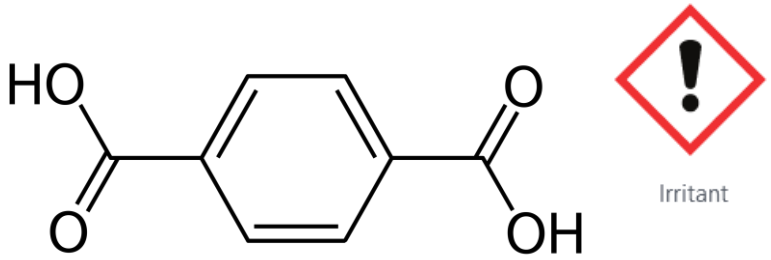
Corrosive

formaldehyde

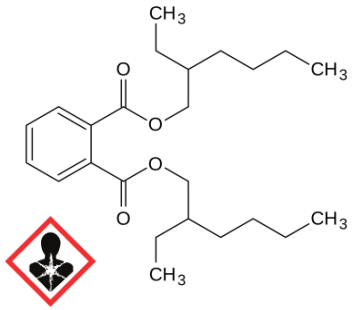


Corrosive Acute Toxic Irritant Health Hazard

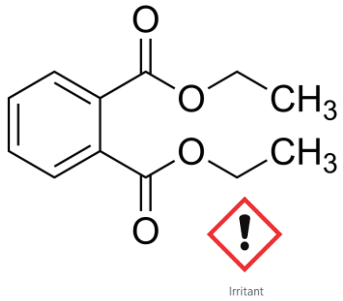
Terephthalic Acid (TA; "SAF")



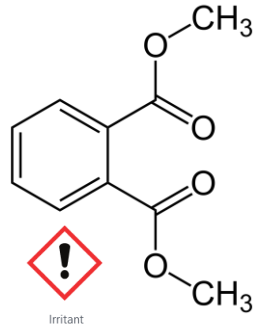
diethylhexyl phthalate



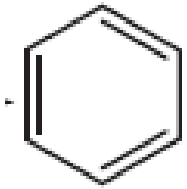
diethyl phthalate



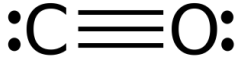
dimethyl phthalate



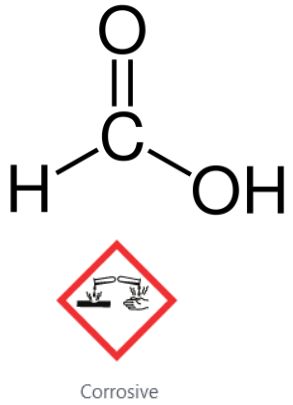
benzene



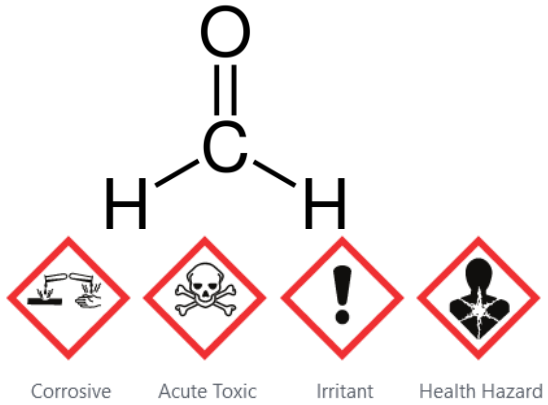
carbon monoxide



formic acid



formaldehyde



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Affiliations + expand

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Phthalate Ester

Phthalate esters enhance levels of steroid-metabolizing enzymes in fetal rat liver through the action of CAR and PXR (Kawamoto et al. 2000;

From: Comprehensive Toxicology, 2010

Agents & Impacts

2-chlorobenzalmalononitrile (CS)

Endocrine disrupting

Capsaicinoids (Oleoresium Capsicum: OC)

Cancer causing & exacerbating

Asthma inducing

Terephthalic Acid

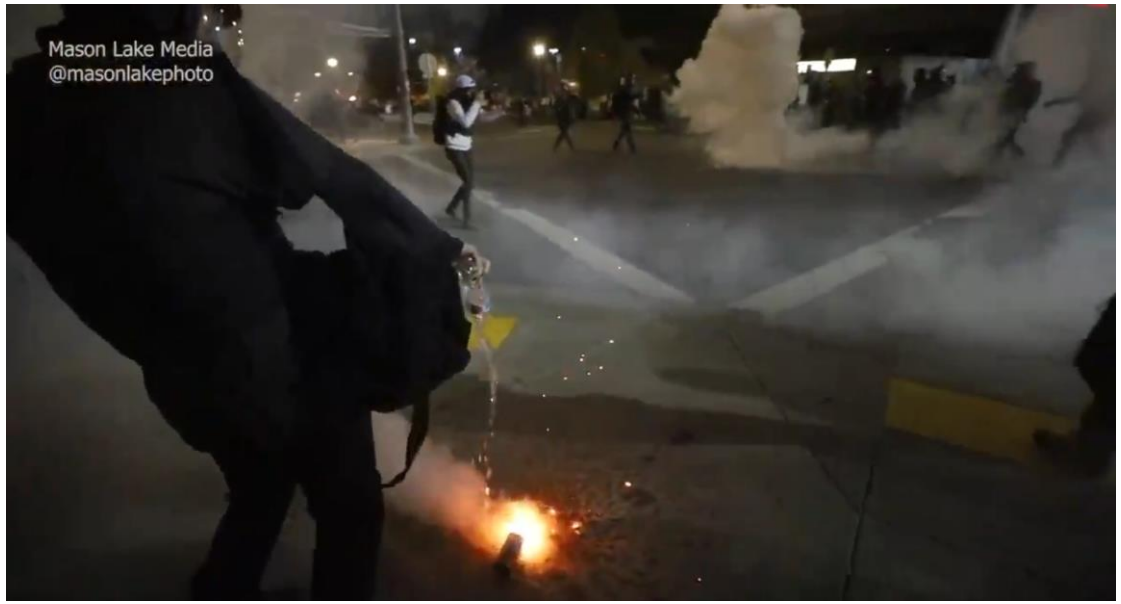
Organic solvent vapors

Endocrine distruptors

Hexachloroethane

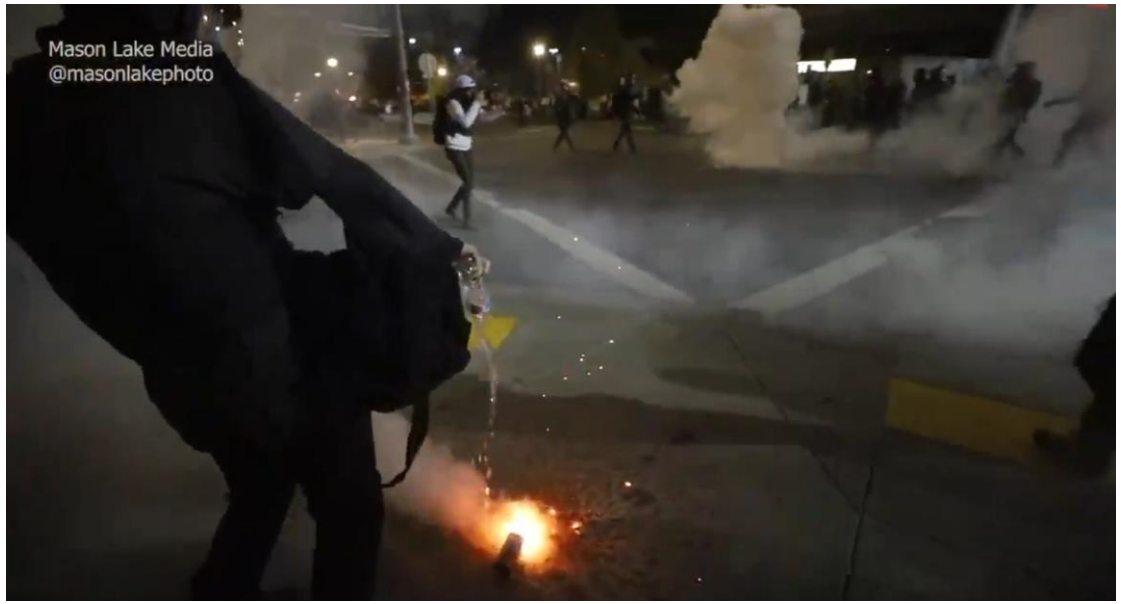
Multi-organ failure

10-28-2020



Agents & Impacts

10-28-2020



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CLINICAL TOXICOLOGY, 2017
VOL. 55, NO. 3, 167–174
http://dx.doi.org/10.1080/15563650.2016.1271125

Taylor & Francis
Taylor & Francis Group

REVIEW

OPEN ACCESS

The toxicology of zinc chloride smoke producing bombs and screens

Ayman El Idrissi[a*], Lisanne van Berkel[a*], Nadia E. Bonekamp[a*], Diana J. Z. Dalemans[a*] and Marcel A. G. van der Heyden[b]

[a]Honours Program CRU2006 Bachelor, University Medical Center Utrecht, Utrecht, The Netherlands; [b]Department of Medical Physiology,

Of the 31 patients included, eight died,

Context: Zinc chloride ($ZnCl_2$)-based smoke bombs and screens are in use since the Second World War (1939–1945). Many case descriptions on $ZnCl_2$ smoke inhalation incidents appeared since 194[illegible]

Objective: We provide a comprehensive overview of the clinical symptoms and underlying pathophysiology due to exposure to fumes from $ZnCl_2$ smoke producing bombs. In addition, we give a historical overview of treatment regimens and their outcomes.

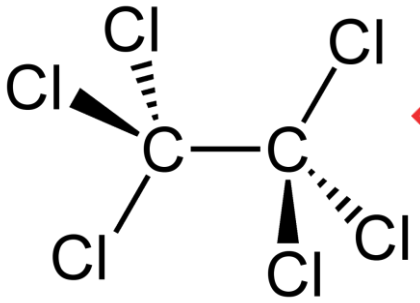
Methodology: We performed a literature search on Medline, Scopus and Google Scholar databases using combinations of the following search terms "smoke bomb", "smoke screen", "$ZnCl_2$", "intoxication", "poisoning", "case report", "HE smoke", "hexachloroethane smoke", "smoke inhalation" and "white smoke". We retrieved additional reports based on the primary hits. We collected 30 case reports from the last seven decades encompassing 376 patients, 23 of whom died. Of all the patient descriptions, 31 were of sufficient detail for prudent analysis.

Results and conclusions: Intoxication with clinical signs mainly took place in war situations and in military and fire emergency training sessions in enclosed spaces. Symptoms follow a biphasic course mainly characterised by dyspnoea, coughing and lacrimation, related to irritation of the airways in the first six hours, followed by reappearance of early signs complemented with inflammation related signs and tachycardia from 24 h onwards. Acute respiratory stress syndrome developed in severely affected individuals. Chest radiographs did not always correspond with clinical symptoms. Common therapy comprises corticosteroids, antibiotics and supplemental [illegible] or positive pressure ventilation in 64% of the cases. Of the 31 patients included, eight died, three had permanent lung damage and 15 showed complete recovery, whereas in five patients outcome was not reported. Early signs likely relate to caustic reactions in the airway lining, whereas inhaled $ZnCl_2$ particles may trigger an inflammatory response and associated delayed fibrotic lung damage. Smoke bomb poisoning is a potentially lethal condition that can occur in large cohorts of victims simultaneously.

ARTICLE HISTORY
Received 2 May 2016
Revised 29 November 2016
Accepted 5 December 2016

KEYWORDS
Smoke bomb; smoke screen; $ZnCl_2$; poisoning; ARDS; hexachloroethane; metal fume fever

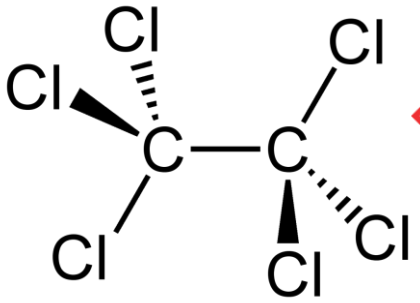
Hexachloroethane (HC)



zinc oxide

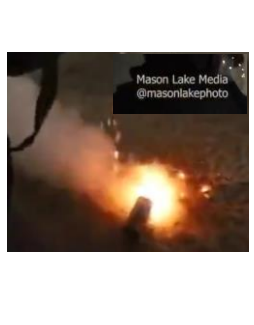
ZnO

Hexachloroethane (HC)



zinc oxide

ZnO



zinc chloride

$ZnCl_2$

THE PYROLYSIS OF HEXACHLOROETHANE

By F. S. Dainton and K. J. Ivin

Received 20th October, 1949

A preliminary investigation of the kinetics of the pyrolysis of hexachloroethane has been made between 300-420° C. The pyrolysis exhibits the characteristics of a chain reaction and is retarded by traces of nitric oxide and ammonia. Possible mechanisms are discussed.

ACS Sustainable Chemistry & Engineering — Research Article — pubs.acs.org/journal/ascecg

Thermodynamic Modeling of Pyrotechnic Smoke Compositions

Anthony P. Shaw,*[,†] Jason S. Brusnahan,[‡] Jay C. Poret,[†] and Lauren A. Morris[†]

[†]Armament Research, Development and Engineering Center, U.S. Army RDECOM-ARDEC, Picatinny Arsenal, New Jersey 07806, United States

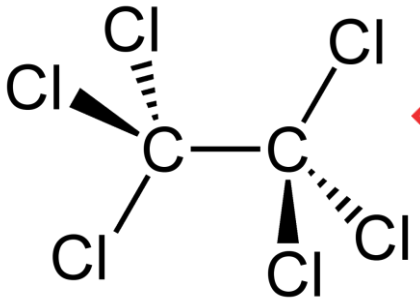
[‡]Defence Science and Technology Group, Edinburgh, South Australia 5111, Australia

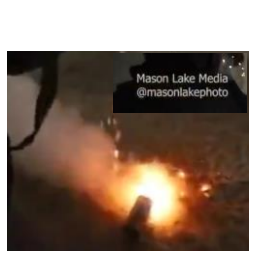
TOXICOLOGICAL PROFILE FOR HEXACHLOROETHANE

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry

September 1997

Hexachloroethane (HC)

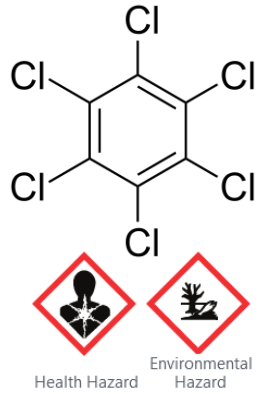




zinc oxide

ZnO

hexachlorobenzene



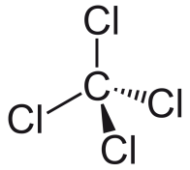
zinc chloride

$ZnCl_2$

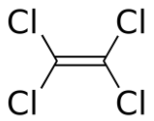
carbon monoxide

:C≡O:

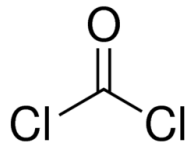
carbon tetrachloride



tetrachloroethylene



phosgene



chlorine

Cl_2

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- Organic solvent vapors
- Endocrine distruptors

Hexachloroethane

- Multi-organ failure

Silicates

- **Carcinogenic**

Silicates

Jens Mortensen for The New York Times

Silicates

United Tactical Systems, LLC

Safety Data Sheet (SDS)

Date Printed: 03/19/2001
Date Updated: 08/11/2015
Version C-10.2

Section 1 – Identification of the substance or mixture and of the supplier

Product Name: PepperBall® Inert Tactical Training Powder

Active Components: None
Inert Ingredients: A proprietary combination of inert carriers and dispersion agents of the Composition:
Barium sulfate CAS # 7727-43-7
Formula $BaSO_4$
Non-crystalline amorphous precipitated silica CAS # 112926-00-8
Formula SiO_2

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Jens Mortensen for The New York Times

Supelco

SAFETY DATA SHEET

Version 6.1
Revision Date 05/04/2019
Print Date 11/20/2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Silica gel

Product Number : 717185
Brand : Aldrich
CAS-No. : 112926-00-8

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas.

amorphous silica should be handled as if possessing the same hazards as the crystalline form.

Silicates

UNITED STATES
DEPARTMENT OF LABOR

Occupational Safety and Health Administration

- Silicosis, an incurable lung disease that can lead to disability and death;
- Lung cancer;
- Chronic obstructive pulmonary disease (COPD); and
- Kidney disease.

Jens Mortensen for The New York Times

Supelco

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Health Hazard

TRIPLE-CHASER® GRENADE
CONTINUOUS DISCHARGE
OC, CN, CS AND SAF-SMOKE™

DEFENSE TECHNOLOGY®

PRODUCT SPECIFICATIONS	
Diameter	2.70 in / 6.9 cm
Length	6.50 in / 16.5 cm
Fuze	M201A1 Type
Active Agent	OC 1.06 oz / 30 g CN/CS 3.2 oz / 92 g
Discharge Time	20 – 30 Seconds
Launchable	Yes
Part No.	OC 1020 CN 1025 CS 1026 Saf-Smoke™ 1027
Warranty	5 years from date of manufacture

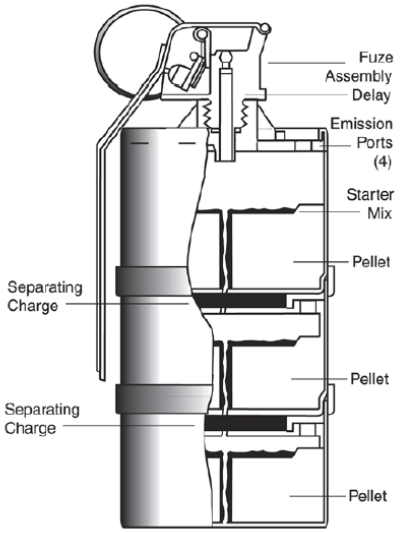
ALL SPECIFICATIONS ARE AVERAGES AND SUBJECT TO CHANGE

The Triple-Chaser® Grenade is a fast burning, medium volume canister. It is a pyrotechnic grenade consisting of three (3) separate canisters pressed together with separating charges between each section. When deployed, this grenade will separate into three (3) distinct sub-munitions spaced approximately 20 feet apart – allowing increased area coverage in a short period of time, from one deployment. Terrain and surface conditions can affect the distance of the separating sub-munitions.

Designed specifically for outdoor use in crowd management situations, the Triple-Chaser® utilizes the larger style canister, but is segmented into three (3) distinct sub-munitions. This device should be deployed in an underhand method that keeps the grenade body moving sideward towards the deployment site. This will assist in delivering the sub-canisters along a line, from left to right, well ahead of the grenadier. Its separating function and relatively quick burn time minimizes throwback potential. The device should be deployed utilizing wind advantage.

It should NOT be deployed onto rooftops, in crawl spaces, or indoors due to its fire-producing capability. Hand throw or launch. Launching of grenades will provide deploying officers additional stand-off distances. Affords good coverage for large outdoor areas.

In the smoke configuration, it can be utilized as a carrying agent (multiplier) for smaller OC, CN or CS munitions, or for concealing the movement of agency personnel. It may also be used as a distraction to focus attention away from other activities.



⚠ WARNING

This product can expose you to chemicals including Lead Salts and Hexavalent Chromium, which are known to the State of California to cause cancer, and Lead Salts, which are known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

CM

OUTDOORS

BURNING

PYROTECHNIC

WARNING: THIS PRODUCT IS TO BE USED ONLY BY AUTHORIZED AND TRAINED LAW ENFORCEMENT, CORRECTIONS, OR MILITARY PERSONNEL. THIS PRODUCT MAY CAUSE SERIOUS INJURY OR DEATH TO YOU OR OTHERS. THIS PRODUCT MAY CAUSE SERIOUS DAMAGE TO PROPERTY. HANDLE, STORE AND USE WITH EXTREME CARE AND CAUTION. USE ONLY AS INSTRUCTED.

1 Identification

· **Product identifier**

· **Trade name: Triple-Chaser® Separating Canister, CS**

· **Article number:** 1026 (1012309)

Trade name: Triple-Chaser® Separating Canister, CS

(Contd. of page 3)

7778-74-7	potassium perchlorate Ox. Sol. 1, H271 Acute Tox. 4, H302	
7704-34-9	sulfur Skin Irrit. 2, H315	
592-87-0	lead dithiocyanate Carc. 1B, H350; Repr. 1A, H360; STOT RE 2, H373 Acute Tox. 4, H302; Acute Tox. 4, H332	
122-39-4	diphenylamine Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 STOT RE 2, H373	
557-04-0	magnesium distearate, pure	
10294-40-3	barium chromate Carc. 1A, H350 Acute Tox. 4, H302; Acute Tox. 4, H332	
69012-64-2	Silica-Amorphous Silica fume	≤ 2.5%
1317-61-9	triiron tetraoxide	
7440-21-3	silicon Flam. Sol. 2, H228	
7429-90-5	aluminium powder (pyrophoric) Pyr. Sol. 1, H250; Water-react. 2, H261	
16291-96-6	charcoal	

· **Additional information:**
For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

· **Notable Trace Components (≤ 0,1% w/w)**		
7758-97-6	lead chromate	Carc. 1B, H350; Repr. 1A, H360; STOT RE 2, H373

Agents & Impacts

2-chlorobenzalmalononitrile (CS)
- Endocrine disrupting

Capsaicinoids (Oleoresium Capsicum: OC)
- Cancer causing & exacerbating
- Asthma inducing

Terephthalic Acid
- Organic solvent vapors
- Endocrine distruptors

Hexachloroethane
- Multi-organ failure

Silicates
- Carcinogenic

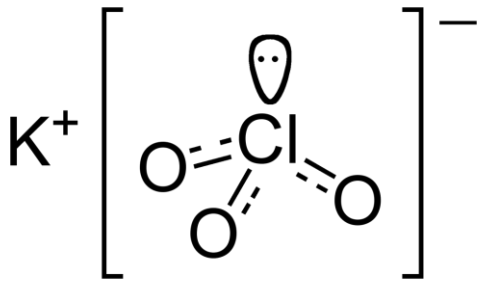
Metal - Chloride Pyrotechnics

(Per)Chlorates/(Hypo)Chlorites
Toxic to thyroid

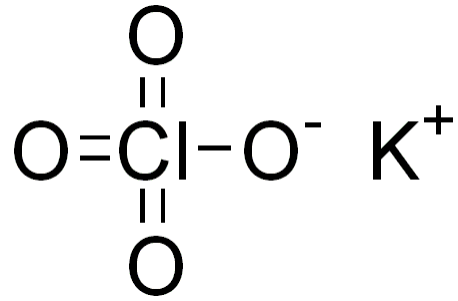
Temperatures > 400 C

Potassium (Per)Chlorate

potassium chlorate



potassium perchlorate



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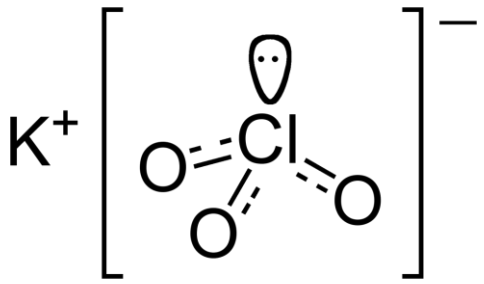
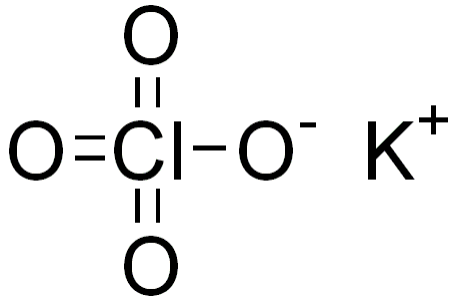
potassium chlorate



potassium perchlorate

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COUNTRYSIDE FIRE DIST.

COUNTRYSIDE FIRE DIST.

How Not to Put Out a Metal Fire - with Steve Mould

50,807 views • Jan 16, 2019

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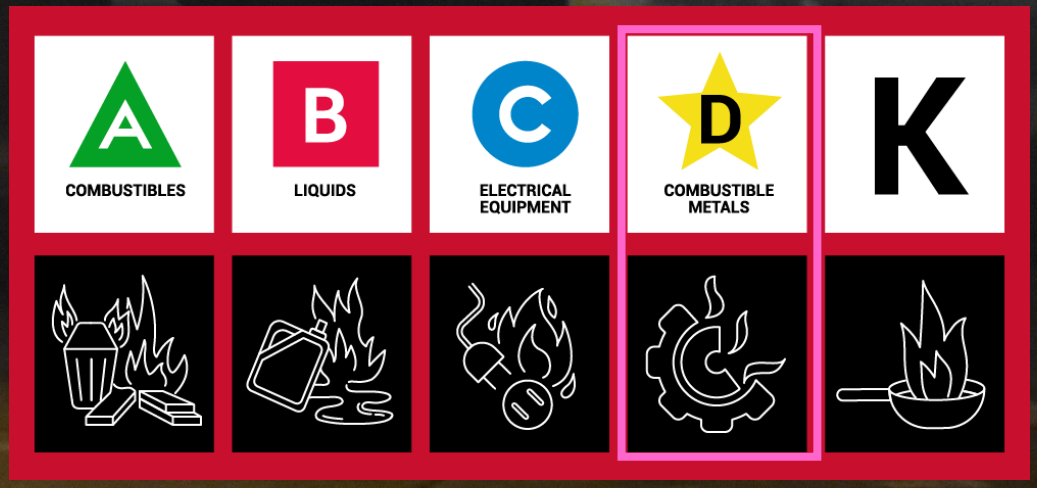
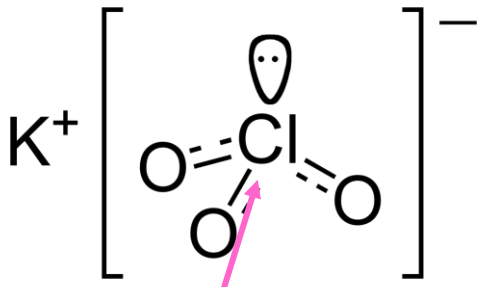
Never use ABC dry chemical, Halon 1211 or Halotron I fire extinguishers on fires involving chlorine containing oxidizers (example: pool chemicals). A violent explosive reaction could occur with the mixture of chemicals.

Carbon Dioxide is discharged as a gas (with small particles of snow)

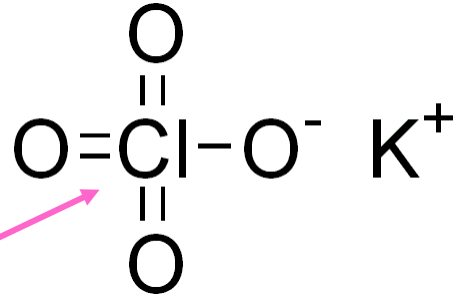


Potassium (Per)Chlorate

potassium chlorate



potassium perchlorate



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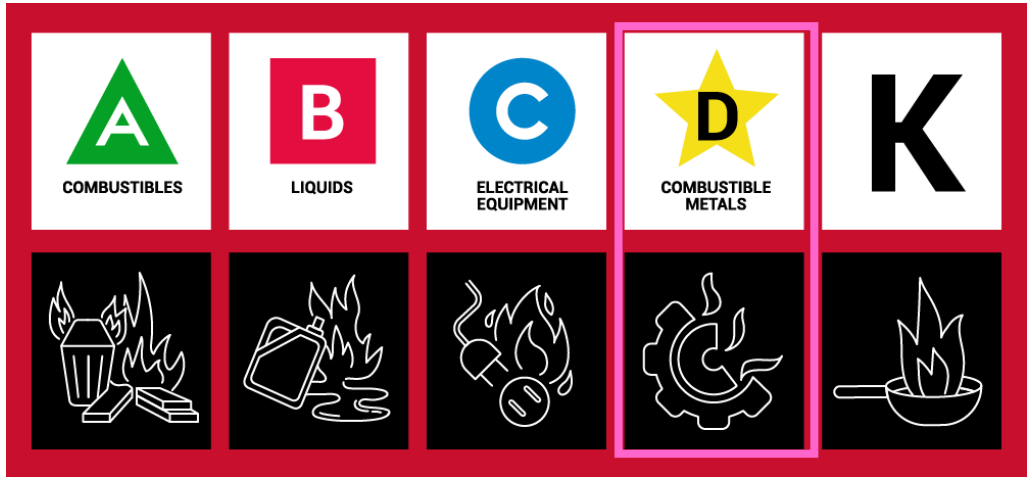
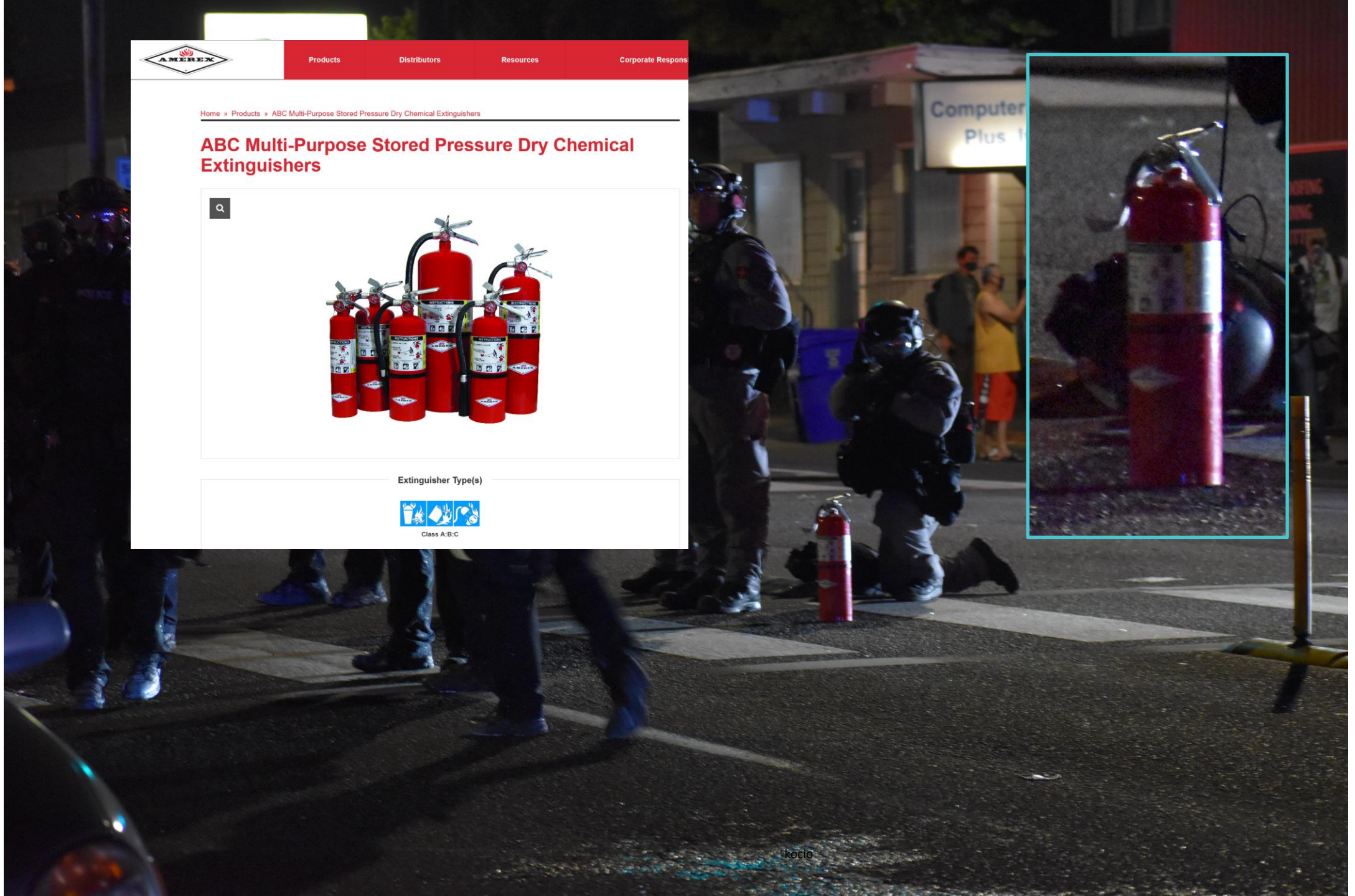



Computer Skills
Plus Inc.

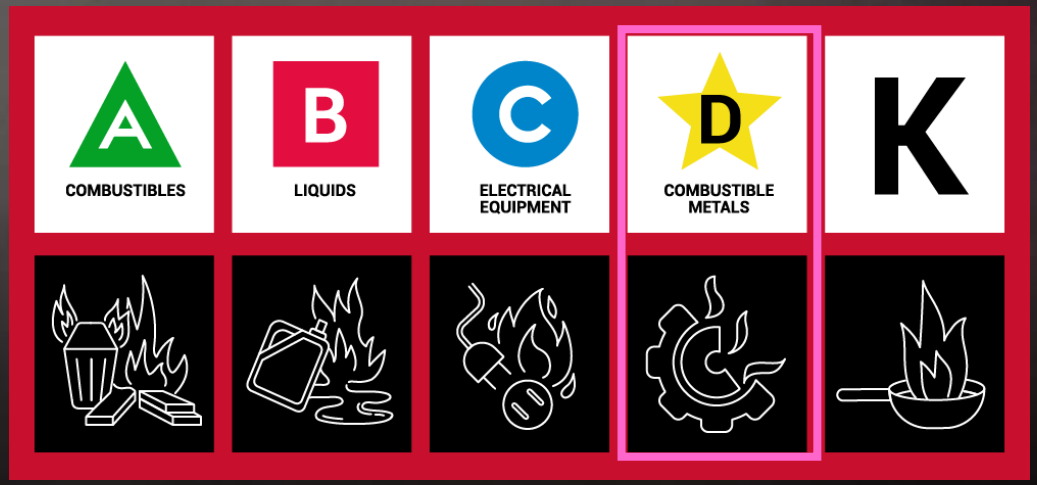

Products
Distributors
Resources
Corporate Respons
Home » Products » ABC Multi-Purpose Stored Pressure Dry Chemical Extinguishers
ABC Multi-Purpose Stored Pressure Dry Chemical Extinguishers
Extinguisher Type(s)
Class A:B:C
Computer
Plus


A
COMBUSTIBLES
B
LIQUIDS
C
ELECTRICAL EQUIPMENT
D
COMBUSTIBLE METALS
K

Class D

Class D fires involve combustible metals, such as magnesium, titanium, and sodium. Extinguishers with a D rating are designed to extinguish fires involving combustible metals.

Note: Common extinguishing agents may react with a combustible metal fire causing the severity of the fire to increase. The most common method for extinguishing a combustible metal fire is to cover the burning material with a dry powder, such as sand, which will not react with the material.



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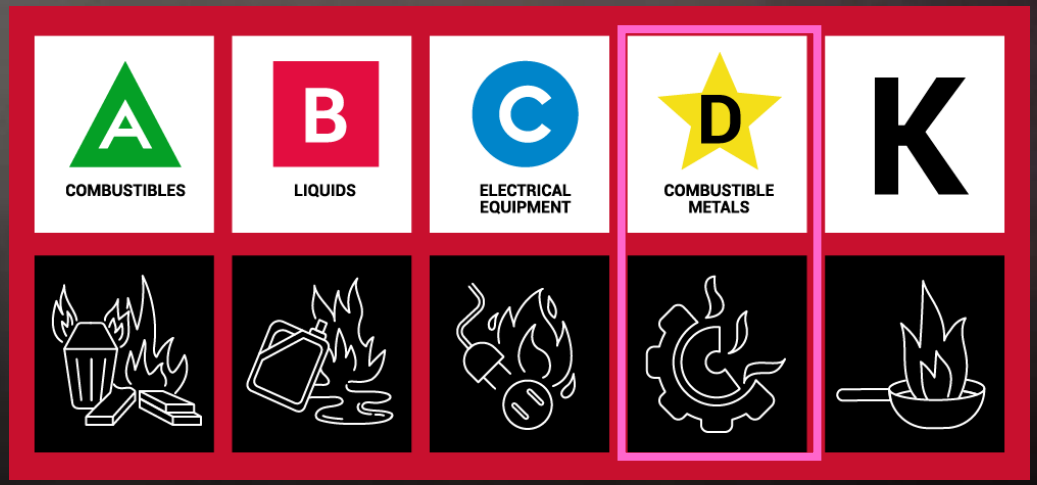
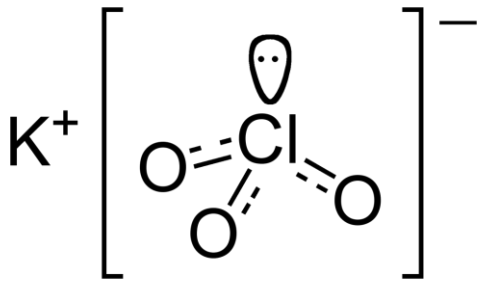


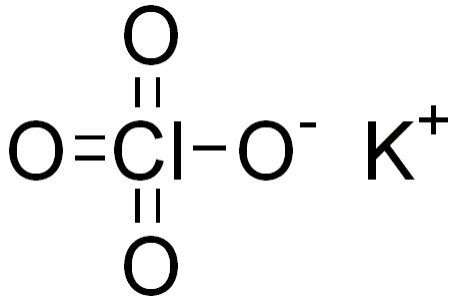
The University of Texas at Austin
Fire Prevention Services

Potassium (Per)Chlorate

potassium chlorate

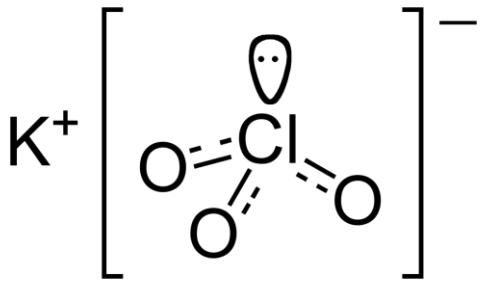


potassium perchlorate

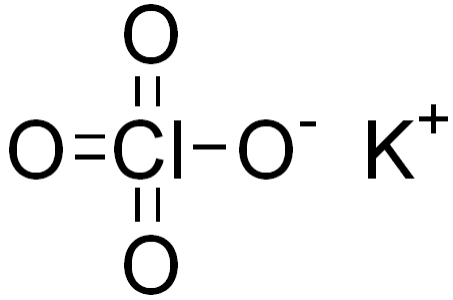


Potassium (Per)Chlorate

potassium chlorate



potassium perchlorate

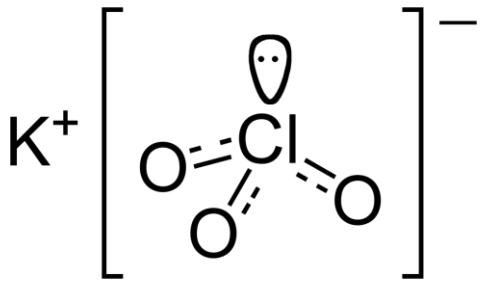


potassium hypochlorite

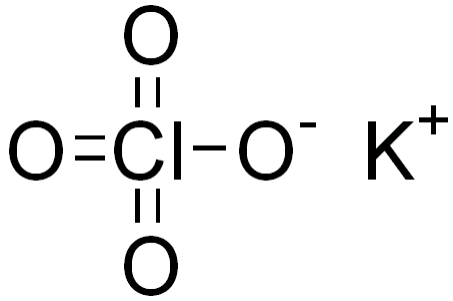
O_2

Potassium (Per)Chlorate

potassium chlorate



potassium perchlorate



potassium hypochlorite

> Ecotoxicol Environ Saf. 2006 Mar;63(3):343-52. doi: 10.1016/j.ecoenv.2005.04.002.

The thyroid endocrine disruptor perchlorate affects reproduction, growth, and survival of mosquitofish

June-Woo Park [1], Jacques Rinchard, Fujun Liu, Todd A Anderson, Ronald J Kendall, Christopher W Theodorakis

Affiliations + expand

PMID: 16507371 DOI: 10.1016/j.ecoenv.2005.04.002

Agents & Impacts

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Endocrine disrupting

Capsaicinoids (Oleoresium Capsicum: OC)

Cancer causing & exacerbating

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Terephthalic Acid

Organic solvent vapors

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Hexachloroethane

Multi-organ failure

Silicates

Carcinogenic

Metal - Chloride Pyrotechnics

(Per)Chlorates/(Hypo)Chlorites

Toxic to thyroid

Temperatures > 400 C

Laden with (heavy) metals

Lead

(Hexavalent) Chromium

Zinc

Barium

Aluminum

(Heavy) Metal Oxides

(Heavy) Metal Oxides

Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

Printing date July 13, 2015 Reviewed on July 13, 2015

1 Identification

· **Product identifier**

· **Trade name: Triple-Chaser® Separating Canister, CS**

· **Article number:** 1026 (1012309)

· **Recommended use and restriction on use**
· **Recommended use:** Crowd Control Device
· **Restrictions on use:** Contact manufacturer.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
Safariland, LLC
13386 International Parkway
Jacksonville, FL 32218
Customer Care (800) 347-1200

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585

· **Ecotoxical effects:**
· **Remark:** Toxic for fish
· **Additional ecological information:**
· **General notes:**
This statement was deduced from the properties of the single components.
The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary.
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.

Hazardous combustions products: Metal Compounds,
Various complex oxides of metals,

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:**
Product will contain various combinations of the following substances. Not all substances will be in each product. .
Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

2698-41-1	[(2-chlorophenyl)methylene]malononitrile Acute Tox. 3, H301; Acute Tox. 2, H330 Resp. Sens. 1, H334 Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	
9004-70-0	Nitrocellulose, colloided, granular Expl. 1.1, H201	
3811-04-9	potassium chlorate Ox. Sol. 1, H271 Acute Tox. 4, H302; Acute Tox. 4, H332	
57-50-1	sucrose, pure	
598-62-9	manganese carbonate	
7757-79-1	potassium nitrate	
[illegible]	[illegible]	
7440-50-8	copper	
1309-48-4	magnesium oxide	
7440-66-6	zinc metal	

(Contd. on page 4)

(Contd. of page 3)

7778-74-7	potassium perchlorate Ox. Sol. 1, H271 Acute Tox. 4, H302	
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7429-90-5	aluminium powder (pyrophoric) Pyr. Sol. 1, H250; Water-react. 2, H261	
16291-96-6	charcoal	

· **Additional information:**
For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

· **Notable Trace Components (≤ 0,1% w/w)**

7758-97-6	lead chromate	Carc. 1B, H350; Repr. 1A, H360; STOT RE 2, H373

(Heavy) Metal Oxides

Lead

PbO

PbO_2

Pb_3O_4

(Heavy) Metal Oxides

Lead

PbO 

PbO_2 

Pb_3O_4 

(Hexavalent) Chromium

Cr_2O_3 

CrO_3 

(Heavy) Metal Oxides

Lead

PbO 

PbO_2 

Pb_3O_4 

(Hexavalent) Chromium

Cr_2O_3 

CrO_3 

Zinc

ZnO 

(Heavy) Metal Oxides

Lead

PbO

PbO_2

Pb_3O_4

(Hexavalent) Chromium

Cr_2O_3

CrO_3

Zinc

ZnO

Barium

BaO

(Heavy) Metal Oxides

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PbO 

PbO_2 

Pb_3O_4 

(Hexavalent) Chromium

Cr_2O_3 

CrO_3 

Zinc

ZnO 

Barium

BaO 

Aluminum

Al_2O_3 

Agents & Impacts

2-chlorobenzalmalononitrile (CS)

- Endocrine disrupting

Capsaicinoids (Oleoresium Capsicum: OC)

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- Asthma inducing

Terephthalic Acid

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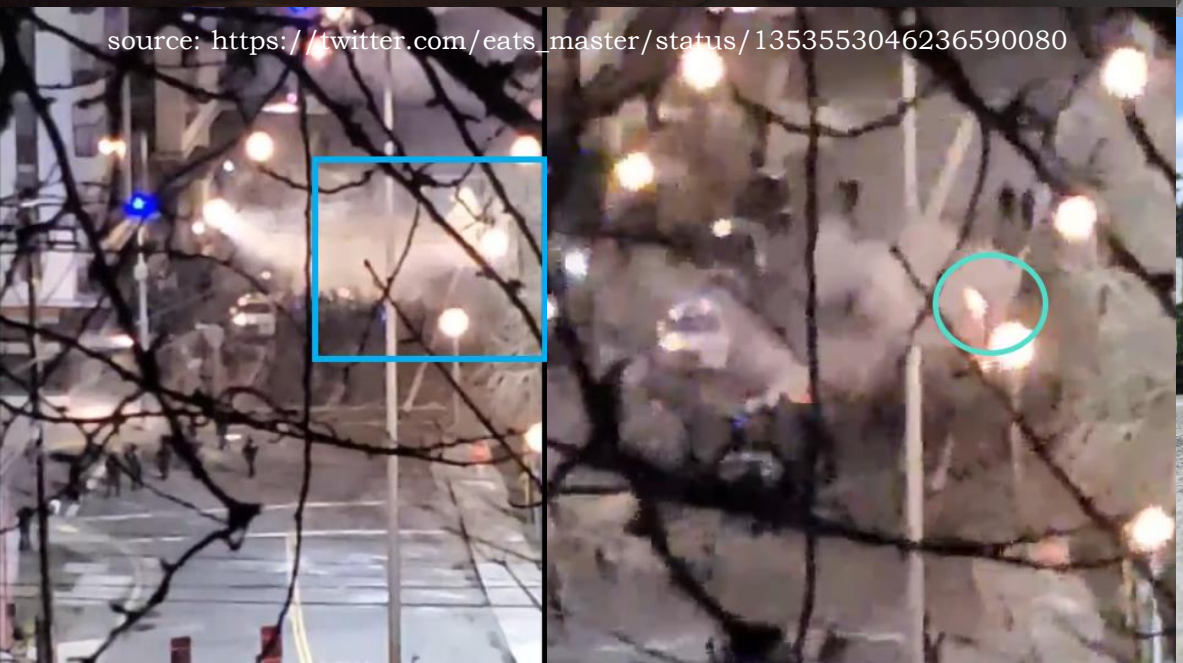
Metal - Chloride Pyrotechnics

- (Per)Chlorates/(Hypo)Chlorite
  - Toxic to thyroid
- Temperatures > 400 C

Laden with (heavy) metals

- Lead
- (Hexavalent) Chromium
- Zinc
- Barium
- Aluminum



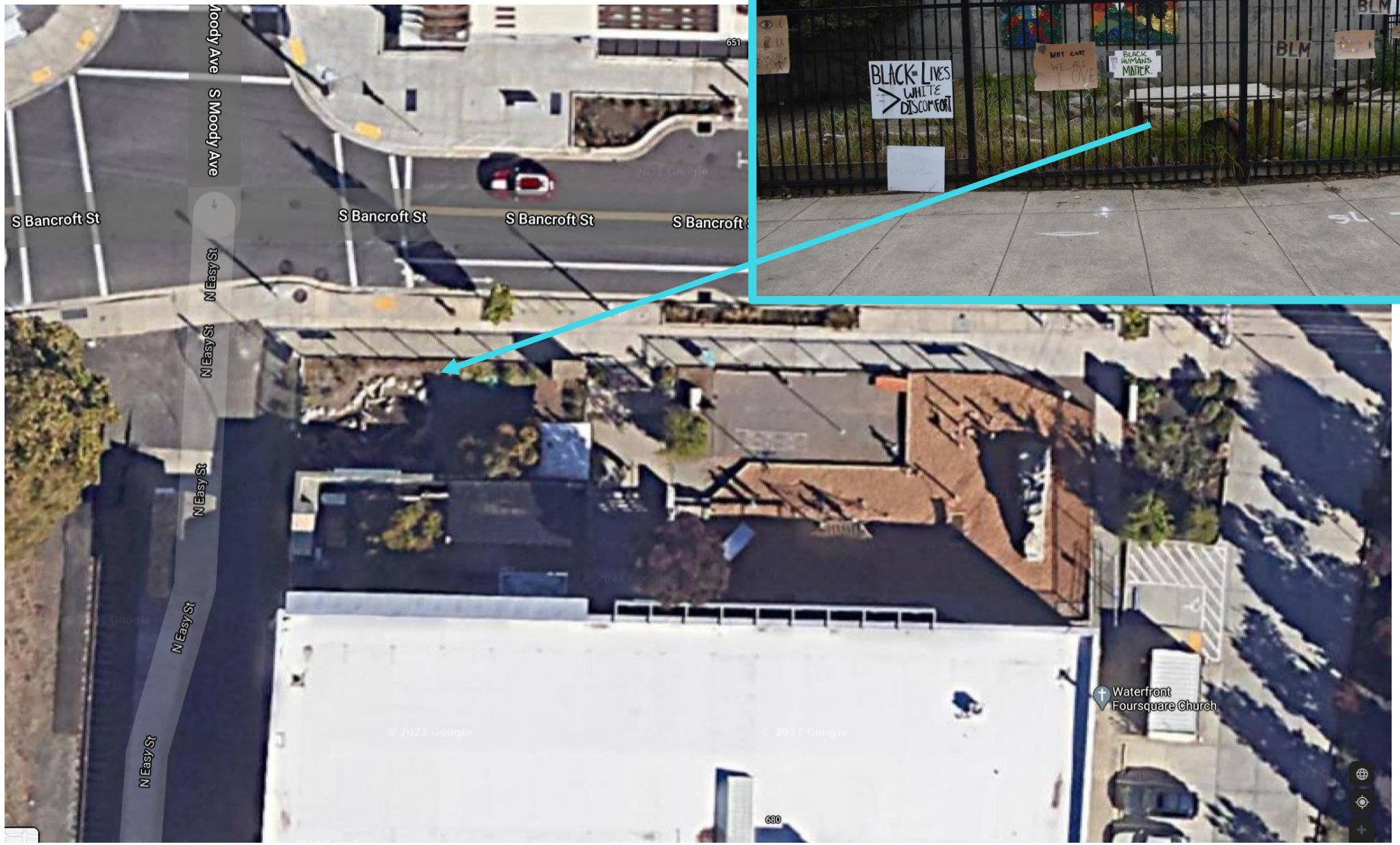
source: https://twitter.com/eats_master/status/1353553046236590080

Sampling and Analyses

Sampling and Analyses

Sampling and Analyses

Sampling and Analyses



Sampling and Analyses

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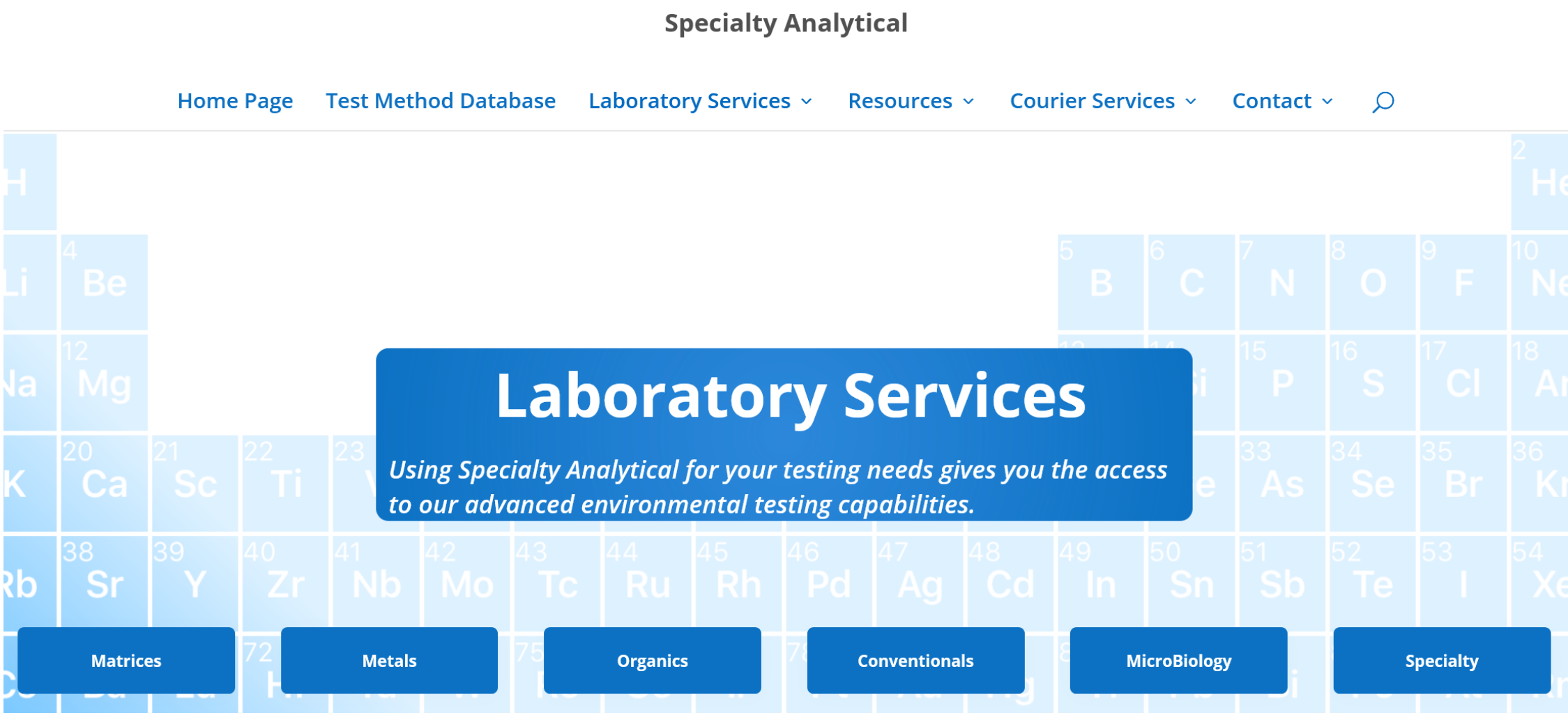
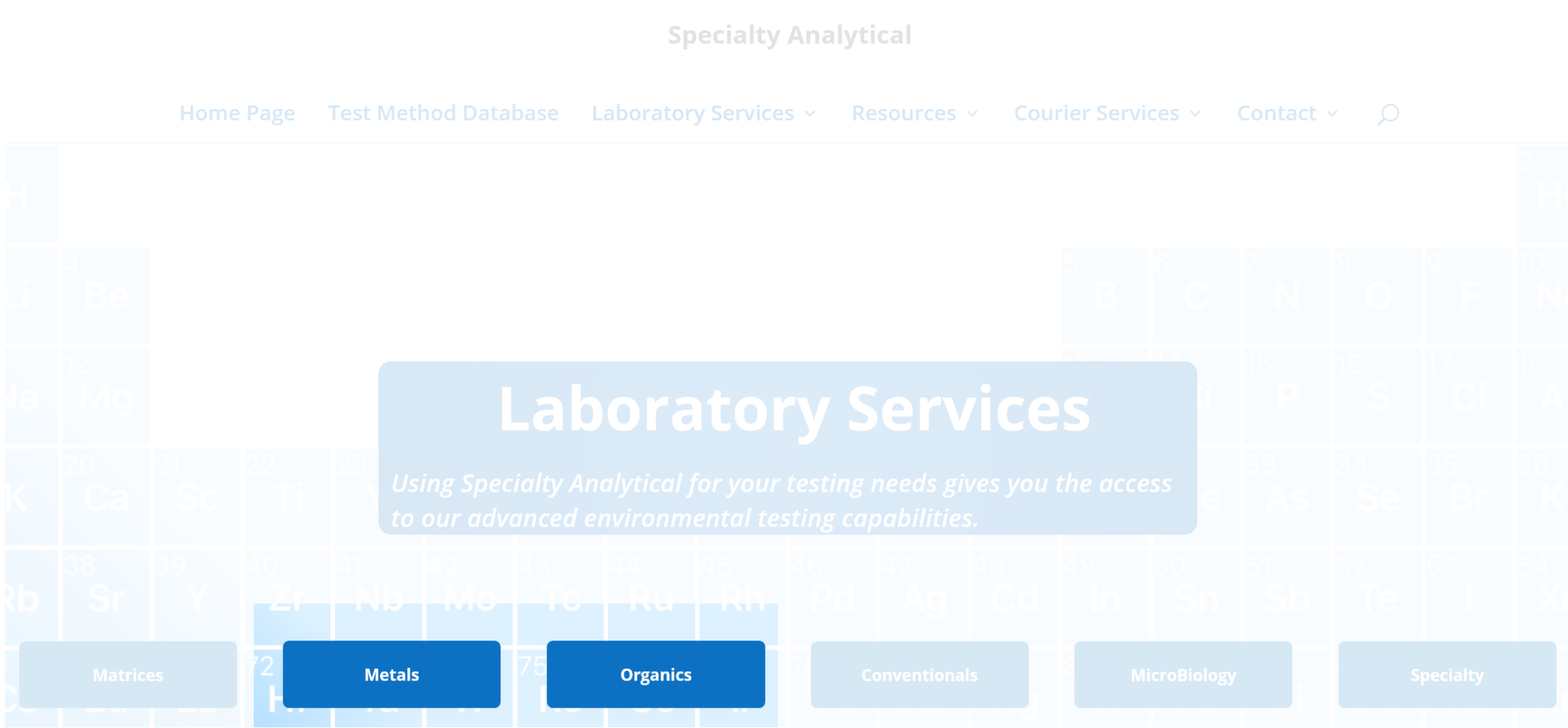


Sampling and Analyses



Sampling and Analyses

Specialty Analytical

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Method 6020

Elements by Ion Coupled Plasma / Mass Spectrometry (ICP/MS)

Scope:

Inductively coupled plasma-mass spectrometry (ICP/MS) is applicable to the determination of sub-ug/L concentrations of a large number of elements in water samples and in waste extracts or digests. When dissolved constituents are required, samples must be filtered and acid-preserved prior to analysis. No digestion is required prior to analysis for dissolved elements in water samples. Acid digestion prior to filtration and analysis is required for groundwater, aqueous samples, industrial wastes, soils, sludges, sediments, and other solid wastes for which total (acid-leachable) elements are required.

-SW-846 Online: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Specialty Analytical

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Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Specialty Analytical

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Method 8260D

VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY

Scope:

This method is used to determine volatile organic compounds (VOCs) in a variety of solid waste matrices. This method is applicable to nearly all types of samples, regardless of water content, including various air sampling trapping media, ground and surface water, aqueous sludges, caustic liquors, acid liquors, waste solvents, oily wastes, mousses, tars, fibrous wastes, polymeric emulsions, filter cakes, spent carbons, spent catalysts, soils, and sediments.

VOCs are introduced into the GC by one of the preparation methods mentioned in. The analytes may be introduced directly to a capillary column, cryofocused on a capillary pre-column before being flash evaporated to a capillary column for analysis, or desorbed from a trap and sent to an injection port operating in the split mode for injection to a capillary column. The column is temperature-programmed to separate the analytes, which are then detected with a MS interfaced to the GC.

Analytes eluted from the capillary column are introduced into the MS via a direct connection or flow splitter. Some wide-bore capillary columns may require splitting the flow prior to the MS interface, whereas narrow-bore capillary columns may be directly interfaced to the ion source or used with a restrictor column at the MS interface. Identification of target analytes is accomplished by comparing their mass spectra and retention times (RTs) with the mass spectra and RTs of known standards for the target compounds. Quantitation is accomplished by comparing the response of a major (quantitation) ion relative to an internal standard (IS) using an appropriate calibration curve for the intended application.

-SW-846 Online: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

Specialty Analytical

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Method 8270E

SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY

Scope:

This method is used to determine the concentration of semivolatile organic compounds in extracts prepared from many types of solid waste matrices, soils, air sampling media and water samples.

This method can be used to quantitate most neutral, acidic, and basic organic compounds that are soluble in methylene chloride (or other suitable solvents provided that the desired performance data can be generated) and are capable of being eluted, without derivatization, as sharp peaks from a gas chromatographic fused-silica capillary column coated with a slightly polar silicone. Such compounds include PAHs, chlorinated hydrocarbons, chlorinated pesticides, phthalate esters, organophosphate esters, nitrosamines, haloethers, aldehydes, ethers, ketones, anilines, pyridines, quinolines, aromatic nitro compounds, and phenols (including nitrophenols).

The samples are prepared for analysis by GC/MS using the appropriate sample preparation (refer to Method 3500) and, if necessary, sample cleanup procedures (refer to Method 3600). The semivolatile compounds are introduced into the GC/MS by injecting the sample extract into a GC equipped with a narrow-bore fused-silica capillary column. The GC column is temperature-programmed to separate the analytes, which are then detected with an MS connected to the GC. Analytes eluted from the capillary column are introduced into the MS via a direct connection. Identification of target analytes is accomplished by comparing their mass spectra and retention times (RT) with the mass spectra and RTs of known standards for the target compounds. Quantitation is accomplished by comparing the response of a major (quantitation) ion relative to an internal standard (IS) using an appropriate calibration curve for the intended application.

-SW-846 Update IVA

Matrices | Metals | Organics | Conventio

Sampling and Analyses

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Sampling and Analyses

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Sampling and Analyses

Main Yard Soil

Lead

PbO PbO_2 Pb_3O_4

Chromium

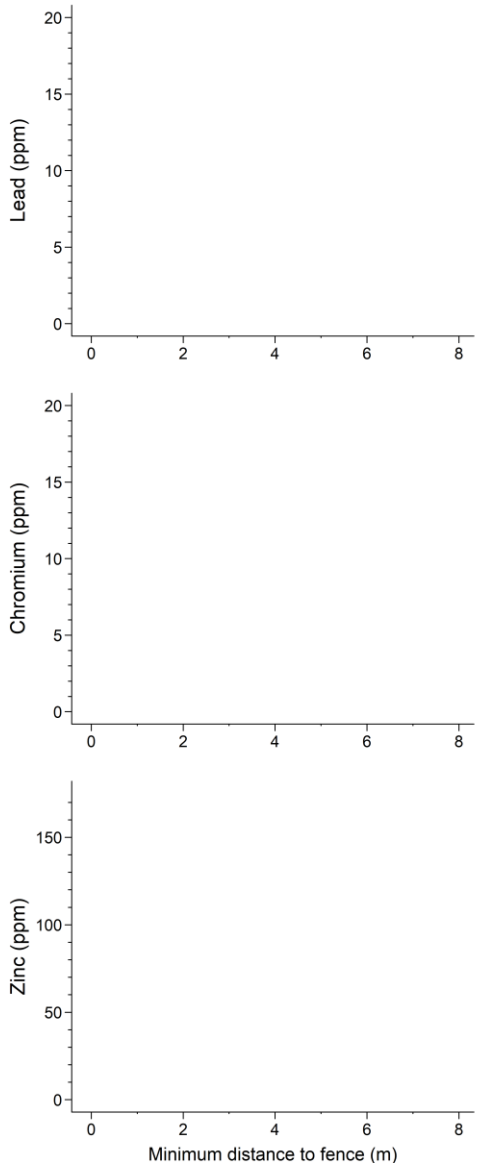
Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Main Yard Soil



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Chromium

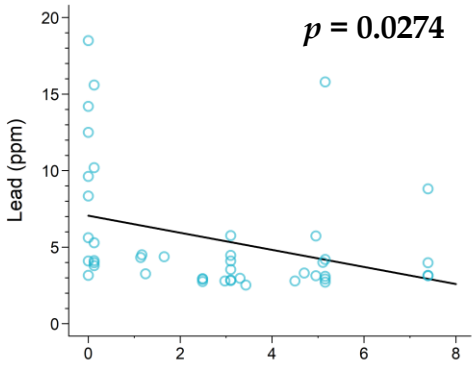
Cr_2O_3 CrO_3

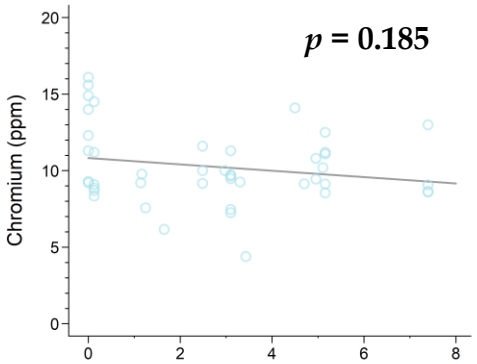
Zinc

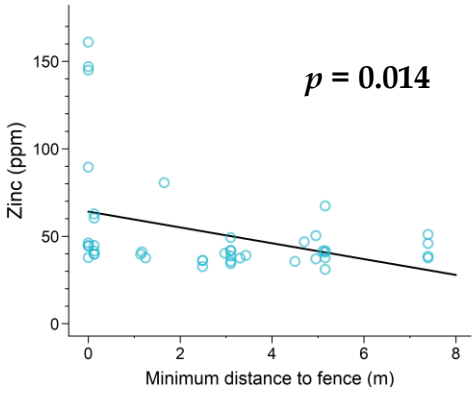
ZnO

Sampling and Analyses

Main Yard Soil







Lead

PbO  PbO_2  Pb_3O_4 

Chromium

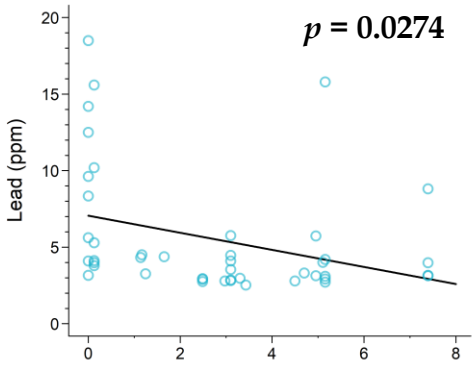
Cr_2O_3  CrO_3 

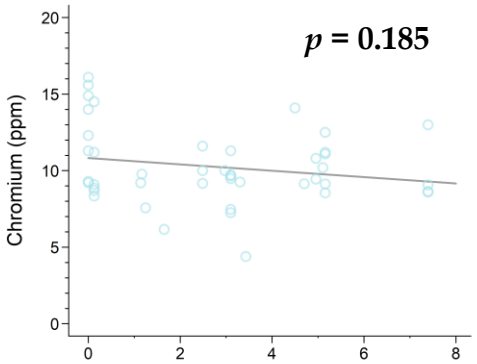
Zinc

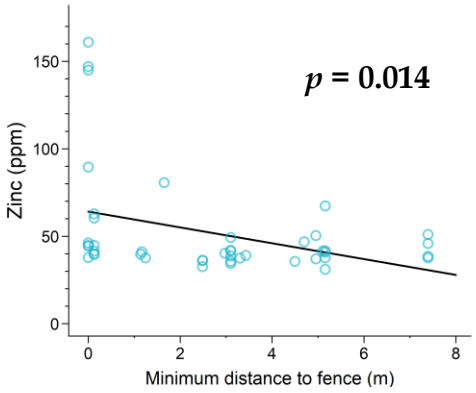
ZnO 

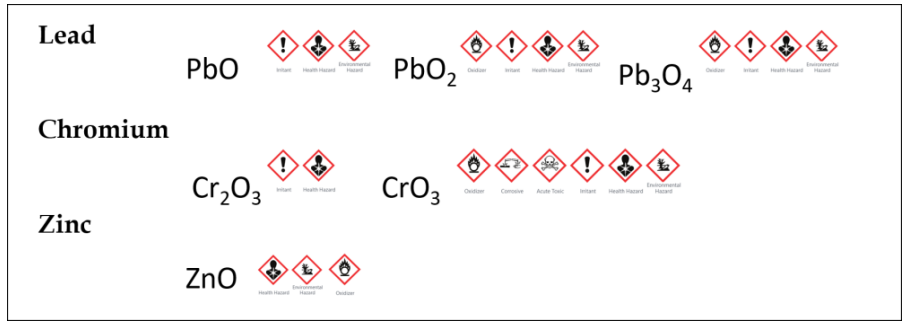
Sampling and Analyses

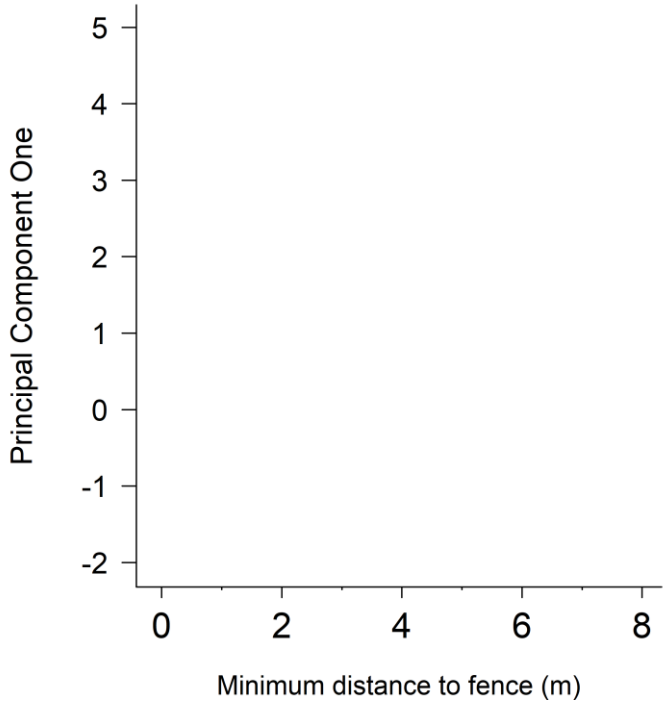
Main Yard Soil











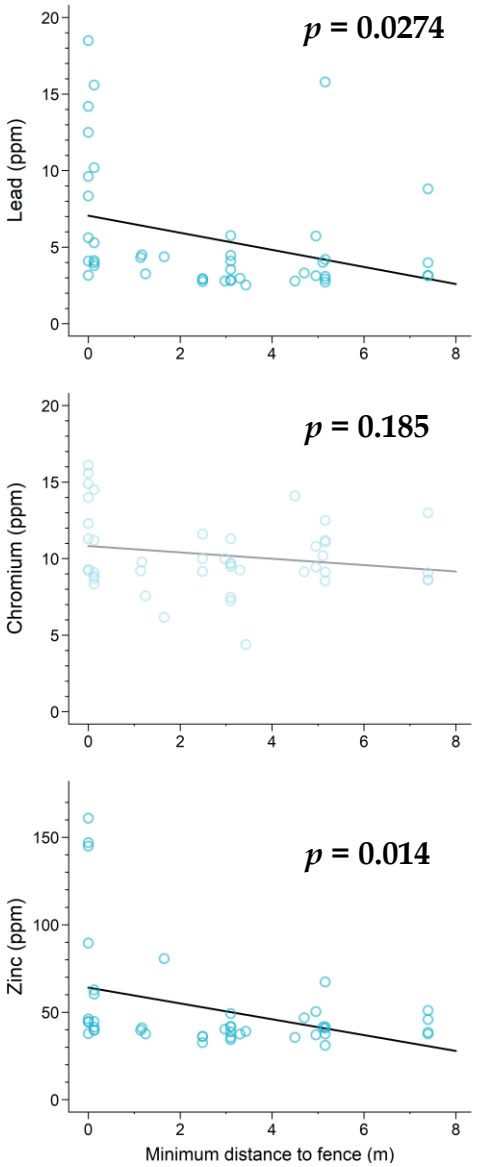
Principal Component One:

Explains 81% of the variance in metal concentration

Correlation coefficients with all three metals ~0.6

Sampling and Analyses

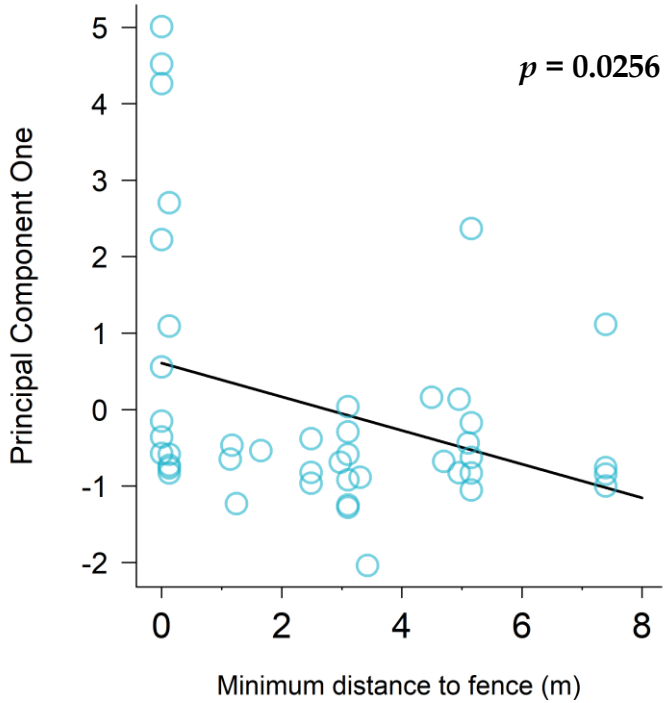
Main Yard Soil



Lead
PbO PbO_2 Pb_3O_4

Chromium
Cr_2O_3 CrO_3

Zinc
ZnO



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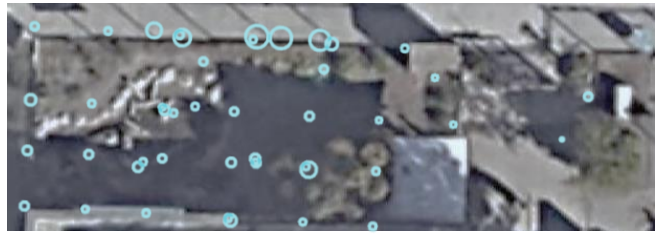
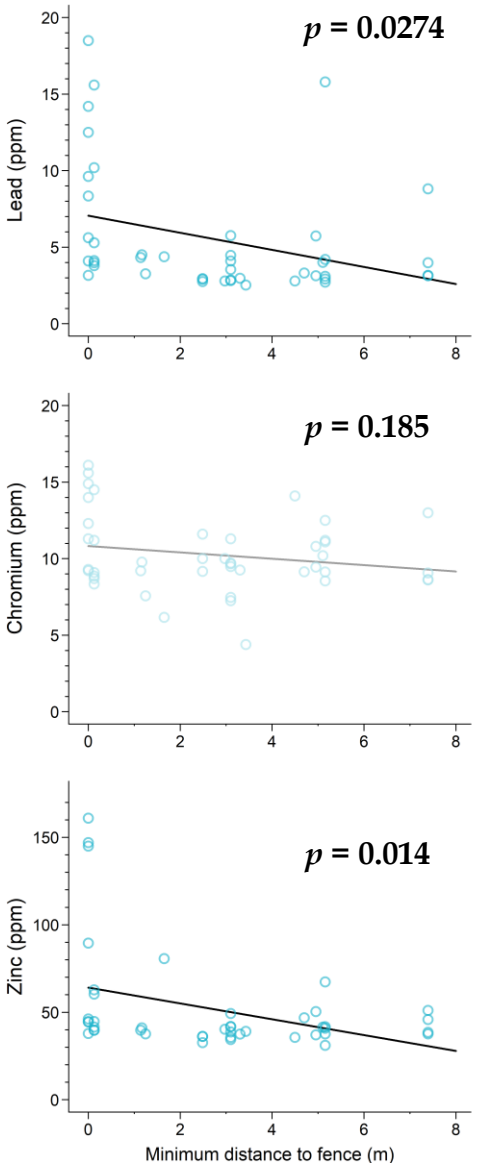
Sampling and Analyses

Main Yard Soil

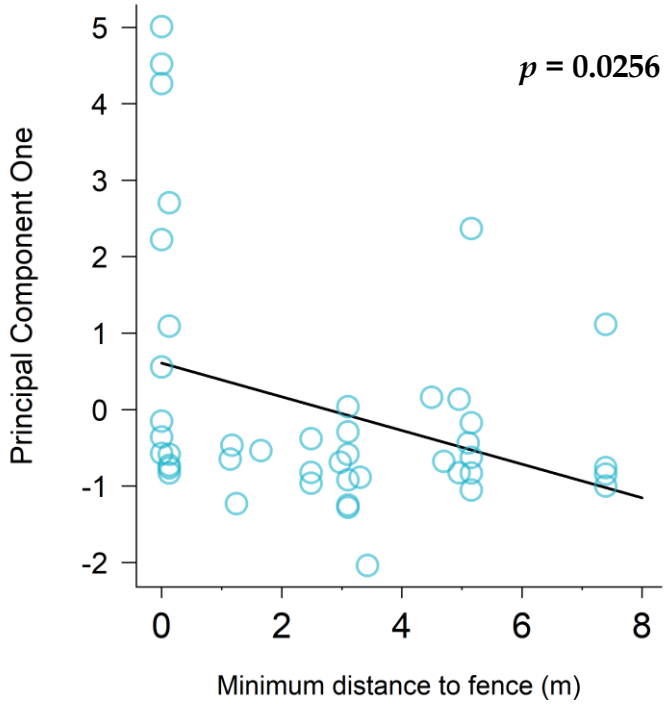




Lead
PbO PbO_2 Pb_3O_4

Chromium
Cr_2O_3 CrO_3

Zinc
ZnO



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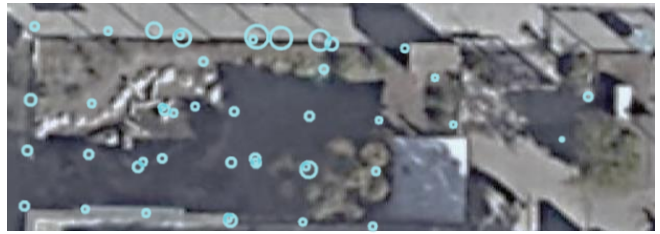
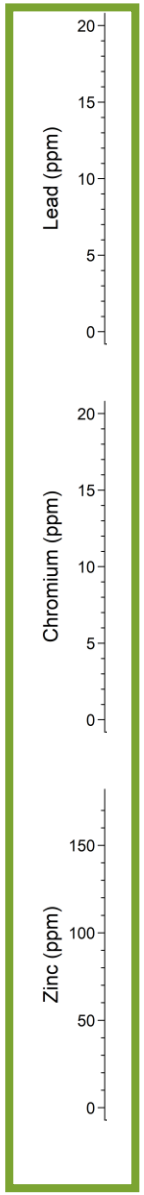
Sampling and Analyses

Main Yard Soil





Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

<u>Does not exceed</u> EPA limits for heavy metals in **soil**

Designed more for historic pollution impacts (leaching of lead paint)

News Releases from Headquarters > Chemical Safety and Pollution Prevention (OCSPP)

EPA Issues Stronger Lead Regulations to Protect Children's Health

Agency issues first, stronger lead clearance levels in almost 20 years

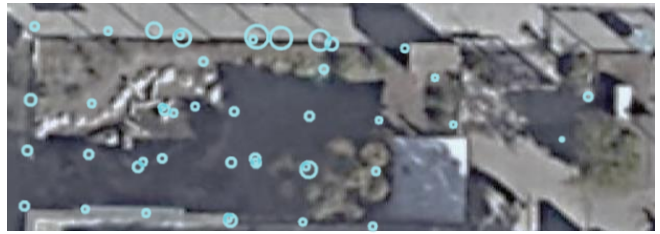
12/21/2020

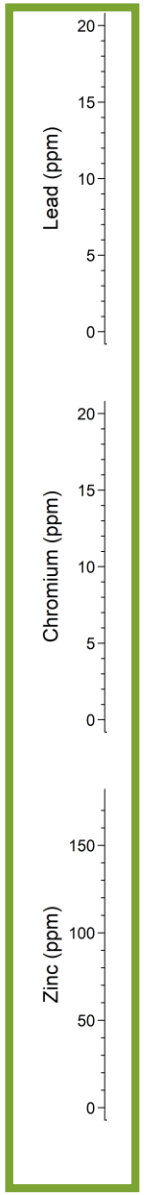
Contact Information:
EPA Press Office (press@epa.gov)

WASHINGTON (December 21, 2020) — Today, the U.S. Environmental Protection Agency (EPA) announced a new action to better protect American children from the dangers of lead. This final rule will lower the clearance levels for the amount of lead that can remain in dust on floors and window sills after lead removal activities, known as abatement. These new clearance levels will reduce lead dust-related risks to children in pre-1978 homes and childcare facilities where lead abatement activities take place. After actions are taken to remove lead from a building, those buildings must then be tested to make sure that the cleaning activities were successful. These "clearance levels" indicate that lead dust was effectively removed at the end of the abatement work. EPA's new clearance levels are 10 micrograms (µg) of lead in dust per square foot (ft2) for floor dust and 100 µg/ft2 for window sill dust, significantly lower than the previous levels of 40 µg/ft2 for floor dust and 250 µg/ft2 for window sill dust.

Sampling and Analyses

Main Yard Soil





Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

<u>Does not exceed</u> EPA limits for heavy metals in **soil**

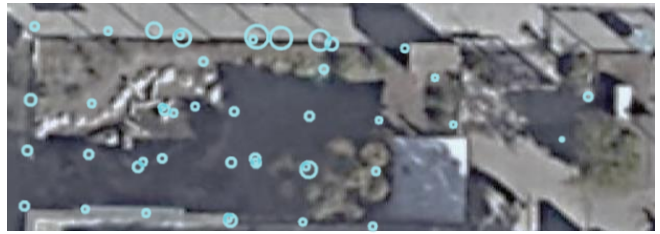
Designed more for historic pollution impacts (leaching of lead paint)

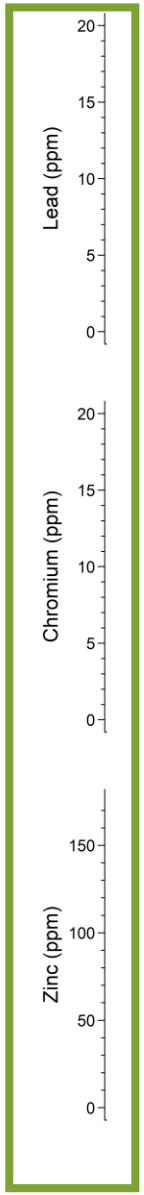
<u>Does exceed</u> EPA limits for heavy metals in **dust**

Designed more for ongoing pollution impacts (house demolition)

Sampling and Analyses

Main Yard Soil





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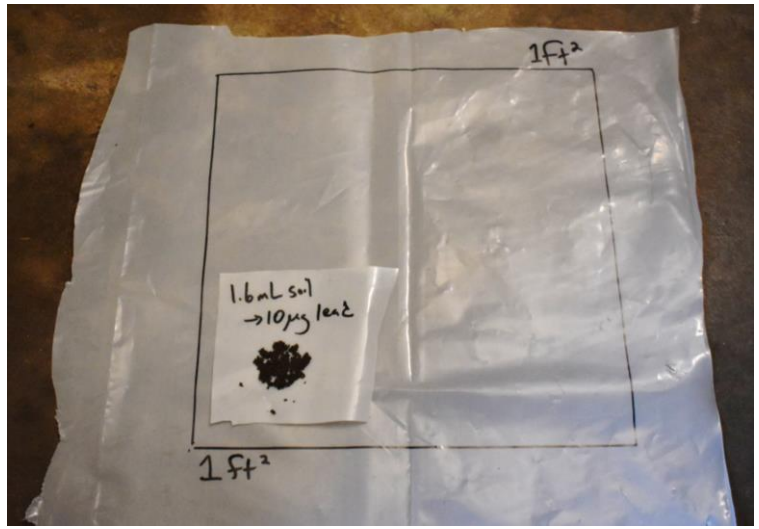


Sampling and Analyses

Lead

PbO PbO_2 Pb_3O_4

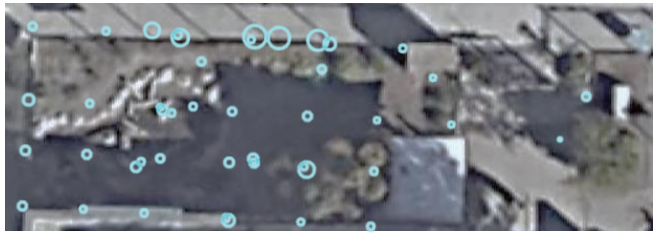
Chromium

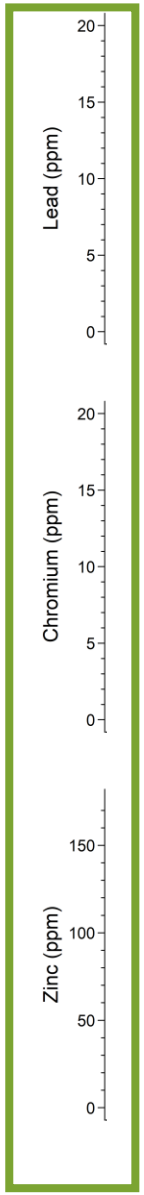
Cr_2O_3 CrO_3

Zinc

ZnO

Main Yard Soil





Does not exceed EPA limits for heavy metals in **soil**

Designed more for historic pollution impacts (leaching of lead paint)

Does exceed EPA limits for heavy metals in **dust**

Designed more for ongoing pollution impacts (house demolition)

Sampling and Analyses

Potting Soil

Lead

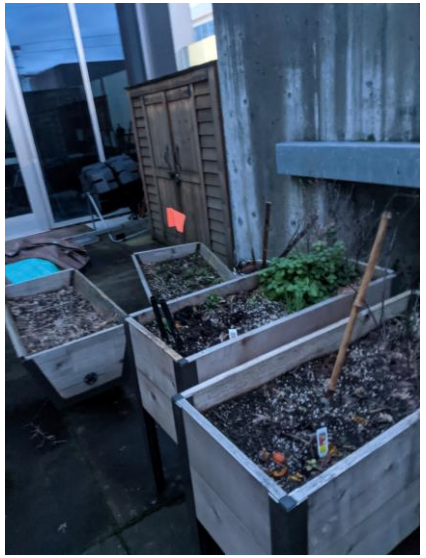
PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 



Sampling and Analyses

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

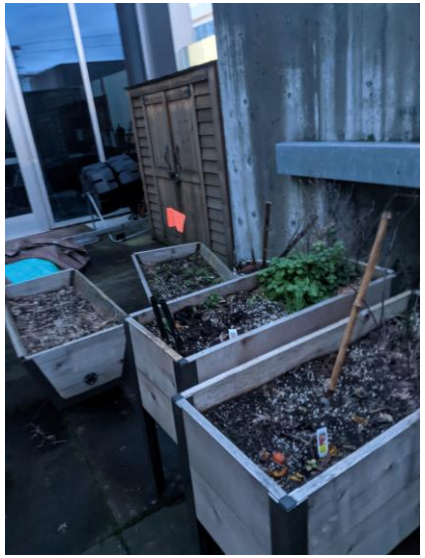
ZnO 

Potting Soil

	µg/Kg
Chromium	14200
Lead	7720
Zinc	75200

	µg/Kg
Chromium	1310
Lead	812
Zinc	20200

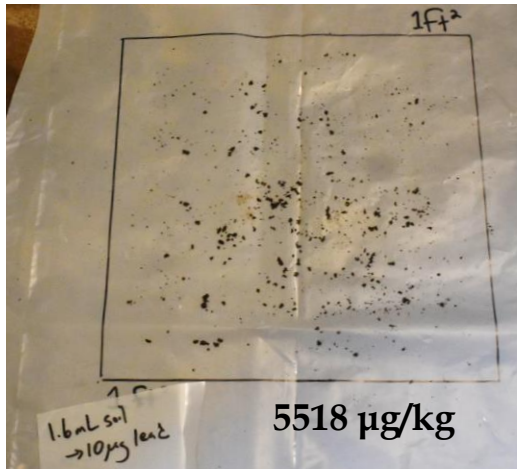
	µg/Kg
Chromium	1370
Lead	579
Zinc	15300



	µg/Kg
Chromium	ND
Lead	260
Zinc	42800

Sampling and Analyses

Potting Soil



Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

	µg/Kg
Chromium	ND
Lead	260
Zinc	42800

	µg/Kg
Chromium	14200
Lead	7720
Zinc	75200

	µg/Kg
Chromium	1310
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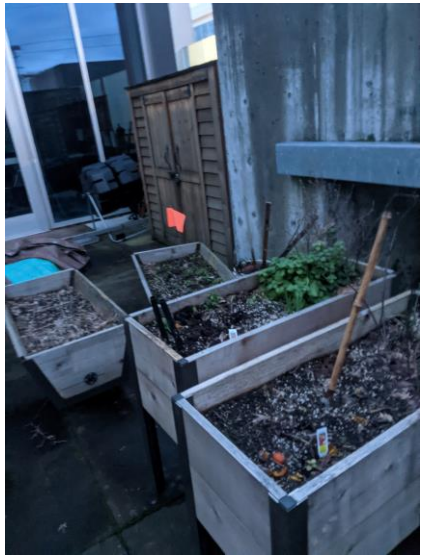
Zinc	20200

	µg/Kg
Chromium	1370
Lead	579
Zinc	15300



Sampling and Analyses

Masks

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Sampling and Analyses

Masks

Client Sample ID Mask ICE 2021-01-20#1

Client Sample ID: 2021-01-20 Mask 2

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Client Sample ID Mask ICE 2021-01-23#1

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Masks

Client Sample ID Mask ICE 2021-01-20#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	ND
Zinc	83000

Client Sample ID: 2021-01-20 Mask 2

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	995
Lead	1500
Zinc	11400

Client Sample ID Mask ICE 2021-01-23#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	617
Zinc	5880

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Masks

Client Sample ID Mask ICE 2021-01-20#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	ND
Zinc	83000

Client Sample ID: 2021-01-20 Mask 2

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	995
Lead	1500
Zinc	11400

Client Sample ID Mask ICE 2021-01-23#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	617
Zinc	5880

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Masks

Client Sample ID Mask ICE 2021-01-20#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	ND
Zinc	83000

Client Sample ID: 2021-01-20 Mask 2

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	995
Lead	1500
Zinc	11400

Client Sample ID Mask ICE 2021-01-23#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	617
Zinc	5880

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Worn for <2 hr by JLS while sampling soil in the school yard

Sampling and Analyses

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Masks

Client Sample ID Mask ICE 2021-01-20#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	ND
Zinc	83000

Client Sample ID: 2021-01-20 Mask 2

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	995
Lead	1500
Zinc	11400

Client Sample ID Mask ICE 2021-01-23#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	617
Zinc	5880

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Client Sample ID Sampling Mask 2021-01-25

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	336
Zinc	2530

Worn for <2 hr by JLS while sampling soil in the school yard

Sampling and Analyses

Munitions

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Sampling and Analyses

Munitions

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Munitions

Client Sample ID: in OCTD

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	64500 µg/Kg
Lead	798000 µg/Kg
Zinc	234000 µg/Kg

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Munitions

Client Sample ID: in OCTD

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	64500 µg/Kg
Lead	798000 µg/Kg
Zinc	234000 µg/Kg

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Sampling and Analyses

Munitions

Client Sample ID: in CSTC

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	97300	µg/Kg
Lead	338000	µg/Kg
Zinc	216000	µg/Kg

Client Sample ID: in OCTD

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	64500	µg/Kg
Lead	798000	µg/Kg
Zinc	234000	µg/Kg

Lead

PbO  PbO_2  Pb_3O_4 

Chromium

Cr_2O_3  CrO_3 

Zinc

ZnO 

Sampling and Analyses

Munitions

Client Sample ID: in CSTC

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	97300	µg/Kg
Lead	338000	µg/Kg
Zinc	216000	µg/Kg

Client Sample ID: in OCTD

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	64500	µg/Kg
Lead	798000	µg/Kg
Zinc	234000	µg/Kg

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Client Sample ID: HC Smoke Can

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	67400	µg/Kg
Lead	132000	µg/Kg
Zinc	272000000	µg/Kg

Client Sample ID: Green Smoke Can

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	17700	µg/Kg
Lead	4860	µg/Kg
Zinc	317000000	µg/Kg

Sampling and Analyses

Munitions

Client Sample ID: in CSTC

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	97300	µg/Kg
Lead	338000	µg/Kg
Zinc	216000	µg/Kg

Client Sample ID: in OCTD

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	64500	µg/Kg
Lead	798000	µg/Kg
Zinc	234000	µg/Kg

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

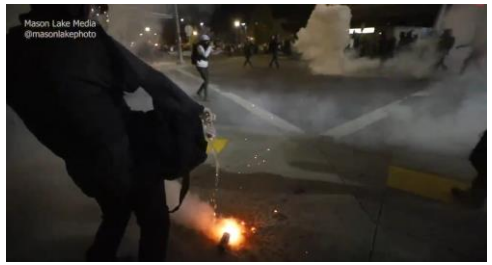
ZnO

Client Sample ID: HC Smoke Can

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	67400	µg/Kg
Lead	132000	µg/Kg
Zinc	272000000	µg/Kg

Client Sample ID: Green Smoke Can

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	17700	µg/Kg
Lead	4860	µg/Kg
Zinc	317000000	µg/Kg



Sampling and Analyses

Munitions

Client Sample ID: in CSTC

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	97300	µg/Kg
Lead	338000	µg/Kg
Zinc	216000	µg/Kg

Client Sample ID: in OCTD

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	64500	µg/Kg
Lead	798000	µg/Kg
Zinc	234000	µg/Kg

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Sampling and Analyses

Munitions

Client Sample ID: in CSTC

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	97300	µg/Kg
Lead	338000	µg/Kg
Zinc	216000	µg/Kg

Client Sample ID: in OCTD

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	64500	µg/Kg
Lead	798000	µg/Kg
Zinc	234000	µg/Kg

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Client Sample ID: in CSHB

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	3120	µg/Kg
Lead	498	µg/Kg
Zinc	26000	µg/Kg

Sampling and Analyses

Munitions

Client Sample ID: in CSTC

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	97300	µg/Kg
Lead	338000	µg/Kg
Zinc	216000	µg/Kg

Client Sample ID: in OCTD

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	64500	µg/Kg
Lead	798000	µg/Kg
Zinc	234000	µg/Kg

Lead

PbO 

PbO_2 

Pb_3O_4 

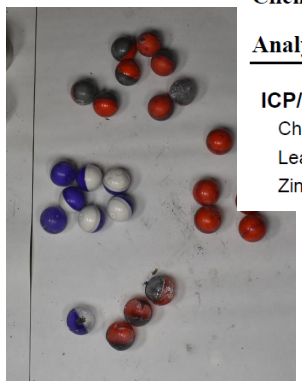
Chromium

Cr_2O_3 

CrO_3 

Zinc

ZnO 



Client Sample ID: in PBLX

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	ND	µg/Kg
Lead	12100	µg/Kg
Zinc	17800	µg/Kg

Client Sample ID: in CSHB

Analyses	Result	
ICP/MS METALS-TOTAL RECOVERABLE		
Chromium	3120	µg/Kg
Lead	498	µg/Kg
Zinc	26000	µg/Kg

Sampling and Analyses

Lead

PbO PbO_2 Pb_3O_4

Chromium

Cr_2O_3 CrO_3

Zinc

ZnO

Masks

Client Sample ID Mask ICE 2021-01-20#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	ND
Zinc	83000

Client Sample ID: 2021-01-20 Mask 2

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	995
Lead	1500
Zinc	11400

Client Sample ID Mask ICE 2021-01-23#1

Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	617
Zinc	5880

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

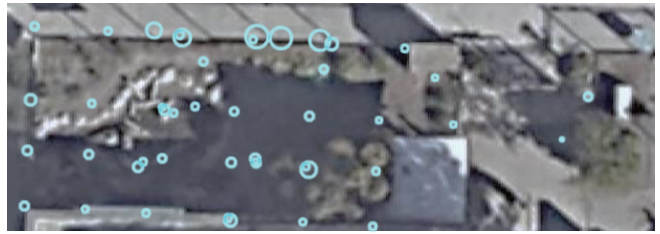
Client Sample ID Sampling Mask 2021-01-25

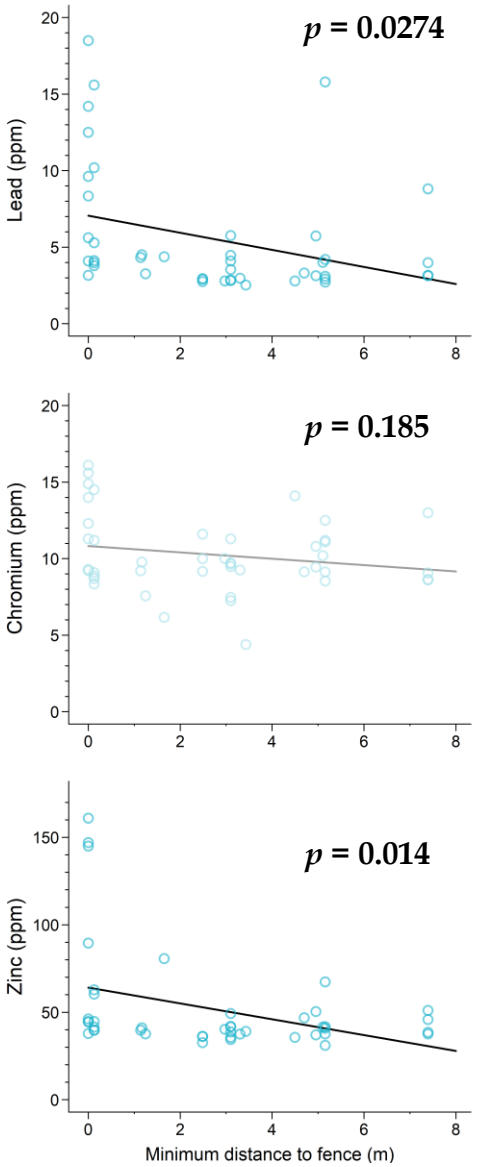
Analyses	Result
ICP/MS METALS-TOTAL RECOVERABLE	
Chromium	ND
Lead	336
Zinc	2530

Worn for <2 hr by JLS while sampling soil in the school yard

Sampling and Analyses

Main Yard Soil

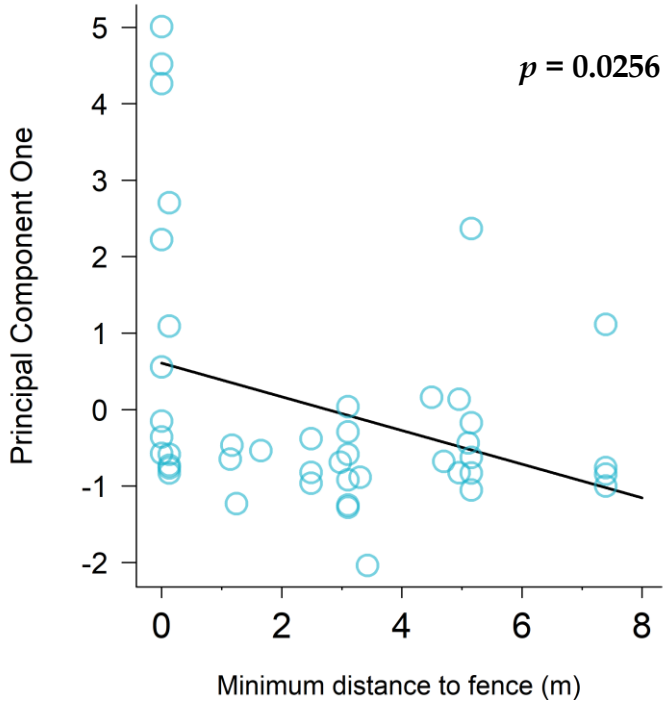




Lead
PbO PbO_2 Pb_3O_4

Chromium
Cr_2O_3 CrO_3

Zinc
ZnO



Principal Component One:

Explains 81% of the variance in metal concentration
Correlation coefficients with all three metals ~0.6

(Heavy) Metal Oxides

Lead

PbO

PbO_2

Pb_3O_4

(Hexavalent) Chromium

Cr_2O_3

CrO_3

Zinc

ZnO

Barium

BaO

Aluminum

Al_2O_3

Sampling and Analyses

Organics

Sampling and Analyses

Organics

Sampling and Analyses

Organics

Sampling and Analyses

Organics

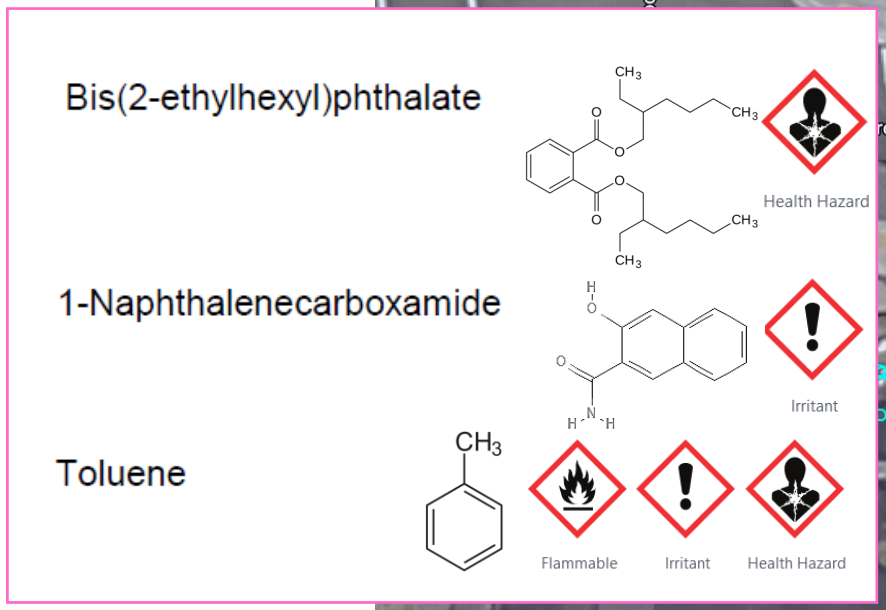
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND

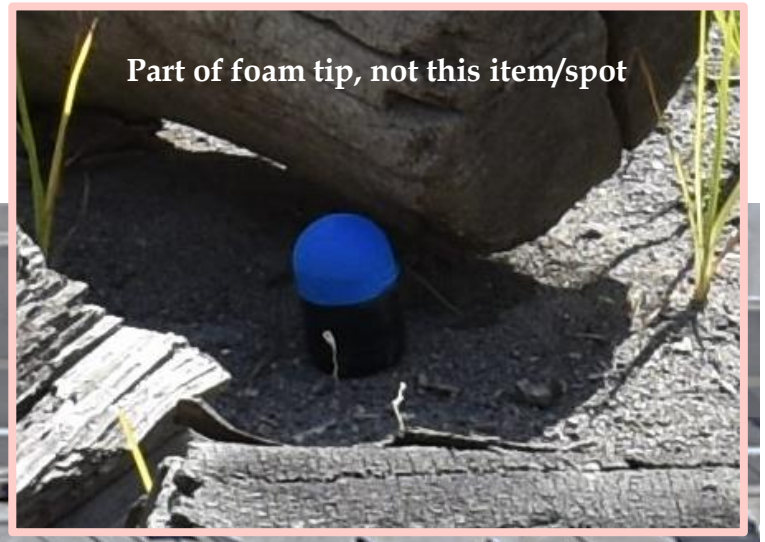
Sampling and Analyses

Organics

Sampling and Analyses

Organics





Sampling and Analyses

Organics

Client Sample ID Mask ICE 2021-01-20#1

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Client Sample ID: 2021-01-20 Mask 2

Sampling and Analyses

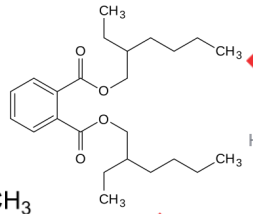
Organics

Client Sample ID Mask ICE 2021-01-20#1

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

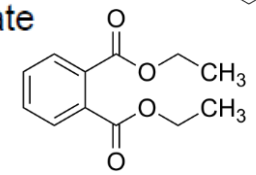
Client Sample ID: 2021-01-20 Mask 2

Bis(2-ethylhexyl)phthalate



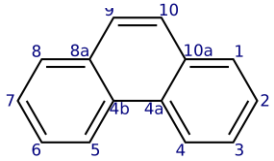
Health Hazard

Diethyl phthalate



Irritant

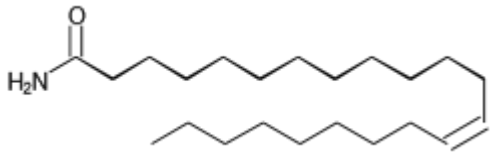
Phenanthrene



Irritant

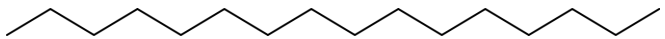
Environmental Hazard

13-Docosenamide



Irritant

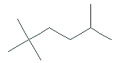
Hexadecane



Irritant

Health Hazard

2,2,5-trimethylhexane



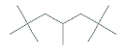
Flammable

Irritant

Health Hazard

Environmental Hazard

pentamethylheptane



Flammable

Irritant

Health Hazard

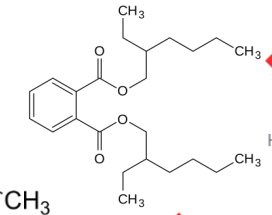
Environmental Hazard

Sampling and Analyses

Organics

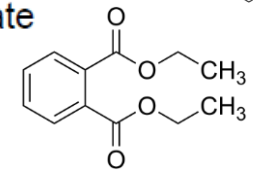
Client Sample ID Mask ICE 2021-01-20#1

Bis(2-ethylhexyl)phthalate



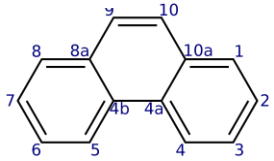
Health Hazard

Diethyl phthalate



Irritant

Phenanthrene



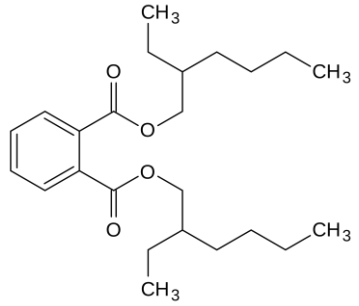
Irritant

Environmental Hazard

Worn for variable amounts of time by anonymous individuals during protests and DHS use of chemical weapons

Client Sample ID: 2021-01-20 Mask 2

Bis(2-ethylhexyl)phthalate

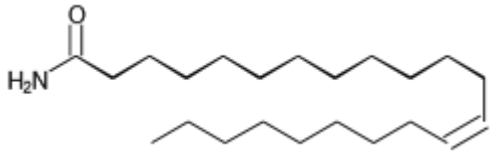


Health Hazard

Eicosane

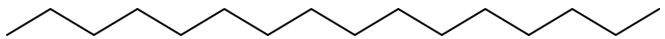
Health Hazard

13-Docosenamide



Irritant

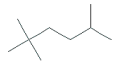
Hexadecane



Irritant

Health Hazard

2,2,5-trimethylhexane



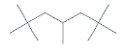
Flammable

Irritant

Health Hazard

Environmental Hazard

pentamethylheptane



Flammable

Irritant

Health Hazard

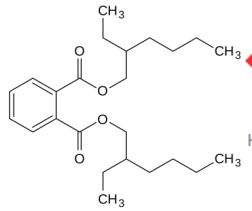
Environmental Hazard

Sampling and Analyses

Organics

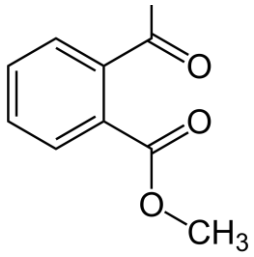
Client Sample ID Mask ICE 2021-01-23#1

Bis(2-ethylhexyl)phthalate



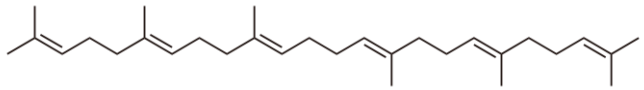
Health Hazard

Dimethyl phthalate



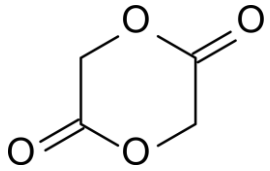
Irritant

Squalene



Health Hazard

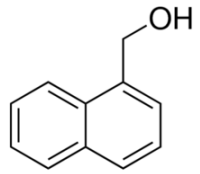
1,4-Dioxane-2,5-dione



Corrosive

Irritant

Naphthalenemethanol



Irritant

Sampling and Analyses

Organics

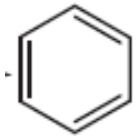
Sampling and Analyses

Organics

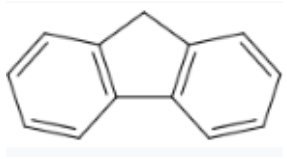
Sampling and Analyses

Organics

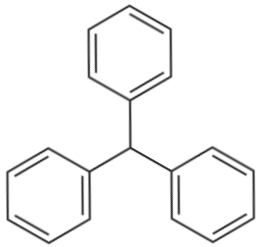
Benzene



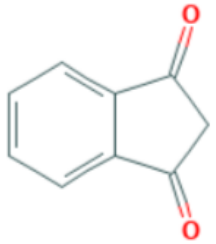
Fluorene



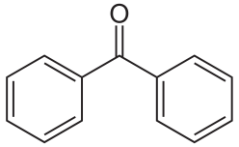
Triphenylmethane



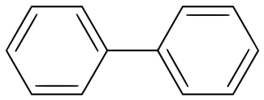
1H-Indene-1,3(2H)-dione



Benzophenone



Biphenyl



Sampling and Analyses

Organics

Sampling and Analyses

Organics

ND
ND
ND
ND
ND
ND
ND
ND
ND
ND

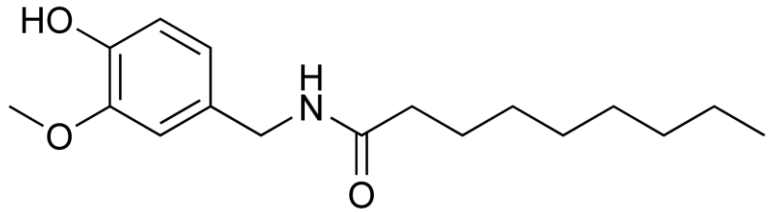
Sampling and Analyses

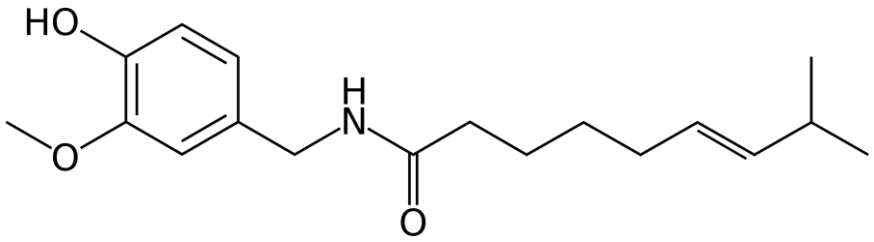
Organics

Sampling and Analyses

Organics

Nonivamide





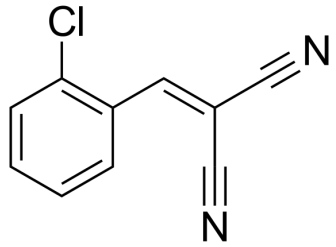
Sampling and Analyses

Organics

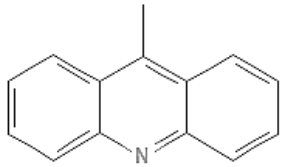
Sampling and Analyses

Organics

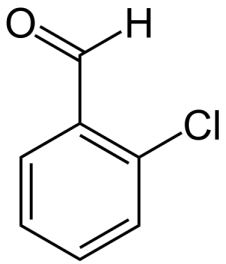
Chlorobenzalmalononitrile



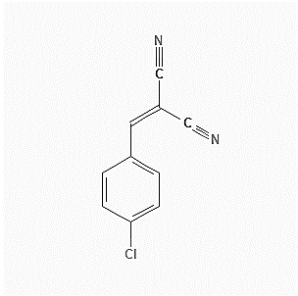
9-methyl-Acridine



2-chlorobenzaldehyde

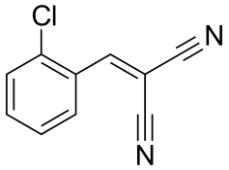


1-chloro-4-(2,2-dicyano)benzene

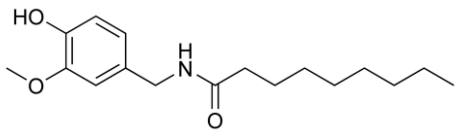



STINGER
CS


Flammable
Irritant
Health Hazard

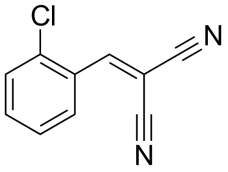

Cl
N
N

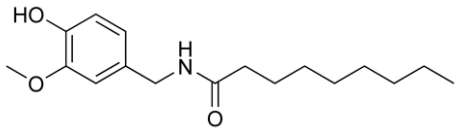

Acute Toxic
Irritant
Health Hazard
Environmental Hazard


HO
H
N
O


Corrosive
Acute Toxic
Irritant
Health Hazard


STINGER
CS





Lead

PbO 

PbO_2 

Pb_3O_4 

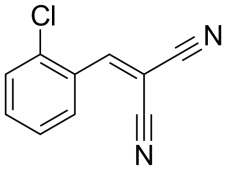
Chromium

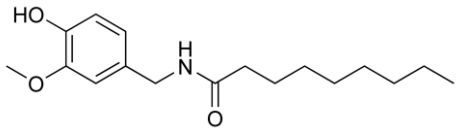
Cr_2O_3 

CrO_3 

Zinc

ZnO 





Lead

PbO 

PbO_2 

Pb_3O_4 

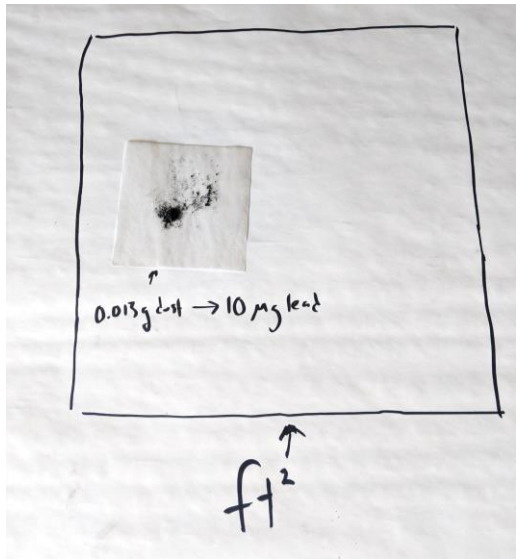
Chromium

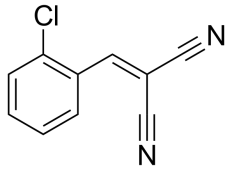
Cr_2O_3 

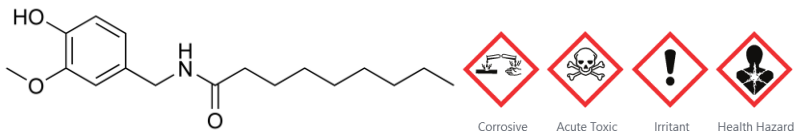
CrO_3 

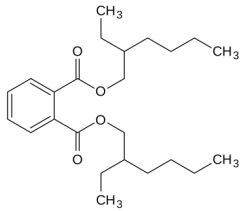
Zinc

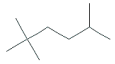
ZnO 

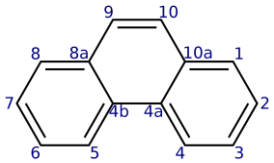


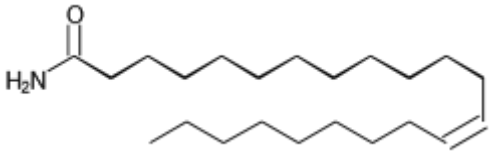












Lead

PbO 

PbO_2 

Pb_3O_4 

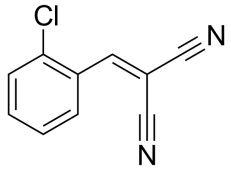
Chromium

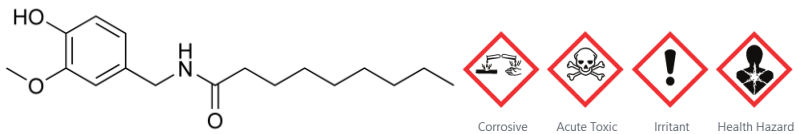
Cr_2O_3 

CrO_3 

Zinc

ZnO 





Lead

PbO 

PbO_2 

Pb_3O_4 

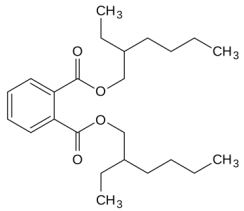
Chromium

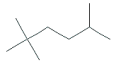
Cr_2O_3 

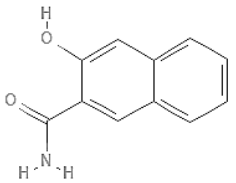
CrO_3 

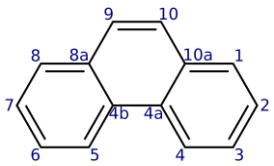
Zinc

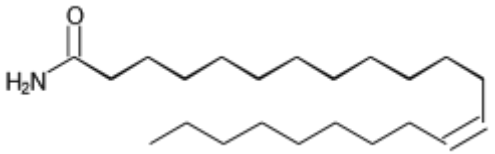
ZnO 

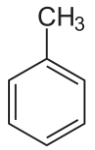


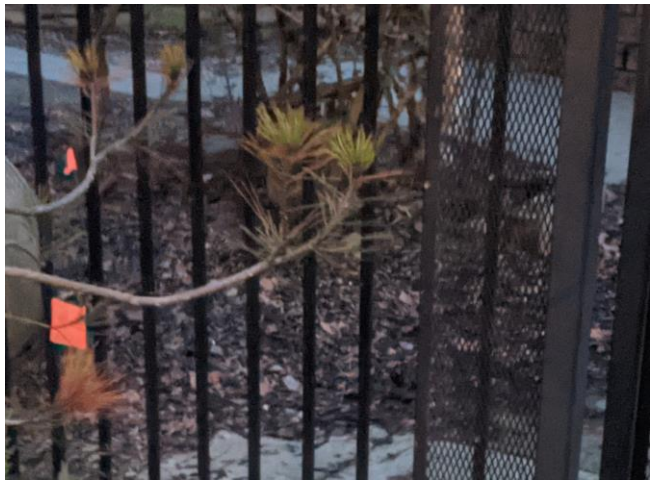




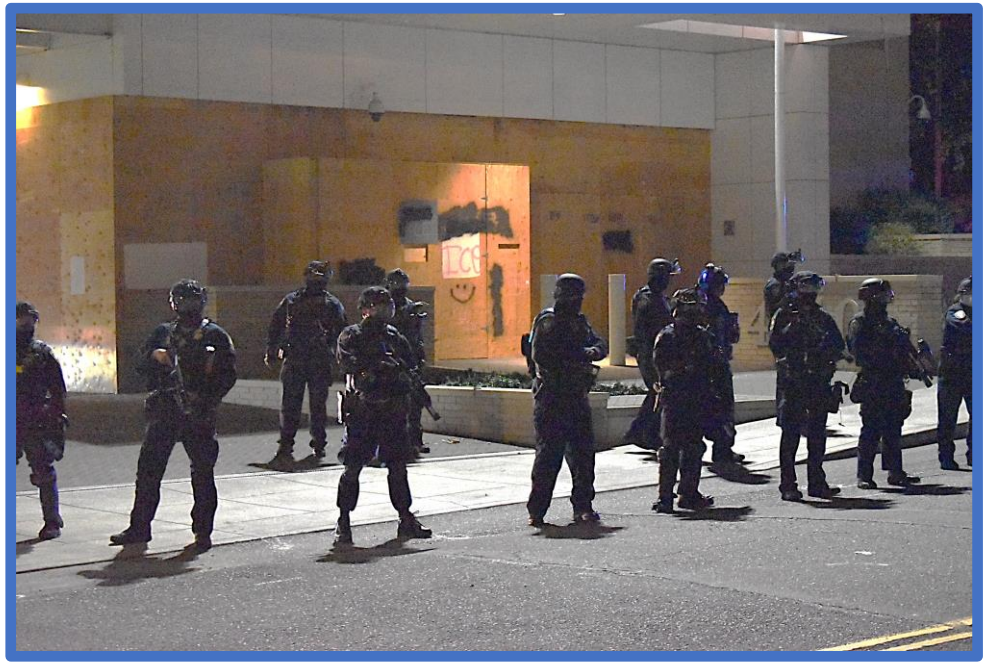


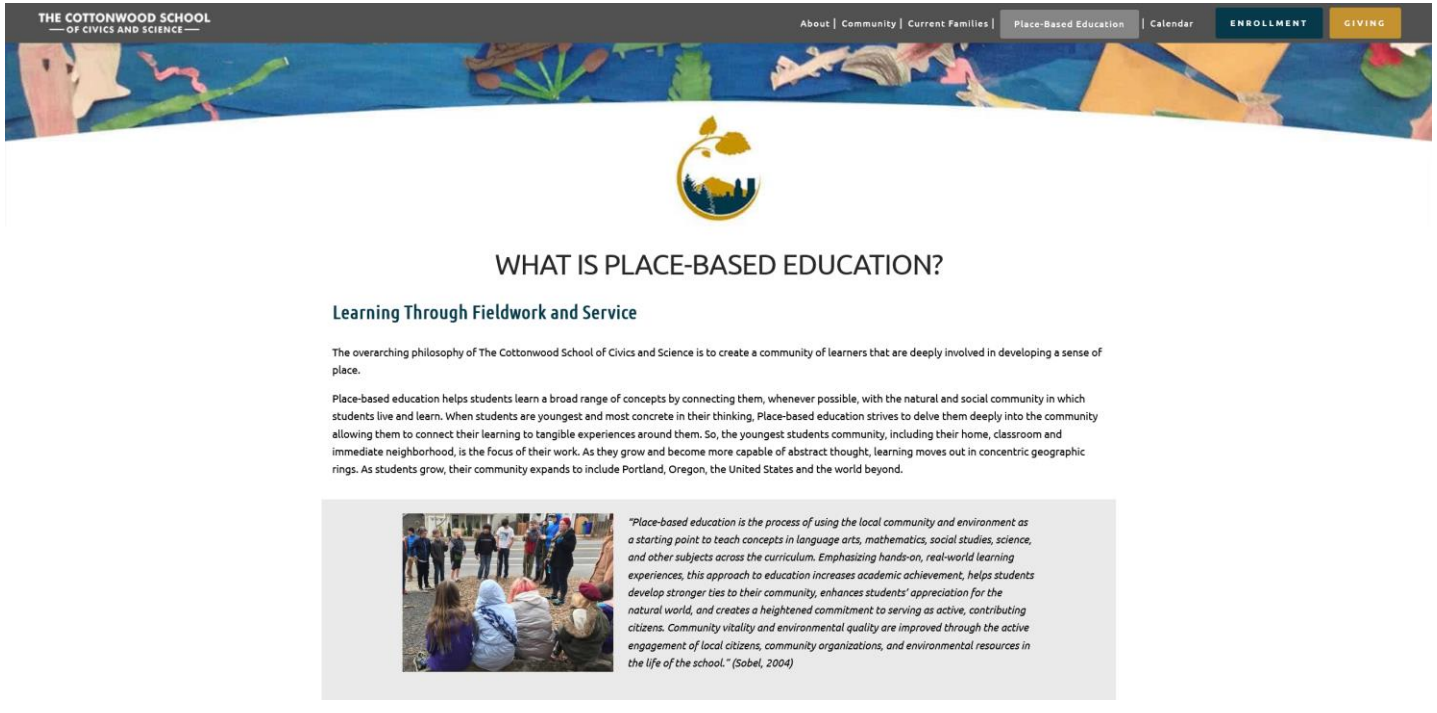


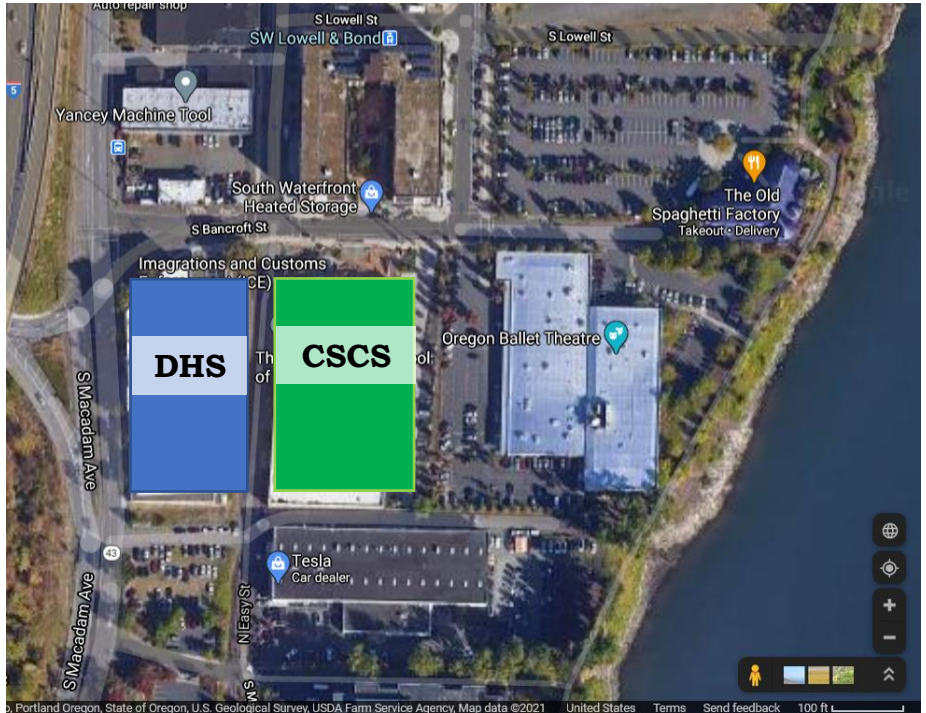


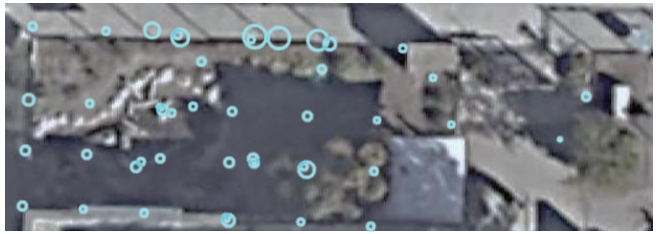


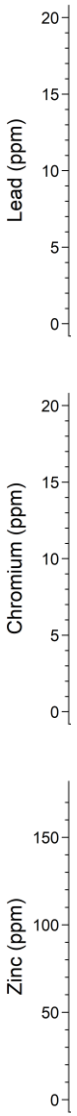

THE COTTONWOOD SCHOOL
OF CIVICS AND SCIENCE
CSCS
BLM
BLM
BLACK LIVES > WHITE DISCOMFORT
WHY CAN'T WE ALL LOVE
BLACK HUMANS MATTER

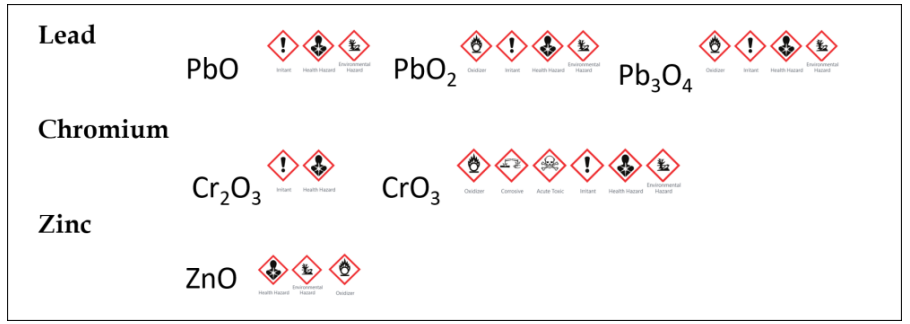



THE COTTONWOOD SCHOOL
OF CIVICS AND SCIENCE
About | Community | Current Families | Place-Based Education | Calendar
ENROLLMENT
GIVING
WHAT IS PLACE-BASED EDUCATION?
Learning Through Fieldwork and Service
The overarching philosophy of The Cottonwood School of Civics and Science is to create a community of learners that are deeply involved in developing a sense of place.
Place-based education helps students learn a broad range of concepts by connecting them, whenever possible, with the natural and social community in which students live and learn. When students are youngest and most concrete in their thinking, Place-based education strives to delve them deeply into the community allowing them to connect their learning to tangible experiences around them. So, the youngest students community, including their home, classroom and immediate neighborhood, is the focus of their work. As they grow and become more capable of abstract thought, learning moves out in concentric geographic rings. As students grow, their community expands to include Portland, Oregon, the United States and the world beyond.
"Place-based education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum. Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organizations, and environmental resources in the life of the school." (Sobel, 2004)


S Lowell St
SW Lowell & Bond
S Lowell St
Yancey Machine Tool
South Waterfront Heated Storage
The Old Spaghetti Factory
Takeout · Delivery
S Bancroft St
Imagrations and Customs
DHS
CSCS
Oregon Ballet Theatre
S Macadam Ave
Tesla
Car dealer
S Macadam Ave
N Easy St
Portland Oregon, State of Oregon, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021
United States
Terms
Send feedback
100 ft





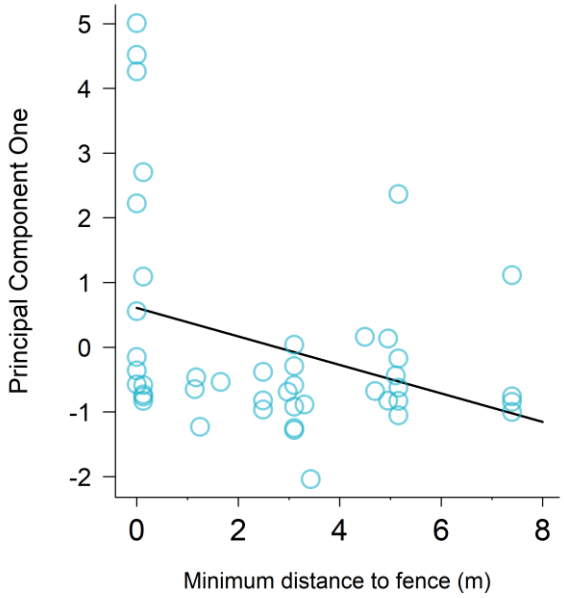


<u>Does not exceed</u> EPA limits for heavy metals in **soil**

Designed more for historic pollution impacts (leaching of lead paint)

<u>Does exceed</u> EPA limits for heavy metals in **dust**

Designed more for ongoing pollution impacts (house demolition)



405 ppm benzene dust

UNITED STATES DEPARTMENT OF LABOR
Occupational Safety and Health Administration

maximum time-weighted average (TWA) exposure limit is 1 part of benzene vapor per million parts of air (1 ppm) for an 8-hour workday
maximum short-term exposure limit (STEL) is 5 ppm for any 15-minute period.

Lead

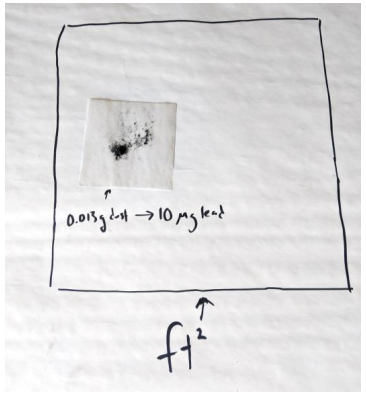
PbO PbO_2 Pb_3O_4

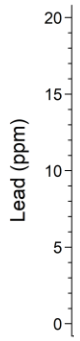
Chromium

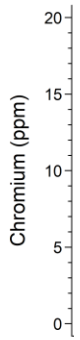
Cr_2O_3 CrO_3

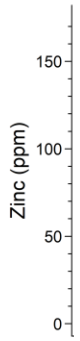
Zinc

ZnO









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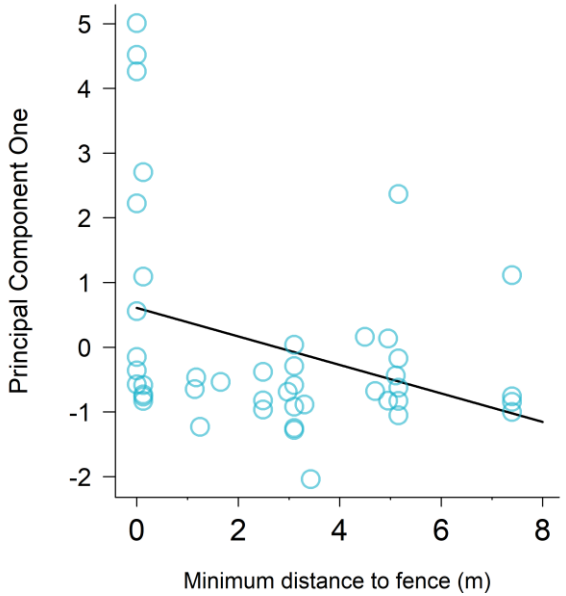
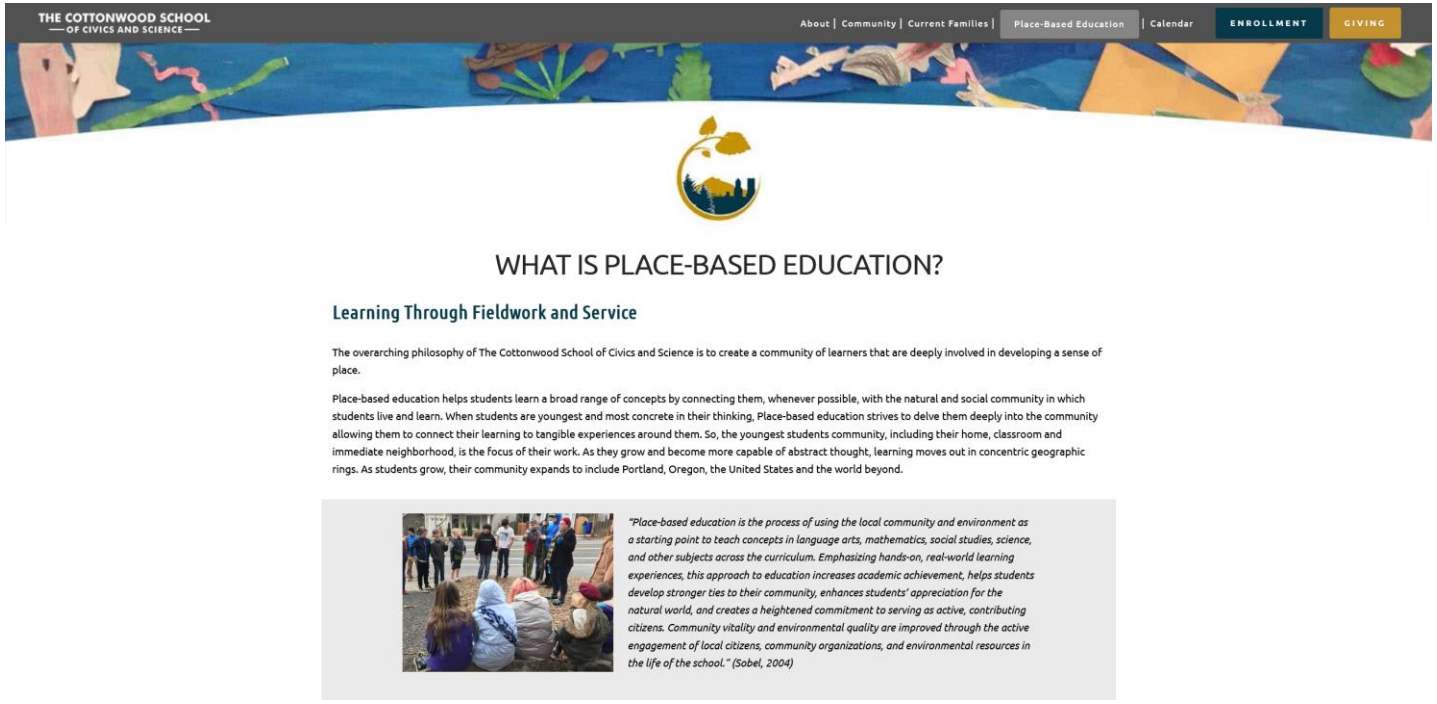


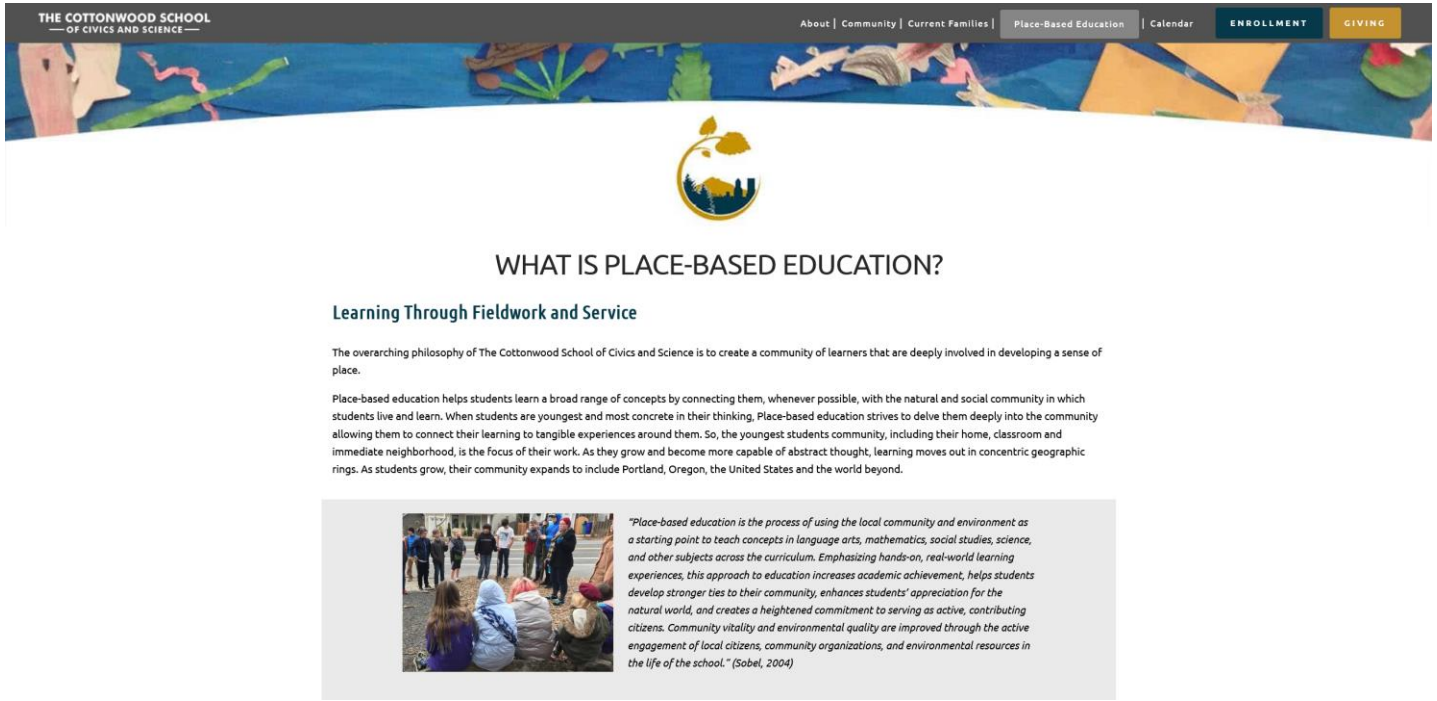
Going Forward



Going Forward

The school and neighborhood have to be **safe** for staff and students to be in

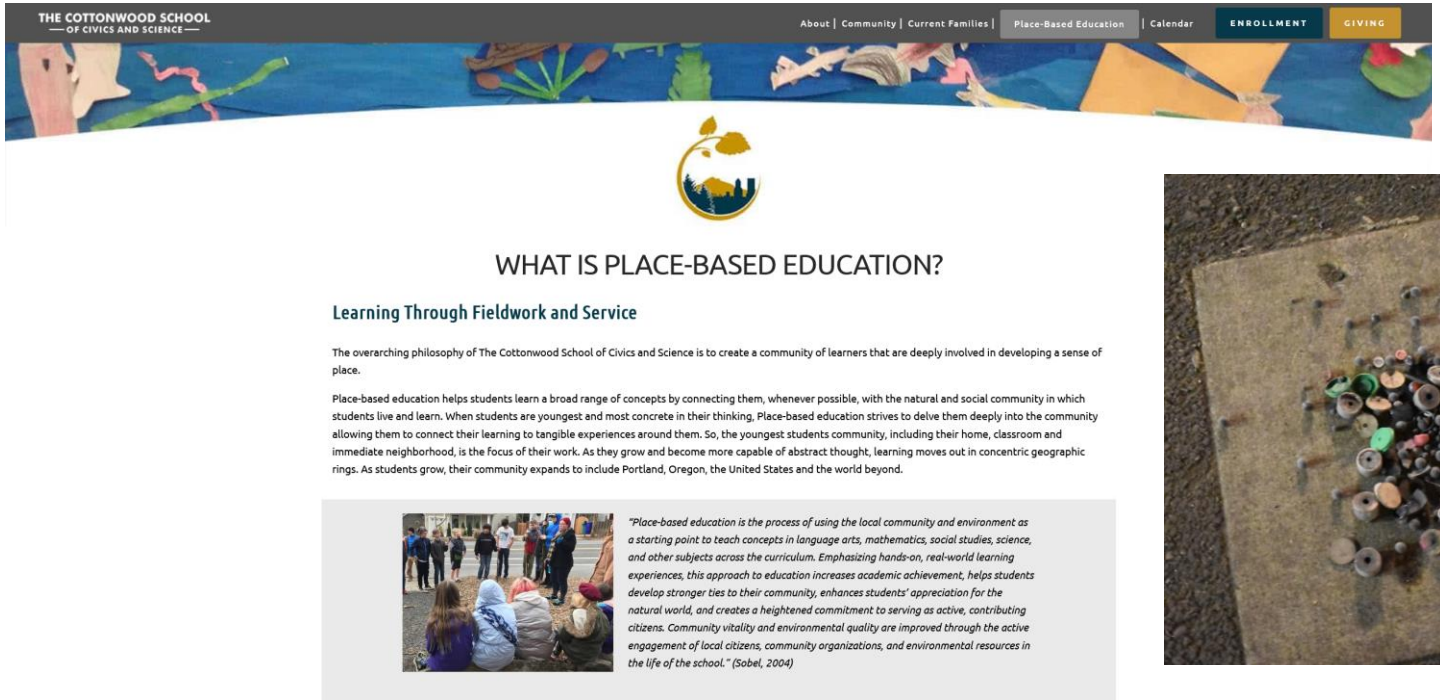
1. **Mitigation (no more chemical weapons used)**



Going Forward

The school and neighborhood have to be **safe** for staff and students to be in

1. **Mitigation (no more chemical weapons used)**
2. **Remediation (properly clean up the mess)**



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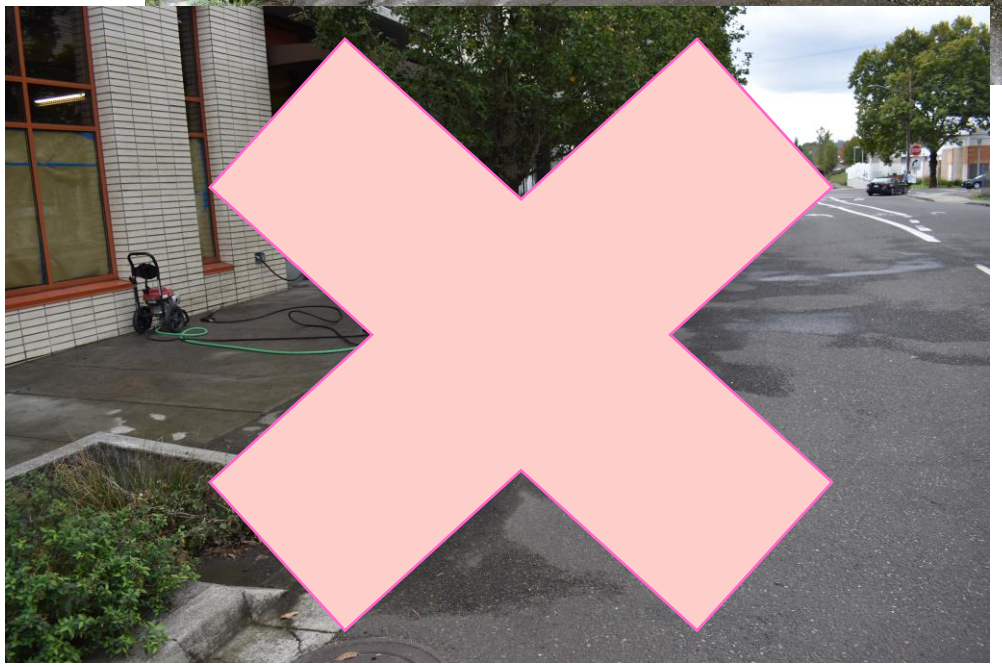


Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

Printing date July 13, 2015 Reviewed on July 13, 2015

Trade name: Triple-Chaser® Separating Canister, CS

(Contd. of page 14)

· **Ecotoxical effects:**
· **Remark:** Toxic for fish
· **Additional ecological information:**
· **General notes:**
This statement was deduced from the properties of the single components.
The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary.
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.

Going Forward

The school and neighborhood have to be **safe** for staff and students to be in

1. **Mitigation (no more chemical weapons used)**
2. **Remediation (properly clean up the mess)**

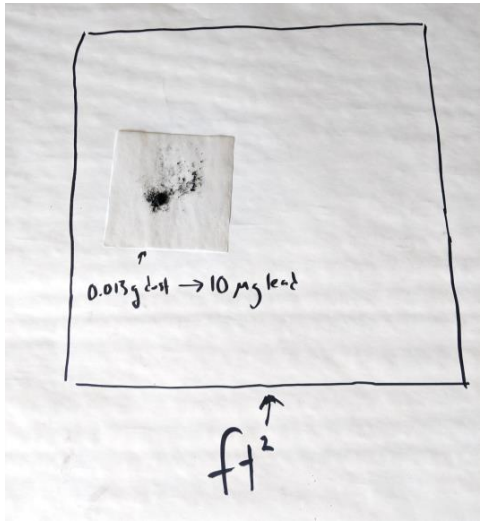
Identify relevant statutory chemicals
- Benzene (OSHA)
- Lead (EPA)
- (Hexavalent) chromium (EPA)

405 ppm benzene dust

UNITED STATES DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Conduct further, targeted organic analyses

Conduct proper dust survey and collection studies



Limit interactions with yard until decisions made
- Prevent transfer of soil

Conduct full sweep(s) of the grounds

Going Forward

The school and neighborhood have to be **safe** for staff and students to be in

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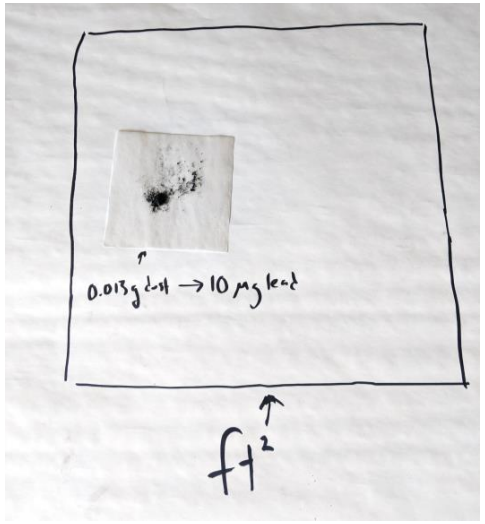

Limit interactions with yard until decisions made
- Prevent transfer of soil

Conduct full sweep(s) of the grounds


STOP

Thank You!

chemicalweaponsresearch.com