

Table 2. Chemical Fire Products in East Palestine OH Train Derailment

Chemical or Product	Chemicals Released by Fire	Health Hazards from Emitted Pollutants
1. Polypropylene	Soot Ash/Particulates w/ Persistent Free Radicals Polycyclic Aromatic Hydrocarbons (PAHs) Carbon Monoxide Dioxins Aldehydes	Cancers – lung & bladder – Asthma, Heart Disease, Death Lung Inflamm. & Cancer – lung - Asthma, Cardiovascular Disease, COPD, Persistent in Air Cancers – lung, skin, bladder, scrotum – Male/Female Reproduction, COPD; Cardiovascular Disease; Confusion; Mutagens Headache, Nausea, Dizziness, Malaise, Seizures, Coma Cancer – breast, pancreas, colon - Liver/Immune/Cardiovascular Diseases, Chloracne; Persist. Env. Pollut.s; Hormone Disruptors Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L (skin, eyes, nose, throat, lungs) Irritant, Headache, Dizziness, Fainting
2. Polyethylene	Soot Ash/Particulates w/ Persistent Free Radicals Polycyclic Aromatic Hydrocarbons (PAHs) Carbon Monoxide Dioxins Aldehydes	Cancers – lung & bladder – Asthma, Heart Disease, Death Lung Inflamm. & Cancer – lung - Asthma, Cardiovascular Disease, COPD, Persistent in Air Cancers – lung, skin, bladder, intestine – Male/Female Reproduction COPD; Cardiovascular; Confusion; Mutagens Headache, Nausea, Dizziness, Malaise, Seizures, Coma Cancer – breast, pancreas, colon - Liver/Immune/Cardiovascular Diseases, Chloracne; Persist. Env. Pollut.s; Hormone Disruptors Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting

<p>3. Vinyl Chloride <i>Stabilized (Phenol)</i></p> <p><i>[Highly mobile in soils & water]</i></p>	<p>Hydrochloric Acid Formaldehyde Phosgene Dioxins</p> <p>Carbon Monoxide Phenol Methane</p>	<p>Corrosive S/E/T/L Cancer – nose, blood – Corrosive S/E/T/L, Allergen Extreme Irritant – skin/eye/nose/throat/lung inflame & edema; Death Cancer – breast, pancreas, colon - Liver/Immune/Cardiovascular Diseases, Chloracne; Persist. Env. Pollut.s; Hormone Disruptors, S/E/T/L Irritant, Headache, Nausea, Dizziness, Malaise, Seizures, Coma Corrosive – skin, eyes, nose, throat, lungs; Liver/Kidney/CNS Damage Headache, Dizziness, Nausea, Loss of Coordination, Cognitive Impairment, Heart Palpitations, Asphyxia</p>
<p>4. Dipropylene Glycol</p>	<p>Aldehydes</p> <p>Ketones</p> <p>Carbon Monoxide</p>	<p>Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting Irritants S/E/T/L , >Blood Sugar, Breathing Difficulty, Pain, Headache, Nausea, Dizziness, Confusion, Coma Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p>
<p>5. Propylene Glycol</p>	<p>Propylene Oxide</p> <p>Formaldehyde Acetaldehyde Carbon Monoxide</p>	<p>Cancer – nose; Mutagen, S/E/T/L Irritant; Nausea, Emesis, Abdomen Pain; Headache, Dizziness, Fainting Cancer – nose, blood - Corrosive S/E/T/L, Allergen Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p>
<p>6. Diethylene Glycol</p>	<p>Aldehydes</p> <p>Ketones</p> <p>Formic Acid</p> <p>Carbon Monoxide</p>	<p>Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting Irritants S/E/T/L , >Blood Sugar, Breathing Difficulty, Pain, Headache, Nausea, Dizziness, Confusion, Coma Irritant S/E/T/L, Headache, Dizziness, Nausea, Emesis, Kidney Damage, Skin Absorbed Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p>

<p>7. Ethylene Glycol Monobutyl Ether</p>	<p>Aldehydes Ketones Formic Acid Acetic Acid Carbon Monoxide</p>	<p>Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting Irritants S/E/T/L, >Blood Sugar, Breathing Difficulty, Pain, Headache, Nausea, Dizziness, Confusion, Coma Irritant S/E/T/L, Headache, Dizziness, Nausea, Emesis, Kidney Damage, Skin Absorbed Irritant S/E/T/L, Lung edema, Bronchitis Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p>
<p>8. Semolina (Flour)</p>	<p>Soot Ash/Particulates w/ Persistent Free Radicals Polycyclic Aromatic Hydrocarbons (PAHs) Acrylamide Carbon Monoxide Dioxins Aldehydes</p>	<p>Cancers– lung & bladder – Asthma, Heart Disease, Death Lung Inflamm. & Cancer – lung - Asthma, Cardiovascular Disease, COPD, Persistent in Air Cancers – lung, skin, bladder, scrotum – Male/Female Reproduction COPD; Cardiovascular Disease; Confusion; Mutagens Cancers – ovarian, kidney, endometrial Headache, Nausea, Dizziness, Malaise, Seizures, Coma Cancer – breast, pancreas, colon - Liver/Immune/Cardiovascular Diseases, Chloracne; Persist. Env. Pollut.s; Hormone Disruptors Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting</p>
<p>9. Ethylhexyl Acrylate</p>	<p>Carbon Monoxide Nitrogen Oxides Methane MEHQ</p>	<p>Headache, Nausea, Dizziness, Malaise, Seizures, Coma Irritant S/E/T/L, Bronchitis, Asthma, Lung Edema, COPD Headache, Dizziness, Weakness, Loss of Coordination & Judgment, Mood Changes, Memory Loss, Asphyxiant Corrosive & Poisonous Fumes</p>
<p>10. Polyvinyl (Alcohol)</p>	<p>Organic Acids</p>	<p>Corrosive S/E/T/L, Allergens, Liver Disease, Nephropathy, Coagulation Disorders and Nervous System Disorders.</p>

	<p>Aldehydes</p> <p>Alcohol</p> <p>Carbon Monoxide</p>	<p>Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting</p> <p>Confusion, Poor Judgment, Emesis, Seizures, Hepatitis, Liver Cirrhosis, Cancer – breast, mouth, throat, esophagus, liver, colon, rectum</p> <p>Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p>
<p>11. Petroleum Lube Oil (Distillate Oil)</p>	<p>Soot</p> <p>Ash/Particulates w/ Persistent Free Radicals</p> <p>Polycyclic Aromatic Hydrocarbons (PAHs)</p> <p>Carbon Monoxide</p> <p>Nitrogen Oxides (NO_x)</p> <p>Sulfur Oxides (SO_x)</p> <p>Aldehydes</p> <p>Substituted Benzenes</p> <p>[Trace Elements ≥13]</p> <p>[Many Other Toxins = Mercaptans, Phenols, Pyridines, Pyrroles, Indoles & Carbazoles]</p>	<p>Cancers – lung & bladder – Asthma, Heart Disease, Death</p> <p>Lung Inflamm. & Cancer – lung - Asthma, Cardiovascular Disease, COPD, Persistent in Air</p> <p>Cancers – lung, skin, bladder, scrotum – Male/Female Reproduction, COPD; Cardiovascular Disease; Confusion; Mutagens</p> <p>Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p> <p>Inflammation of Airway, Lung Edema, Bronchitis, Bronchiolitis, Emphysema, COPD, Headache, Fatigue, Dizziness, Blue Skin/Lips, Increased Respiratory Infections, Air Acidification</p> <p>Cancer – lung, larynx - Irritant S/E/T/L, Asthma, Bronchitis, Air Acidification, Sulfur Particulates</p> <p>Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting</p> <p>Cancers – blood, kidneys, lungs, liver - S/E/T/L Irritant, Bronchitis, Headache, Narcolepsy, Fainting, Hand Coordination</p> <p>Cancers (12/13 Elements) – bladder, brain, bronchi, kidney, lung, nose, skin, trachea – Cancer Promotor</p> <p>Similar Hazards to Other Listed Petroleum Constituent Hazards (See #'s 14, 15, and above for #11): Many of These Toxin Emissions May Be Bound to Soot & Particulate Emissions</p>

12. Isobutylene	Carbon Monoxide	Headache, Nausea, Dizziness, Malaise, Seizures, Coma
13. Butyl Acrylates Stabilized (MEHQ)	Carbon Monoxide Nitrogen Oxides Methane MEHQ	Headache, Nausea, Dizziness, Malaise, Seizures, Coma Irritant S/E/T/L, Bronchitis, Asthma, Lung Edema, COPD Headache, Dizziness, Weakness, Loss of Coordination & Judgment, Mood Changes, Memory Loss, Asphyxiant Corrosive & Poisonous Fumes
14. Petro Oil, NEC (Residual Oil)	Soot Ash/Particulates w/ Persistent Free Radicals Polycyclic Aromatic Hydrocarbons (PAHs) Carbon Monoxide Nitrogen Oxides (NO _x) Sulfur Oxides (SO _x) Aldehydes Substituted Benzenes [Trace Elements ≥13] [Many Other Toxins = Mercaptans, Phenols, Pyridines, Pyrroles, Indoles & Carbazoles]	Cancers – lung & bladder – Asthma, Heart Disease, Death Lung Inflamm. & Cancer – lung - Asthma, Cardiovascular Disease, COPD, Persistent in Air Cancers – lung, skin, bladder, scrotum – Male/Female Reproduction, COPD; Cardiovascular Disease; Confusion; Mutagens Headache, Nausea, Dizziness, Malaise, Seizures, Coma Inflammation of Airway, Lung Edema, Bronchitis, Bronchiolitis, Emphysema, COPD, Headache, Fatigue, Dizziness, Blue Skin/Lips, Increased Respiratory Infect.s, Air Acidification Cancer – lung, larynx - Irritant S/E/T/L, Asthma, Bronchitis, Air Acidification, Sulfur Particulates Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting, Cancers – blood, kidneys, lungs, liver - S/E/T/L Irritant, Bronchitis, Headache, Narcolepsy, Fainting, Hand Coordination Cancers (12/13 Elements) – bladder, brain, bronchi, kidney, lung, nose, skin, trachea – Cancer Promotor Similar Hazards to Other Listed Petroleum Constituent Hazards (See #'s 11, 15, and above for #14): Many of These Toxin Emissions May Be Bound to Soot & Particulate Emissions
15. Additives, Fuel	Soot Ash/Particulates w/	Cancers – lung & bladder – Asthma, Heart Disease, Death Lung Inflamm. & Cancer – lung - Asthma, Cardiovascular

	<p>Persistent Free Radicals Polycyclic Aromatic Hydrocarbons (PAHs) Carbon Monoxide Nitrogen Oxides (NO_x)</p> <p>Sulfur Oxides (SO_x)</p> <p>Aldehydes</p> <p>Substituted Benzenes</p> <p>[Trace Elements ≥13]</p> <p>[Many Other Toxins = Mercaptans, Phenols, Pyridines, Pyrroles, Indoles & Carbazoles]</p>	<p>Disease, COPD, Persistent in Air</p> <p>Cancers – lung, skin, bladder, scrotum – Male/Female Reproduction, COPD; Cardiovascular Disease; Confusion; Mutagens</p> <p>Headache, Nausea, Dizziness, Malaise, Seizures, Coma</p> <p>Inflammation of Airway, Lung Edema, Bronchitis, Bronchiolitis, Emphysema, COPD, Headache, Fatigue, Dizziness, Blue Skin/Lips, Increased Respiratory Infect.s, Air Acidification</p> <p>Cancer – lung, larynx - Irritant S/E/T/L, Asthma, Bronchitis, Air Acidification, Sulfur Particulates</p> <p>Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting,</p> <p>Cancers – blood, kidneys, lungs, liver - S/E/T/L Irritant, Bronchitis, Headache, Narcolepsy, Fainting, Hand Coordination</p> <p>Cancers (12/13 Elements) – bladder, brain, bronchi, kidney, lung, nose, skin, trachea – Cancer Promotor</p> <p>Similar Hazards to Other Listed Petroleum Constituent Hazards (See #'s 11 , 14, and above for #15); Many of These Toxin Emissions May Be Bound to Soot & Particulate Emissions</p>
<p>16. Benzene (Empty?)</p>		

17. Paraffin Wax	Soot Toluene Benzene Formaldehyde	Cancers – lung & bladder – Asthma, Heart Disease, Death Kidney & Liver Damage, Reprod. & Neonatal Effects, Headaches, Nausea, Dizziness, Insomnia, Skin Absorption, Reprod. Toxin Cancer – blood – Anemia, Neonatal Effects, Cancer – nose, blood - Corrosive S/E/T/L, Allergen
18. Flakes, Powder	Depends Upon Type of Flakes	TBD
19. Hydraulic Cement		
20. Malt Liquors	Depends Upon Burn Status	TBD
21. Balls, CTN, MEDCL (?)	Depends Upon Ball Composition	TBD
22. Sheet Steel	Depends Upon Steel Composition	TBD
23. VEGETABLE, FROZEN	Soot Ash/Particulates w/ Persistent Free Radicals Polycyclic Aromatic Hydrocarbons (PAHs) Carbon Monoxide Nitrogen Oxides (NO _x) Sulfur Oxides (SO _x) Aldehydes Substituted Benzenes	Cancers – lung & bladder – Asthma, Heart Disease, Death Cancer – lung - Lung Inflamm., Asthma, Cardiovascular Disease, COPD, Persistent in Air Cancers – lung, skin, bladder, scrotum – Male/Female Reproduction, COPD; Cardiovascular Disease; Confusion; Mutagens Headache, Nausea, Dizziness, Malaise, Seizures, Coma Inflammation of Airway, Lung Edema, Bronchitis, Bronchiolitis, Emphysema, COPD, Headache, Fatigue, Dizziness, Blue Skin/Lips, Increased Respiratory Infect.s, Air Acidification Cancer – lung, larynx - Irritant S/E/T/L, Asthma, Bronchitis, Air Acidification, Sulfur Particulates Cancer – nasopharynx - Cardiovascular Disease, S/E/T/L Irritant, Headache, Dizziness, Fainting,

	<p>[Trace Elements ≥ 13]</p> <p>[Many Other Toxins = Mercaptans, Phenols, Pyridines, Pyrroles, Indoles & Carbazoles]</p>	<p>Cancers – blood, kidneys, lungs, liver - S/E/T/L Irritant, Bronchitis, Headache, Narcolepsy, Fainting, Hand Coordination</p> <p>Cancers (12/13 Elements) – bladder, brain, bronchi, kidney, lung, nose, skin, trachea – Cancer Promotor</p> <p>Similar Hazards to Other Listed Petroleum Constituent Hazards (See #'s 11, 14, 15): Many of These Toxin Emissions May Be Bound to Soot & Particulate Emissions</p>
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