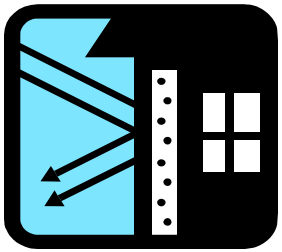
Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Tires 	Styrene	Suspected **carcinogen**, **toxic** by inhalation; eye and mucous membrane irritant.	**Yes**
	Butadiene	**Carcinogen**, **toxic** by inhalation; eye and mucous membrane irritant.	**Yes**
	Benzene	**Carcinogen**; **toxic** by inhalation, ingestion, and skin contact.	**Yes**
	Lead	Suspected **carcinogen**; **poison** by ingestion; systemic effects by ingestion and inhalation.	**Yes**
	Chromium	**Carcinogen**; **poison** by ingestion.	**Yes**
	Cadmium	**Carcinogen**; **poison** by inhalation and ingestion.	**Yes**
	Mercury	**Poison** by inhalation; corrosive to eyes, skin, mucous membranes; systemic effects by inhalation.	**Yes**
	Hydrogen sulfide	**Poison** by inhalation causing systemic effects including chronic pulmonary edema and coma; severe irritant to eyes and mucous membranes.	**No**
	Zinc	When heated forms fresh zinc oxide fumes causing metal fume fever; can also be a skin irritant.	**No**
Asphalt shingles	Asbestos	**Carcinogen** by inhalation of friable asbestos fibers.	**Yes**
	Hydrogen sulfide	**Poison** by inhalation causing systemic effects including chronic pulmonary edema and coma; severe irritant to eyes and mucous membranes.	**No**
	Bitumen	Suspected **carcinogen**.	**No**
	Benzene	**Carcinogen**; **toxic** by inhalation, ingestion, and skin contact.	**Yes**
Building insulation • Fiberglass	Styrene	Suspected **carcinogen**; **toxic** by inhalation; eye and mucous membrane irritant.	**Yes**
	Acetone	Skin and severe eye irritant; inhalation causes systemic effects in respiratory system, muscle and blood functions.	**No**

Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Building insulation - continued • Fiberglass - continued	Methyl ethyl ketone	Systemic effects by inhalation especially affecting respiratory system; severe eye irritant.	**Yes**
	Phosgene	**Poison** by inhalation: upon inhalation combines with moisture to form hydrochloric acid and carbon monoxide in bronchioles and alveoli of the lungs; severe eye, skin and mucous membrane irritant.	**Yes**
• Asbestos	Asbestos	**Carcinogen** by inhalation of friable asbestos fibers.	**Yes**
• Styrofoam	Ethylbenzene	Mildly **toxic** by ingestion, inhalation, and skin contact; inhalation causes systemic effects including eye, sleep and pulmonary changes.	**Yes**
	Hydrogen bromide	A **poison** gas; corrosive irritant to eyes, skin and mucous membranes;	**No**
	Hydrogen fluoride	Corrosive irritant to skin, eyes and mucous membranes; **poison** by inhalation – inhalation of vapor may cause ulcers of upper respiratory tract.	**Yes**
	Hydrogen chloride	Highly corrosive irritant to eyes, skin and mucous membranes; mildly **toxic** by inhalation.	**Yes**
	Dioxins	**Carcinogen**; a deadly experimental **poison** by ingestion, skin contact, and intraperitoneal routes. Immobile in contaminated soil and may be retained for years.	**Yes**
	Furans	**Poison** by ingestion; when heated to decomposition emits **toxic** fumes of chlorine.	**Yes**
Electrical wiring insulation	Hydrogen chloride	Highly corrosive irritant to eyes, skin, and mucous membranes; mildly **toxic** by inhalation.	**Yes**
	Phosgene	**Poison** by inhalation: upon inhalation combines with moisture to form hydrochloric acid and carbon monoxide in bronchioles and alveoli of the lungs; severe eye, skin and mucous membrane irritant.	**Yes**
	Dioxins	**Carcinogen**; a deadly experimental **poison** by ingestion, skin contact and intraperitoneal routes. Immobile in contaminated soil and may be retained for years.	**Yes**

Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Electrical wiring insulation - continued	Furans	**Poison** by ingestion; when heated to decomposition emits **toxic** fumes of chlorides.	**Yes**
Paints, varnishes, cleaning supplies, etc 	Benzene	**Carcinogen**; **toxic** by inhalation, ingestion, and skin contact.	**Yes**
	Methylene chloride	**Carcinogen**; **poison** by injection; **toxic** by inhalation and ingestion.	**Yes**
	Perchloroethylene	**Carcinogen**; **toxic** by inhalation and ingestion.	**Yes**
	Lead	Suspected **carcinogen**; **poison** by ingestion; systemic effects by ingestion and inhalation.	**Yes**
	Methyl ethyl ketone	Systemic effects by inhalation especially affecting respiratory system; severe eye irritant	**Yes**
	Dioxins	**Carcinogen**; a deadly experimental **poison** by ingestion, skin contact and intraperitoneal routes. Immobile in contaminated soil and may be retained for years.	**Yes**
Pressure Treated Wood • Chromated Copper Arsenate	Arsenic	**Carcinogen**; **poison** by ingestion; flammable in the form of dust when exposed to heat or flame.	**Yes**
	Chromium	**Carcinogen**; **poison** by ingestion.	**Yes**
	Copper	Systemic effects by ingestion causes nausea and vomiting.	**No**
• Pentachlorophenol	Pentachlorophenol	Suspected **carcinogen**; **poison** by ingestion and inhalation.	**Yes**
	Diesel Fuel	Combustible; when heated to decomposition emits acrid smoke and irritating fumes.	**No**

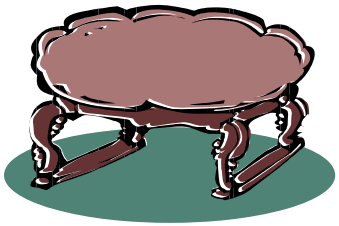
Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Pressure Treated Wood – continued • Pentachlorophenol - continued	Guaiacol	**Poison** by ingestion; eye and skin irritant.	**No**
	Arsenic	**Carcinogen**; **poison** by ingestion; flammable in the form of dust when exposed to heat or flame.	**Yes**
	Hexachlorobenzene	**Carcinogen**; **poison**; mildly **toxic** by inhalation.	**Yes**
• Creosote	Creosols	**Toxic** by ingestion and skin contact. Irritant to mucous membranes and skin.	**Yes**
	Diesel fuel	Combustible; when heated to decomposition emits acrid smoke and irritating fumes	**No**
Plywood/wood, particle board, paneling, etc.	Arsenic	**Carcinogen**; **poison** by ingestion; flammable in the form of dust when exposed to heat or flame	**Yes**
	Formaldehyde	**Carcinogen**; **poison** by ingestion, skin contact, inhalation, intravenous, intraperitoneal and subcutaneous routes; inhalation causes systemic effects including watering of the eyes, olfactory and pulmonary changes.	**Yes**
Upholstery • Nylon 	Polybrominated diphenyl ethers	Possible **carcinogen**; **poison** by ingestion.	**No**
	Hydrogen chloride	Highly corrosive irritant to eyes, skin and mucous membranes; mildly **toxic** by inhalation.	**Yes**
	Hydrochloric acid	Corrosive; mildly **toxic** by inhalation; when heated to decomposition emits **toxic** fumes of chlorides.	**Yes**
	Hydrogen cyanide	Asphyxiant; deadly human and experimental **poison** by all routes.	**Yes**
	Dioxins	**Carcinogen**; a deadly experimental **poison** by ingestion, skin contact and intraperitoneal routes. Immobile in contaminated soil and may be retained for years.	**Yes**

Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Upholstery - continued • Nylon - continued	Hydrogen Sulfide	**Poison** by inhalation causing systemic effects including chronic pulmonary edema and coma; severe irritant to eyes and mucous membranes.	**No**
	Formaldehyde	**Carcinogen**; **poison** by ingestion, skin contact, inhalation, intravenous, intraperitoneal and subcutaneous routes; inhalation causes systemic effects including watering of the eyes, olfactory and pulmonary changes.	**Yes**
• Wool	Acrolein	**Poison** by inhalation, severe eye and skin irritant.	**Yes**
• Cotton			
Electronic devices/TVs	Lead	Suspected **carcinogen**; **poison** by ingestion; systemic effects by ingestion and inhalation.	**Yes**
	Mercury	**Poison** by inhalation; corrosive to eyes, skin, mucous membranes; systemic effects by inhalation. **Poison** by inhalation; corrosive to eyes, skin, mucus membrane.	**Yes**
	Cadmium	**Carcinogen**; **poison** by inhalation and ingestion.	**Yes**
Plastic items, PVC piping, furniture, and toys	Hydrogen cyanide	Asphyxiant; deadly human and experimental **poison** by all routes.	**Yes**
	Hydrogen chloride	Highly corrosive irritant to eyes, skin and mucous membranes; mildly **toxic** by inhalation.	**Yes**
	Hydrochloric acid	Corrosive; mildly **toxic** by inhalation; when heated to decomposition emits **toxic** fumes of chlorides.	**Yes**
	Benzene	**Carcinogen**; **toxic** by inhalation, ingestion, and skin contact.	**Yes**
	Cadmium	**Carcinogen**; **poison** by inhalation and ingestion.	**Yes**
	Chromium oxide	**Carcinogen**; **poison** by ingestion, eye and skin irritant.	**Yes**
	Lead	Suspected **carcinogen**; **poison** by ingestion; systemic effects by ingestion and inhalation.	**Yes**
	Styrene	Suspected **carcinogen**; **toxic** by inhalation, eye and mucus membrane irritant.	**Yes**

Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Plastic items - continued	Carbon tetrachloride	**Carcinogen**; **poison** by ingestion, mildly **toxic** by inhalation.	**Yes**
	Acrolein	**Poison** by inhalation, severe eye and skin irritant.	**Yes**
	Phosgene	**Poison** by inhalation: upon inhalation combines with moisture to form hydrochloric acid and carbon monoxide in bronchioles and alveoli of the lungs; severe eye, skin and mucous membrane irritant	**Yes**
	Dioxins	**Carcinogen**; a deadly experimental **poison** by ingestion, skin contact and intraperitoneal routes. Immobile in contaminated soil and may be retained for years.	**Yes**
	Furans	**Poison** by ingestion; when heated to decomposition emits **toxic** fumes of chlorides.	**Yes**
Flooring, siding • Vinyl	Hydrogen cyanide	Asphyxiant; deadly human and experimental **poison** by all routes.	**Yes**
	Hydrochloric acid	Corrosive; mildly **toxic** by inhalation; when heated to decomposition emits **toxic** fumes of chlorides.	**Yes**
	Dioxins	**Carcinogen**; a deadly experimental **poison** by ingestion, skin contact and intraperitoneal routes. Immobile in contaminated soil and may be retained for years.	**Yes**
• Asbestos	Asbestos	**Carcinogen** by inhalation of friable asbestos fibers.	**Yes**
Clothing • Nylon	Nitrogen oxide	Moderately **toxic** by inhalation, a general anesthetic; self explodes at high temperatures.	**No**
• Cotton	Formaldehyde	**Carcinogen**; **poison** by ingestion, skin contact, inhalation, intravenous, intraperitoneal and subcutaneous routes; inhalation causes systemic effects including watering of the eyes, olfactory and pulmonary changes.	**Yes**
	Acrolein	**Poison** by inhalation, severe eye and skin irritant.	**Yes**

Chemicals Released During Open Burning

(12/12/2005)

Items Burned	Chemicals Released	Health Hazard	Hazardous Air Pollutant
Clothing - continued • Wool	Hydrogen sulfide	**Poison** by inhalation causing systemic effects including chronic pulmonary edema and coma; severe irritant to eyes and mucous membranes.	**No**
Freon/Refrigerants	Phosgene	**Poison** by inhalation: upon inhalation combines with moisture to form hydrochloric acid and carbon monoxide in bronchioles and alveoli of the lungs; severe eye, skin and mucous membrane irritant.	**Yes**

Definitions

Carcinogen: A substance capable of causing cancer in exposed humans.

Poison: A substance that through its chemical action impairs or causes injury.

Toxic: The result or affect of a poison.

Resources

The Merck Index- tenth edition
Sax's Dangerous Properties of Industrial Materials- eighth edition
Self Contained Breathing Apparatus- second edition
http://www.airdefenders.org/docs/openBurningObjectDescriptions.htm
Patty's Industrial Hygiene and Toxicology – 3rd revised edition, Volume 2A: Toxicology
Webster's New Collegiate Dictionary. 1979