

So, What Exactly Does Hazardous Mean?

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What's a Hazardous _____?

- RCRA
 - ▶ Hazardous Waste
 - ▶ Hazardous Constituent
 - ▶ Underlying Hazardous constituent
 - ▶ Hazardous Debris
 - ▶ Hazardous Secondary Material
 - ▶ Household Hazardous Waste
- CAA
 - ▶ Hazardous Air Pollutant
- CWA
 - ▶ Hazardous Substance
- DOT
 - ▶ Hazardous Material
 - ▶ HAZMAT
 - ▶ Hazard Class
- OSHA
 - ▶ Hazard
 - ▶ Hazardous Chemical
 - ▶ Hazard Communication
 - ▶ Hazard Determination
 - ▶ Hazardous Substance
 - ▶ Hazard Assessment
 - ▶ Hazard Recognition
 - ▶ Hazard Identification
 - ▶ HAZWOPER
- NFPA
 - ▶ Hazardous Material
- EPCRA
 - ▶ Hazardous Chemical
- Global Harmonization System (GHS)
 - ▶ Hazard Codes
- Hazardous Condition
- Etc.....

Miscellaneous Definitions of “Hazard”

- Dictionary.com: (1) an unavoidable danger or risk, even though often foreseeable; (2) something causing unavoidable danger, peril, risk, or difficulty; (3) the absence or lack of predictability; chance; uncertainty.
- Legal: a condition that tends to create or increase the possibility of loss used esp. in insurance law.
- Insurance industry: A hazard describes anything that increases the potential for a loss. (An unintended, unforeseen event that causes injury to an insured or damage to property) For insurance purposes, hazards are classified as one of four types: physical, legal, moral or morale
- OSHA: A hazard is any source of potential damage, harm or adverse health effects on something or someone under certain conditions at work.
- 42 US Code 5195a, Disaster Relief: The term “hazard” means an emergency or disaster resulting from— (A) a natural disaster; or (B) an accidental or man-caused event.
- United Nations Office for Disaster Risk Reduction: A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.
- International Federation of Red Cross: A hazard is a source or a situation with the potential for harm in terms of human injury or ill-health, damage to property, damage to the environment, or a combination of these.

US EPA Hazardous Air Pollutants vs Hazardous Substances vs Hazardous Waste Codes

- **Hazardous Air Pollutants** (42 USC 7412(b)(1), amended by 40 CFR 63 Subpart C)

- ▶ List of 188 specific chemicals
- ▶ Those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.
- ▶ Also called Air Toxics or Toxic Air Pollutants

- **Hazardous Substances** (33 USC 1321(a)(14))

- ▶ List of 296 substances at 40 CFR 116.4
- ▶ Those substances ... which, when discharged in any quantity into jurisdictional waters, present an imminent and substantial danger to public health or welfare, including, but not limited to, fish, shellfish, wildlife, shorelines, and beaches

- **Hazardous Waste** (42 U.S. Code § 6903, 40 CFR 261.3)

- ▶ Any waste material – solid, liquid, or gaseous – that “because of its quantity, concentration, or physical, chemical or infectious characteristic may cause or significantly contribute to an increase in mortality, serious irreversible illness, or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed.
- ▶ List of 43 characteristic (“D”) wastes, 28 “F” wastes from common manufacturing sources), 120 “K” wastes from specific sources, and over 400 “P” and “U” commercial chemical product wastes.
- ▶ Also, a mixture of a listed hazardous with another waste, a waste derived from a listed hazardous waste, or environmental media contaminated with hazardous waste

Hazardous Waste vs Hazardous Material

■ HAZARDOUS WASTE - RCRA

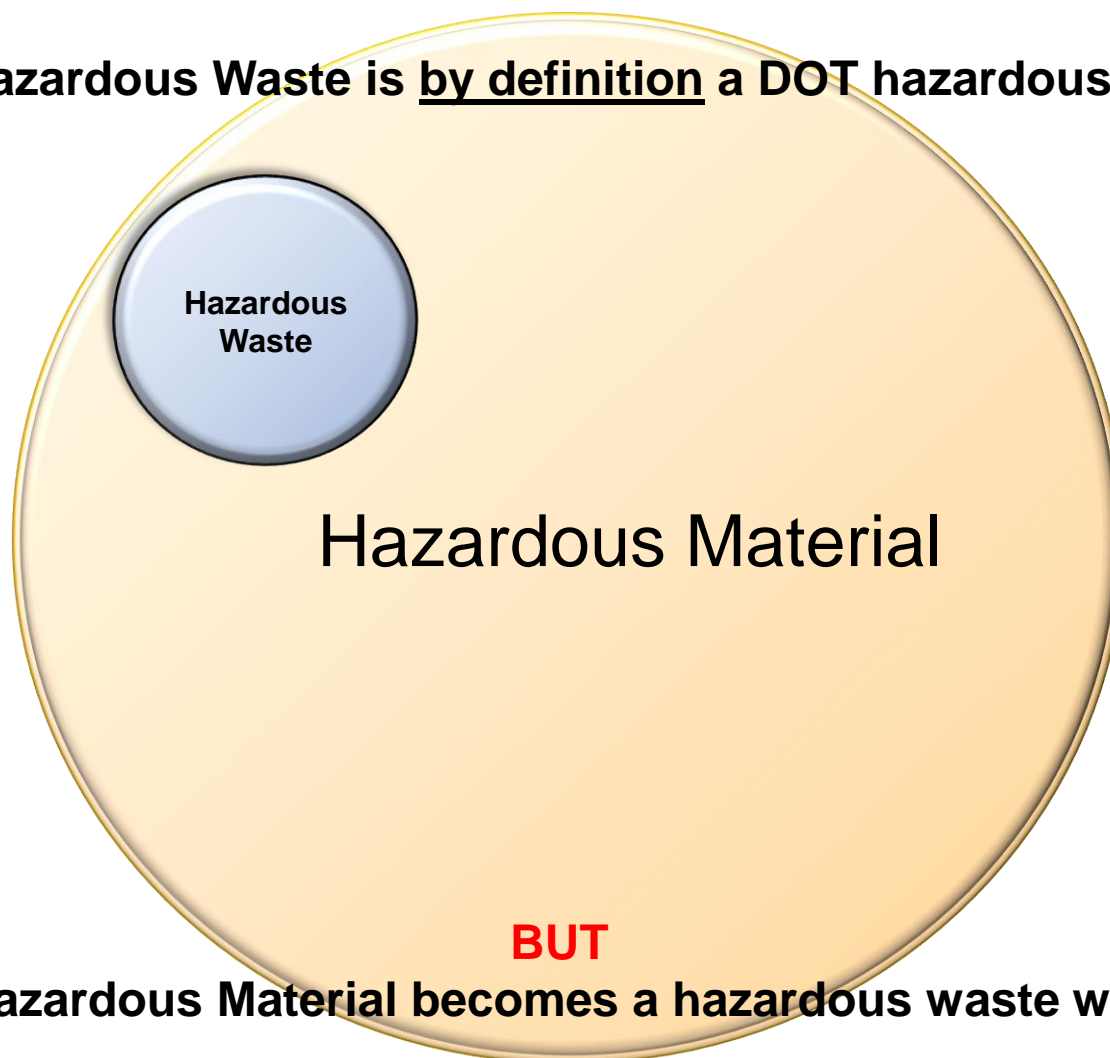
- ▶ 40 CFR 261 Definition of Solid Waste (but also 260, 264, 265, 266, 268, and 270)
 - Reminder: “Solid Waste” can be solid, liquid, sludge, or contained gas
- ▶ All hazardous waste is a subset of Solid Waste
- ▶ Any solid waste that exhibits defined hazardous characteristics or is specifically listed by EPA as being hazardous
- ▶ Derived-from/mixture/contained in rules
- ▶ Multiple exemptions from definition of solid waste, definition of hazardous waste, various specific requirements
- ▶ Very specific detailed requirements associated with packaging, labeling, handling, and transport of hazardous waste

■ HAZARDOUS MATERIAL - DOT

- ▶ 49 CFR 170.5 and 171
- ▶ Any material capable of posing an unreasonable risk to health, safety, and property when transported in commerce
- ▶ 9 Hazard Classes (categories of hazardous material) with 16 subcategories
- ▶ Hazardous Materials Table at 49 CFR 172
- ▶ Very specific detailed requirements associated with packaging, labeling, shipping hazardous materials

Hazardous Waste vs. Hazardous Material

Every Hazardous Waste is by definition a DOT hazardous material



BUT

Only some Hazardous Material becomes a hazardous waste when disposed

More Definitions of Hazardous Material

■ **Hazardous Material**, NFPA 400

- ▶ A chemical or substance that is classified as a physical hazard material or a health hazard material, whether the chemical or substance is in usable or waste condition.
 - 11 physical hazard categories
 - 3 health hazard categories

■ **Hazardous Material**, Missouri Statute (RsMO Section 490.733)

- ▶ Any substance which is capable of posing an unreasonable risk to health, safety and property
 - 8 categories
 - Incorporates DOT hazardous materials table and NFPA hazardous materials listing by reference

Other RCRA Hazardous _____ Definitions

- Hazardous Constituent – 40 CFR 261, Appendix VIII
 - ▶ Used for listing of hazardous wastes, land disposal restrictions, RCRA corrective action
- Hazardous Constituent – 40 CFR 268
 - ▶ Any constituent listed in 40 CFR 261, Appendix VIII
 - Treatment standards for hazardous constituents are listed at 40 CFR 268.40
- Underlying Hazardous Constituent is any chemical listed in table at 40 CFR 268.48 (with a few exceptions) that is present in a waste
 - ▶ Applies ONLY to hazardous wastes or materials that were hazardous wastes prior to treatment
- Hazardous debris – 40 CFR 268
 - ▶ Debris that contains a listed hazardous waste or exhibits a hazardous waste characteristic
- Hazardous Secondary Material – 40 CFR 261
 - ▶ A material that is exempt from the definition of solid waste because it is operating according to one of a specific list of conditional exemptions
 - 40 CFR 260.30
 - 40 CFR 261.4(a)(23), (24), (25), (27)
 - ▶ HSM are subject to notification and reporting requirements and must be managed per the conditions of the exemption
- Household Hazardous Waste – 40 CFR 261
 - ▶ Wastes from ordinary household use that are exempt from full regulation but that would otherwise be hazardous waste when discarded

Waste Codes and H-Codes

- Hazardous Waste Codes
 - ▶ D Codes – Characteristic Hazardous Wastes
 - ▶ F Codes – Hazardous Wastes from Non-Specific Sources
 - ▶ K Codes – Hazardous Wastes from Specific Sources
 - ▶ P Codes – Discarded Commercial Chemical Products, Acute Hazardous Wastes
 - ▶ U Codes – Discarded Commercial Chemical Products
- Hazardous Waste Management Method Codes (H-Codes)
 - ▶ H010 through H141
 - ▶ Used in hazardous waste reporting
 - ▶ Describe the type of system used to treat, recover, or dispose of hazardous waste
- GHS Hazard Codes (H-Codes)
 - ▶ H200 through H441
 - ▶ Each H-Code represents a specific GHS hazard statement
 - ▶ Appear on SDSs, labels, etc.
 - ▶ Describe the nature of hazardous products and degree of hazard

HAZMAT vs HAZWOPER

■ HAZMAT

- Abbreviation for Hazardous Materials - DOT
- “HAZMAT training” – 49 CFR 172.704
 - ▶ DOT Hazardous Materials training to prepare and offer hazardous materials shipments for transportation
 - Anyone packaging, labeling, preparing shipping papers
 - ▶ Different levels of training, for different responsibilities

■ HAZWOPER

- Abbreviation for Hazardous Waste Operations and Emergency Response - OSHA
- “HAZWOPER training” – 29 CFR 1910.120
 - ▶ Emergency response operations involving releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazards.
 - Cleanup operations at uncontrolled hazardous waste sites.
 - Cleanup operations at RCRA sites.
 - Operations involving hazardous waste conducted at RCRA TSDFs.
 - Operations that generate hazardous waste but are not TSDFs.
 - ▶ Different levels of training for different responsibilities

Definitions of Hazardous Chemical

■ Hazardous Chemical

- ▶ Primary definition in the OSHA Hazard Communication regulations, 29 CFR 1910.1200
- ▶ **Any chemical classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.**

■ OSHA

- ▶ Haz Chem in Labs – 29 CFR 1910.1450. Any chemical which is classified as health hazardous or simple asphyxiant in accordance with the HazCom standard.

■ EPA

- ▶ EPCRA, 40 CFR 355, Emergency Planning and Notification and 40 CFR 370, Hazardous Chemical Reporting. Any hazardous chemical defined under OSHA 29 CFR 1910.1200(c), with limited exceptions.

Definitions of Hazardous Condition

- Legal: The presence of a structural condition, utility connection, or materials which constitutes or poses a recognized threat of fire or other injury to persons or property.
 - Legal: Conditions that are likely to cause death or serious personal injury.
 - Environmental: Any condition that material violates or threatens to materially violate, or that results in or threatens material noncompliance with, any Environmental Law.
 - Real Estate: The presence, discharge, disposal, storage, or release of any Hazardous Substance, in violation of Any Environmental Laws, on or in the improvements, air, soil, groundwater, surface water or soil vapor on or about the Property, or that migrates, flows, percolates, diffuses, or in any way moves onto or into the improvements, air, soil, groundwater, surface water or soil vapor on or about the Property, or from the Property into adjacent property.
- Iowa reporting: Any person manufacturing, storing, handling, transporting, or disposing of a hazardous substance must report any hazardous condition (actual, imminent, or probable spill, leak, or release of hazardous substance that creates an immediate or potential danger to the public health or safety or to the environment). Example conditions include hazardous substance that has the potential to leave the property; has the potential to reach waters of the state (surface or ground water); can be detected in the air at the boundary of the facility property by sight and smell or by monitoring equipment; has potential threat to the public health and safety; has local officials respond to the incident; or exceeds a federal RQ.
 - ▶ Hazardous Condition means any situation involving the actual, imminent or probable spillage, leakage, or release of a hazardous substance onto the land, into a water of the State or into the atmosphere which creates an immediate or potential danger to the public health or safety or to the environment.

CERCLA Definition of Hazardous Substance

■ Hazardous Substance

- Statutory definition at section 101(14) of the CERCLA Act of 1980 (42 USC 9601)
- Regulatory definition at CERCLA, 40 CFR 300.5
 - ▶ Any substance designated pursuant to section 311(b)(2)(A) of the Clean Water Act
 - ▶ Any element, compound, mixture, solution, or substance designated pursuant to section 102 of CERCLA;
 - ▶ Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act;
 - ▶ Any toxic pollutant listed under section 307(a) of the Clean Water Act;
 - ▶ Any hazardous air pollutant (HAP) listed under section 112 of the Clean Air Act; and
 - ▶ Any imminently hazardous chemical substance or mixture with respect to which EPA has taken action pursuant to section 7 of the Toxic Substances Control Act (TSCA).
 - ▶ Any substance designated to be reported if spilled or otherwise released to the environment.

■ Extremely Hazardous Substance (EHS)

- ▶ A substance listed in Appendices A and B of 40 CFR 355.

State Statutory Definitions of Hazardous Substance

- **Missouri:** 260.500 (5) "Hazardous substance", any substance or mixture of substances that presents a danger to the public health or safety or the environment and includes:
 - ▶ (a) Any hazardous waste identified or listed by the department pursuant to sections 260.350 to 260.430;
 - ▶ (b) Any element, compound, mixture, solution, or substance designated pursuant to Sections 101(14) and 102 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, and Section 302 of the Superfund Amendments and Reauthorization Act of 1986, as amended; and
 - ▶ (c) Any hazardous material designated by the Secretary of the United States Department of Transportation pursuant to the Hazardous Materials Transportation Act;
 - ▶ (d) "Hazardous substances" does not include radioactive materials, wastes, emissions or discharges that are licensed or regulated by laws of the federal government or of this state. However, such material released due to a transportation accident shall be considered a hazardous substance;
- **Kansas:** 65-3452a. Definition of hazardous substances. As used in this act, unless the context clearly requires otherwise, "hazardous substances" shall have the meaning ascribed to such term by section 101 of the comprehensive environmental response, compensation and liability act of 1980 of the United States as in effect on January 1, 1988.
- **Nebraska:** 126.1 (021) "Hazardous Substance" means any substance or mixture of substances other than oil and petroleum related products or radioactive substances which, when released into the environment, presents an imminent and substantial hazard to the public health or welfare, including but not limited to, fish, shellfish or other wildlife, and:
 - ▶ 021.01 Any substance designated pursuant to Chapter 4, 002 through 005 of the Rules and Regulations Governing Hazardous Waste Management in Nebraska;
 - ▶ 021.02 Any substance designated by the United States Environmental Protection Agency pursuant to Sections 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 or Section 329(3) of the Emergency Planning and Community Right-to-Know Act of 1986.
- **Iowa:** 455B.381 (5) "Hazardous Substance" means any substance or mixture of substance that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means. The following are examples of substances which, in sufficient quantity, may be hazardous: acids; alkalis; explosives; fertilizers; heavy metals such as chromium, arsenic, mercury, lead, and cadmium; industrial chemicals; paint thinners; paints; pesticides; petroleum products; poisons; radioactive materials; sludges; and organic solvents. "Hazardous substances" may include any hazardous waste identified or listed by the administrator of the United States Environmental Protection Agency under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, or any toxic pollutant listed under Section 307 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous substance designated under Section 311 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous material designated by the secretary of transportation under the Hazardous Materials Transportation Act (49 CFR 172.101)

What's On the Horizon?



PFAS – CERCLA Hazardous Substance

- **Final rule published 5/8/2024. Effective date 7/8/2024.**
- List of two PFAS chemicals as CERCLA hazardous substances.
 - ▶ PFOA, PFOS
 - ▶ Strict notification requirements for releases above reportable quantities
 - Currently RQ for 24 hours is one pound
 - ▶ Creates enforcement mechanism for agency to:
 - Order response and remediation, AND
 - Hold parties accountable for cleanup under CERCLA
 - ▶ Questions regarding opening of previously closed Superfund sites
 - ▶ Potential for entirely new Superfund sites
 - ▶ Forces US DOT to designate these PFAS chemical as “hazardous materials” under the hazardous material regulations
- Six additional PFAS chemicals under consideration for addition to this list

PFAS Hazardous Constituents

- **Proposed rule, 2/8/2024, PFAS Hazardous Constituent Rule**
- Adds 9 PFAS compounds to the RCRA list of hazardous constituents (including their salts and isomers)
 - ▶ Perfluorooctanoic acid (PFOA);
 - ▶ Perfluorooctanesulfonic acid (PFOS);
 - ▶ Perfluorobutanesulfonic acid, or PFBS;
 - ▶ Hexafluoropropylene oxide-dimer acid;
 - ▶ Perfluorononanoic acid;
 - ▶ Perfluorohexanesulfonic acid;
 - ▶ Perfluorodecanoic acid;
 - ▶ Perfluorohexanoic acid; and
 - ▶ Perfluorobutanoic acid.
- Increases responsibility of TSDFs for SWMUs where PFAS have been released
- Under RCRA, listing as a hazardous constituent is a first step to listing as a hazardous waste.

Hazardous Waste Corrective Action Rule

- **Proposed rule, 2/8/2024, Hazardous Waste Corrective Action Rule**
- Modifies the definition of hazardous waste applicable to corrective actions
 - ▶ Broadens the regulatory definition.
 - ▶ Clarifies that hazardous constituents are subject to corrective action, even for contaminants that have not yet been designated as hazardous wastes
 - ▶ Allows corrective action to be imposed for other emerging contaminants
- Can affect corrective action at any permitted hazardous waste TSDFs
- Likely to affect state-level corrective actions

- Extensive technical comments were submitted on the proposed rules. EPA has a lot of work ahead of them. Final rule publication date unknown
- If finalized, both rules will become effective **IMMEDIATELY IN ALL STATES** upon the effective date published in the final rule.

Questions?

