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DO YOU KNOW YOUR HAZ?
REVIEW OF OSHA/EPA/DOT HAZARDOUS REGULATIONS

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You have probably seen and used the word hazardous in reference to waste/masterial/constituent throughout your career, as well as had some form of hazardous [waste/masterial/constituent] training and have regulatory compliance programs entitled 'hazardous [waste/material/constituent].'

There are multiple definitions related to hazardous [waste/masterial/constituent] that cross through OSHA, EPA, and DOT regulations, and all of them are applicable to industrial painting contractors. This article will discuss the specific regulations and terms related to hazardous waste/masterial/constituent, and the primary training and program requirements.

APPLICABLE REGULATIONS

Regulations apply when the activity or materials meet definitions within the various standards. Unfortunately, each definition is slightly different in each of the potential applicable standards. Let us start with the regulations.

OSHA Hazard Communication (HAZCOM) 29 CFR 1910.1200

It is designed to ensure that workers have the right to know about hazardous chemicals they may encounter in the workplace. It applies to all U.S. workplaces that manufacture, import, or use hazardous chemicals, including manufacturers, construction contractors, facilities, and many other industries.

It requires:

- Hazardous chemicals must be classified according to their physical, health, and environmental hazards.
- Safety Data Sheets are developed and on site covering hazard information, safety precautions, and handling storage, disposal, and emergency measures.
- Written Hazard Communication Program:
  - Lists all hazardous chemicals in the workplace.
  - Specifies labeling and SDS requirements.
  - Outlines training procedures.
  - Details how workers can access hazard information
- Employee Training: Workers must be trained before exposure to understand:
  - The hazards of chemicals they may encounter.
  - How to manage, store, and use them safely.
  - How to respond to spills, leaks, or emergencies .

HAZCOM also covers communication of hazards in shared workspaces, ensuring all parties have access to relevant chemical information.

Materials meeting the definition of hazardous chemicals fall under OSHAs definition of a hazardous material.

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OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) 29 CFR 1910.120

HAZWOPER is intended to protect workers who participate in hazardous waste operations, emergency response, and cleanup activities related to hazardous substances. The regulations were developed with the U.S. EPA to ensure safety in environments where hazardous materials are present.

HAZWOPER applies to workers involved in the cleanup of hazardous waste sites, including superfund sites and other government-regulated cleanup operations.

HAZWOPER covers a wide range of hazardous substances, including those defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

HAZWOPER requires the following:

- Emergency response operations for hazardous substance releases, such as chemical spills, leaks, and explosions. Workers responding to these emergencies must be trained to handle hazardous materials safely.
- Specific training for workers based on their job roles and potential exposure to hazardous substances. There are various levels of training, including:
    - 40-hour training for workers directly involved in hazardous waste cleanup and emergency response.
    - 24-hour training for workers who may visit hazardous sites occasionally but have limited exposure.
    - 8-hour refresher courses to maintain compliance and ensure ongoing safety.
- Employer-implemented safety measures, including personal protective equipment (PPE), decontamination procedures, and medical surveillance for workers regularly exposed to hazardous substances.

OSHA HAZWOPER applies when the material meets the definition of a CERCLA, DOT, or RCRA hazardous substance or hazardous waste.

EPA Comprehensive Environmental Response and Liability Act (CERCLA) 40 CFR 302-305

CERCLA governs the release of hazardous substances and constituents to the environment and liability of entities that allow it. It prohibits any spilling, leaking, pumping, pouring, emitting, discharging, injecting, emitting, leaching, dumping, or disposing of hazardous substances from a facility into the environment.

CERLCA authorizes the EPA to force parties that are responsible / liable for the release of hazardous substances to finance cleanups on the contaminated sites.

CERCLA relies on Table 302.4 – List of Hazardous Substances and Reportable Quantities, RCRA, CWA, HAP to identify hazardous substances that fall under the regulation. It is over 50 pages long and includes lead and other metals, most solvent and coating components.

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory code†	RCRA waste No.	Final RQ pounds (Kg)
Benzene (D018)	N.A.	1,2,3,4	D018	10 (4.54)
Cadmium (D006)	N.A.	4	D006	10 (4.54)
Carbon tetrachloride (D019)	N.A.	1,2,4	D019	10 (4.54)
Chlordane (D020)	N.A.	1,2,4	D020	1 (0.454)
Chlorobenzene (D021)	N.A.	1,2,4	D021	100 (45.4)
Chloroform (D022)	N.A.	1,2,4	D022	10 (4.54)
Chromium (D007)	N.A.	4	D007	10 (4.54)
o-Cresol (D023)	N.A.	4	D023	100 (45.4)
m-Cresol (D024)	N.A.	4	D024	100 (45.4)
p-Cresol (D025)	N.A.	4	D025	100 (45.4)
Cresol (D026)	N.A.	4	D026	100 (45.4)
2,4-D (D016)	N.A.	1,4	D016	100 (45.4)
1,4-Dichlorobenzene (D027)	N.A.	1,2,4	D027	100 (45.4)
1,2-Dichloroethane (D028)	N.A.	1,2,4	D028	100 (45.4)
1,1-Dichloroethylene (D029)	N.A.	1,2,4	D029	100 (45.4)
2,4-Dinitrotoluene (D030)	N.A.	1,2,4	D030	10 (4.54)
Endrin (D012)	N.A.	1,4	D012	1 (0.454)
Heptachlor (and epoxide) (D031)	N.A.	1,2,4	D031	1 (0.454)
Hexachlorobenzene (D032)	N.A.	2,4	D032	10 (4.54)
Hexachlorobutadiene (D033)	N.A.	2,4	D033	1 (0.454)
Hexachloroethane (D034)	N.A.	2,4	D034	100 (45.4)
Lead (D008)	N.A.	4	D008	10 (4.54)

EPA Resource Conservation and Recovery Act 40 CFR 260-268

RCRA 40 CFR 260-268 which governs the identification, disposal and treatment of hazardous wastes and hazardous constituents under LDR.

RCRA involves multiple regulations for managing solid and hazardous waste encompassing 40 CFR 239-282.

- 40 CFR 260 – Hazardous Waste Management System: General
- 40 CFR 261 – Identification and Listing of Hazardous Waste
- 40 CFR 262 – Standards Applicable to Generators of Hazardous Waste
- 40 CFR 263 / 264 – Standards Applicable to Transporters of Hazardous Waste and Owners and Operators of Hazardous Waste Treatment, Storage, And Disposal Facilities
- 40 CFR 268 – Land Disposal Restrictions (LDR)

RCRA authorizes EPA to regulate hazardous waste "from cradle to grave," including Generation, Transportation, Treatment, Storage, and Disposal of hazardous waste.

RCRA 40 CFR 261 is used to identify hazardous waste. A waste is determined to be a hazardous waste if it is specifically listed on one of four lists (the F, K, P and U lists) or is a characteristic hazardous waste.

- F List: Hazardous waste from non-specific sources – including spent solvents
- K List: Hazardous waste from specific sources, process waste - wastewater treatment sludges

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- P List: Acutely toxic discarded commercial chemical products / manufacturing chemical intermediates
- U List: Systemically toxic; discarded commercial chemical products or manufacturing intermediates- toluene diisocyanate (TDI) wastes.

Characteristic waste is ignitable (e.g., solvents), reactive (e.g., combustible dust), corrosive (e.g., thinners) or toxic (one of 8 heavy metals) listed below.

TCLP Thresholds for Hazardous Waste		
Code	Heavy Metal	Allowable Limit
D004	Arsenic	5.0 mg/l
D005	Barium	100.0 mg/l
D006	Cadmium	1.0 mg/l
D007	Chromium	5.0 mg/l
D008	Lead	5.0 mg/l
D009	Mercury	0.2 mg/l
D010	Selenium	1.0 mg/l
D011	Silver	5.0 mg/l
Results based upon leachable metals		

Land Disposal Restrictions (LDRs) were established under updates to RCRA in 1984. LDR prohibits land disposal of untreated hazardous waste and require specific treatment standards before disposal when underlying hazardous constituents (UHC) exceed universal treatment standards (UST). The LDR applies to hazardous waste generators and treatment, storage, and disposal facilities.

- Subpart A: General provisions
- Subpart B: Schedules for prohibitions and treatment standards
- Subpart C: Prohibitions on land disposal
- Subpart D: Treatment standards
- Subpart E: Storage prohibitions

Key Prohibitions

- Disposal Prohibition: Hazardous waste cannot be land-disposed unless it meets EPA treatment standards.
- Dilution Prohibition: Waste cannot be diluted as a substitute for proper treatment.
- Storage Prohibition: Storage of hazardous waste is restricted unless for the purpose of accumulating quantities for proper treatment.

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There are multiple treatment standards in 40 CFR Part 268 based on the type of waste. Toxicity characteristic metal waste like lead fall under 268.34 and uses the UTS to identify underlying hazardous constituents (anything below toxic characteristic waste levels but at or above UTS).

Inorganic Constituents	Universal Treatment Standards
Arsenic	5.0 mg/l TCLP
Barium	21 mg/l TCLP
Cadmium	0.11 mg/l TCLP
Chromium (Total)	0.60 mg/l TCLP
Lead	0.75 mg/l TCLP
Mercury—All Others	0.025 mg/l TCLP
Selenium 7	5.7 mg/l TCLP
Silver	0.14 mg/l TCLP

DOT 49 CFR 171-180 Hazardous Materials Regulations (HMR)

The Hazardous Materials Regulations (HMR) govern the transportation of hazardous materials by all modes, including highway, rail, air, and vessel. The regulations apply to anyone who offers, transports, or causes hazardous materials to be transported, as well as those who manufacture or maintain packaging for such materials.

Shippers, carriers, and other parties involved in hazardous materials transportation, including Federal agencies and contractors who are considered “offerors” when shipping hazardous materials commercially fall under these regulations.

They must:

- Classify hazardous materials according to hazard class and packing group.
- Select and use appropriate packaging, including performance-tested UN or DOT-specification containers.
- Mark and label packages to indicate the presence and type of hazardous material.
- Prepare shipping papers with proper shipping name, UN identification number, hazard class, quantity, and emergency contact information.
- Provide emergency response information and ensure packages are in proper condition for transport.
- Segregate incompatible materials during transport and secure packages in freight containers or vehicles.

Compliance requires that all personnel involved in hazardous materials transportation receive proper training on classification, packaging, marking, labeling, and shipping documentation.

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HMR relies on the Hazardous Materials Table (172.101) to define hazardous materials.

Hazardous Materials Treatment Table (Sample)

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	PG	Label Codes	Special provisions (§ 172.102)	(8) Packaging (§ 173.***)			(9) Quantity limitations (see §§ 173.27 and 175.75)	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only
	Lead azide, wetted *with not less than 20 percent water or mixture of alcohol and water, by mass*	1.1A	UN0129		1.1A	111, 117	None	62	None	Forbidden	Forbidden
G	Lead compounds, soluble, n.o.s	6.1	UN2291	III	6.1	138, IB8, IP3, T1, TP33	153	213	240	100 kg	200 kg
	Lead cyanide	6.1	UN1620	II	6.1	IB8, IP2, IP4, T3,	153	212	242	25 kg	100 kg

APPLICABLE DEFINITIONS

As you can see, each regulation has unique and sometimes overlapping definitions. A summary of the applicable definitions of hazardous _____ is summarized below by regulation. If your waste meets the definition, you must comply with the applicable standards.

HAZARDOUS DEFINITIONS BY STANDARD

REGULATIONS / DEFINITIONS	Hazardous Material	Hazardous Substance	Hazardous Waste	Underlying Hazardous Constituent
OSHA HAZCOM	Chemical that is classified as a physical hazard or health hazard, asphyxiants, combustible dust, pyrophoric gas, or hazard not otherwise classified			
OSHA HAZWOPER 29 CFR 1910.120		Anything in CERCLA, DOT or RCRA	Anything defined by RCRA or DOT	
EPA CERCLA Table 302.4		Anything in Table 302.4, HAPs, Toxic Pollutants under CWA or RCRA		
RCRA **40 CFR 261**			Anything meeting RCRA listed or characteristic waste	
EPA LDR 40 CFR 268 UTS Table (268.48)				UHC is anything listed in the UTS
DOT HMTA Hazardous Materials Table (172.101)	Anything listed in the Hazardous Materials Table	Anything in the Hazardous Materials Table or > CERCLA RQ	Any material subject RCRA Manifest	
	Hazardous Material	**Hazardous Substance**	**Hazardous Waste**	**Underlying Hazardous Constituent (UHC)**
Applicable Regulations	HAZCOM and DOT	HAZCOM, HAZWOPER, CERCLA and DOT	HAZCOM, HAZWOPER, RCRA and DOT	HAZCOM, LDR
Examples of Materials	Old or new coatings, abrasives, fine or combustible dust, thermal spray materials, mixing and cleaning solvents, solvent residue, substrates (e.g., stainless steel), etc.			

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REGULATORY REQUIREMENTS

When triggered by the definitions above most of these standards include several common requirements such as:

- Evaluation of the hazard or waste (identification)
- Handling, storage, transportation, and disposal per applicable OSHA, DOT, and/or EPA regulations
- Clean-up of spills and releases
- Protection of workers

Training and program requirements differ significantly and are summarized on the tables below.

SUMMARY OF KEY TRAINING REQUIREMENTS BY REGULATION

REGULATION	HAZ COMM	HAZWOPER OSHA	Hazardous Waste RCRA (LQG)	Hazardous Waste DOT
CITATION	**29 CFR 1910.1200**	**29 CFR 1910.120**	**40 CFR 265**	**49 CFR 172.704(H)**
SCOPE (WHEN TRAINING IN REQUIRED)	All exposed employees	(5) If there is a response to a release or spill AND contractor will respond OR Areas used to treat, store, or dispose of hazardous waste	When hazardous waste is present	When hazardous materials are present
TRAINING CONTENT (Please see standards for details)	Training in applicable hazards, SDS, Labels, pictograms, health effects	Training in Safety, health, and other hazards present on the site; Use of personal protective equipment; Work practices; Safe use of engineering controls and equipment on the site; Medical surveillance requirements and the contents of the site safety and health plan	Training related to specific duties Initial hazardous waste management and emergency procedures for the wastes handled	Training in DOT materials, classes, labels, etc.
WHO IS REQUIRED TO BE TRAINED	All employees	GENERAL TRG for Personnel and alternates responsible for site safety and health	All employees of LQG and SQG handling hazardous wastes	Employees who load, unload, and handle hazardous materials; select, mark, label, or modify containers or packaging; prepare materials for shipping; prepare shipping papers; drivers.
		Employees involved in emergency response (p)8(iii) - First Responder (8 hours) respond in a defensive fashion without actually trying to stop the release - Haz Mat Tech/Specialist (24 hours) respond to releases or potential releases for the purpose of stopping the release. - On scene incident commander (24-40 hours) will assume control of the incident scene, Implements emergency programs	EPA EMERGENCY COORDINATOR Training on all aspects of the site's contingency plan, all operations and activities at the site, the location and characteristics of waste handled, the location of all records within the site, and the site layout. (Similar to HAZWOPER incident commander	
DURATION	No specific duration	See above	No specific duration	No specific duration
TRAINERS	Not defined	Have completed training course or have demonstrated training experience / SME	Competent	Not defined
TRAINING FREQUENCY	Initial & as hazards change	See above	Within 90 days of employment / annually	Initial /every 3 years

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Several of the regulations require written compliance programs addressing specific criteria.

REGULATION	HAZ COMM	HAZWOPER OSHA	Hazardous Waste RCRA (LQG)	Hazardous Waste DOT
PROGRAMS	Hazard Communication Program	Emergency Response Program	LQG full Preparedness, Prevention, Contingency Plan SQG partial	Not defined

CONCLUSIONS

They regulatory world of hazardous [waste/masterial/constituent] is broad and can involve multiple regulations, definitions, training, and programs depending upon the materials and processes being used. Review your current hazardous [waste/masterial/constituent] by reviewing safety data sheets for all materials including coatings, wire, abrasives, testing of existing coatings and generated wastes, etc.

Make sure your training and programs meet the applicable and evaluate the following:

- Are you training the right (required) people in the right topics? Management, general workers and emergency response personnel and Emergency Coordinators / Incident Commanders all may require different training, durations, and subject matter.
- Are you giving the right people sufficient training to meet their responsibilities and regulatory requirements?
- Are you meeting the duration and frequency requirements per applicable regulatory requirements?
- Do training providers or materials meet regulatory requirements?
- Are you documenting training and maintaining records per applicable regulatory requirements?

We work in a hazardous environment, know your hazardous [waste/masterial/constituent].

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