

A Comprehensive Guide to Hazardous Materials Management



Hazardous substances remain omnipresent in today's economy. After all, they were a driver of economic growth. And as a result, you'll find hazardous substances throughout the business landscape.



To limit the impact of these substances on the health and safety of workers, communities, and the environment, though, employers must comply with the hazardous materials regulations that are in place in their jurisdiction.

What's more, those frameworks tend to be multi-layered, consisting of international, federal/national, state, and/or local statutes. Employers will have to integrate the relevant regulations into their hazardous materials management system to be considered fully compliant. This piece addresses how to do it.

Classification of hazardous materials hazards

Employers must first understand what substances are considered hazardous. Essentially, these are substances that present physical, chemical, or biological hazards to people or the environment.

Beyond that definition, hazardous waste varies by type. Types can include the following:

-  Hazardous residues of waste material that may contaminate and persist in water and soil, i.e., sludge from re-refining used oil that contains a variety of contaminants.
-  Hazardous residues that are released into the atmosphere as products of combustion, i.e., dioxin.

The Basel Convention, which regulates the transboundary movement of hazardous waste, defines hazardous waste as waste that has any of the following characteristics:

-  Explosive
-  Flammable liquids/solids
-  Poisonous
-  Toxic
-  Etoxic
-  Infectious substances

Wastes that belong to the above category include the following:

-  Clinical wastes
-  Waste oils/water, hydrocarbons/water mixtures, emulsions
-  Wastes from the production, formulation and use of resins, latex, plasticizers, glues/adhesives
-  Wastes resulting from surface treatment of metals and plastics
-  Residues arising from industrial waste disposal operations
-  Wastes which contain certain compounds, such as copper, zinc, cadmium, mercury, lead, and asbestos
-  Household waste
-  Residues arising from the incineration of household waste

The regulation of these substances is likewise complex. In Australia, for instance, hazardous waste is waste that, by its characteristics, poses a threat or risk to public health, safety, or the environment.

The term corresponds to the following:



Wastes that cannot be imported or exported from Australia without a permit



Wastes that any jurisdiction regulates as requiring particularly high level of management and control



Additional wastes nominated as hazardous by the Government

Additionally, a hazard has a set of inherent properties that may cause adverse effects to organisms or the environment, examples of which include:



Health hazards. These are properties of a chemical that have the potential to cause adverse health effects. Exposure usually occurs through inhalation, skin contact, or ingestion. Adverse health effects can be acute (short term) or chronic (long term). Typical acute health effects include headaches, nausea or vomiting, and skin corrosion, while chronic health effects, include asthma, dermatitis, nerve damage, or cancer.



Physicochemical hazards. These are physical or chemical properties of the substance, mixture, or article that pose risks to workers other than health risks, as they do not occur because of the biological interaction of the chemical with people. They arise through inappropriate handling or use and can often result in injury to people and/or damage to property because of the intrinsic physical hazard. Examples of physicochemical hazards include the following, flammable, corrosive, explosive, chemically reactive and oxidizing chemicals.

Hazardous materials management plan

How then to deal with these substances? The best-practice approach to the control and management of hazardous materials is the hazardous materials management plan (HMMP).

A typical plan will lay out the proper use, handling, and storage practices and procedures to be followed by personnel working with hazardous materials.

That's not all, of course. Part communication plan, part description of hazardous materials management processes, a HMMP will often include the following sections:

- List of duties and responsibilities, particularly those of safety personnel
- Hazardous material labelling and other identification and awareness elements
- Specific protocols for hazardous materials handling and storage (More below)
- Hazardous material inventory
- List of relevant biological and radiological hazards
- Instructions regarding hazardous material procurement
- Measures to mitigate hazards, including engineering and administrative controls, personal protective equipment, hygiene and hazardous material safety, training, and other activities
- Emergency response protocols, including fire safety procedures, gas leaks, exposure evaluations, accident and near miss reporting, emergency evacuation, and more
- Waste management protocols
- Instructions for transportation, shipping, and receiving hazardous materials
- Relevant appendices, including a glossary of relevant terms, classifications of hazardous materials hazards, biosafety management manual, etc.

Hazardous materials management processes

One of the most important aspects of hazardous materials management is handling and storage. And so, HMMPs will often detail guidelines for handling and storage.

These guidelines vary depending on the hazardous substances in question. Generic guidelines, though, include the following:

- Hazardous materials must be stored in secured areas, i.e., not accessible to the public.
- Highly toxic and reactive materials need additional means of security such as lockable cabinets.
- Read hazardous material labels for specific storage instructions.
- Store hazardous materials in a well-ventilated area; however, do not store hazardous materials in a fume hood.
- Label all new material with the date in which it was received and the date in which it was opened. This will help prevent the accumulation of outdated hazardous materials and ensure that older hazardous materials are used first.
- Maintain an inventory of all hazardous materials in storage, preferably in digital form in a safety management software platform
- Promptly discard outdated hazardous materials or hazardous materials no longer needed by the laboratory/unit.
- Return hazardous material containers to their proper storage location after use.

Finally, multiple jurisdictions are moving to strengthen their work health and safety regimes regarding hazardous substances in the workplace.

Employers, in their turn, must remain proactive to mitigate the threats posed by hazardous waste as well as remain in compliance with these evolving regulations.

Adopting best-practice hazardous materials management protocols, such as the many endorsed here, can only help firms mitigate risk, reduce cost, reach compliance, and ultimately achieve a competitive advantage in their industries.

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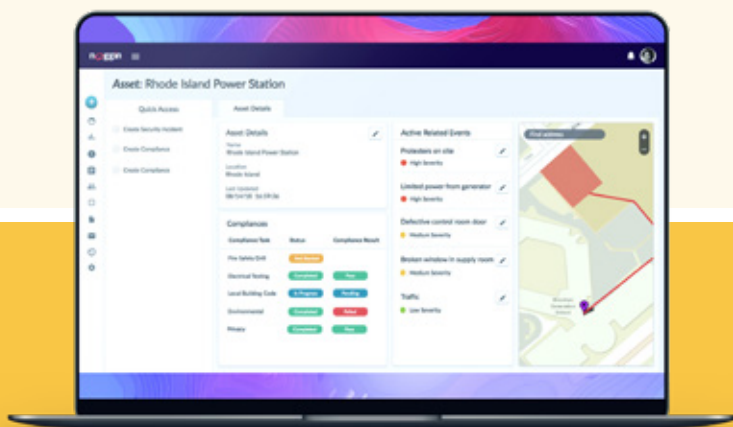
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