

The Buyer's Guide

Hazardous Waste Management Services



Hazardous Waste Management Services

Hazardous waste is any form of discarded materials that could present a threat to human health or the environment, if it exists in high enough quantities or concentrations. Matter that is in any way flammable, corrosive, explosive, toxic, or which may be contaminated by blood, bodily fluids or potentially infectious pathogens, is heavily regulated and can't be disposed of in the same way as everyday garbage.

Three sectors that generate high quantities of hazardous waste are the medical, pharmaceutical and industrial sectors. These each have independent characteristics, which results in the need for specific handling and disposal of waste, depending on its origin and properties.

This guide aims to clearly outline the separate aspects of these common types of hazardous waste management. It is intended to help people responsible for disposal of the waste to evaluate a partnership with a hazardous waste management vendor.

**Which of the following types of waste generation
best applies to your organization?**

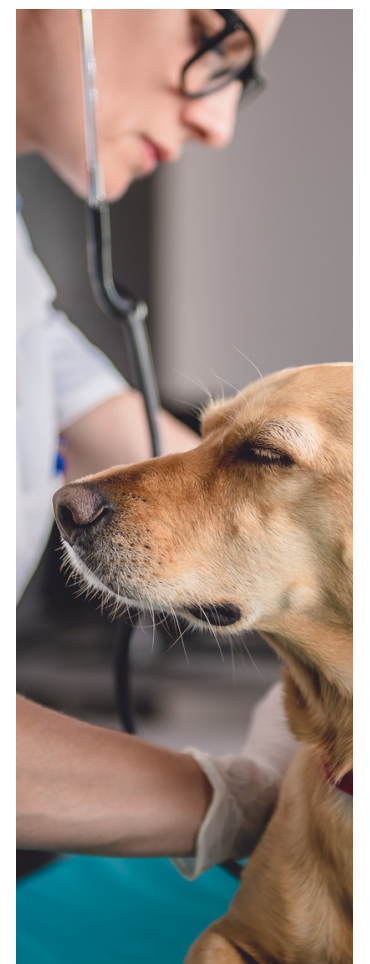
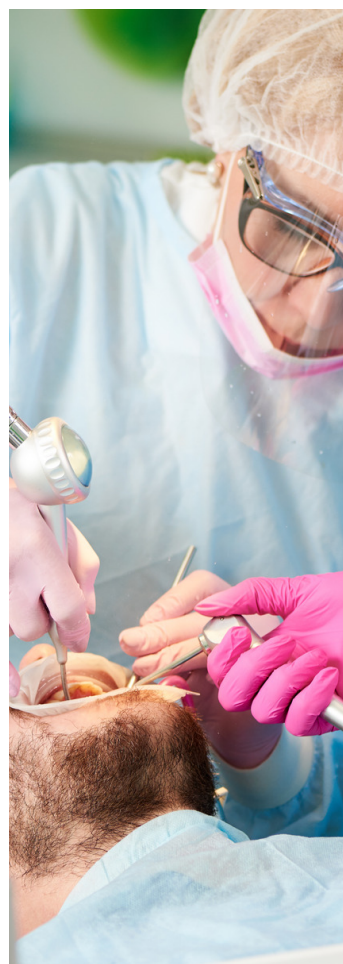
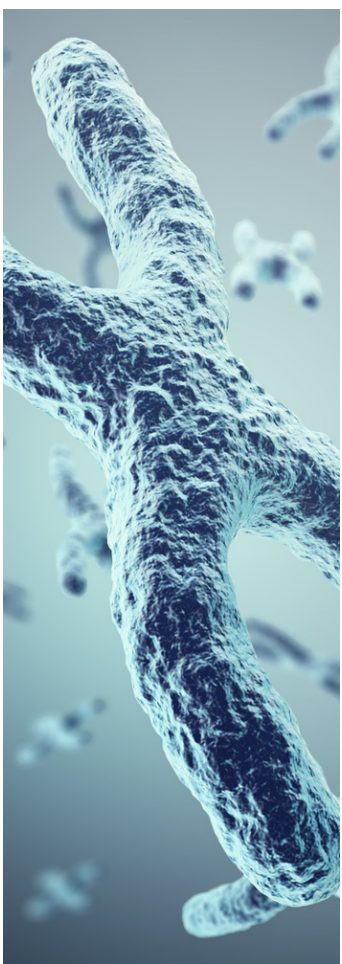
Medical, Pharmaceutical or Industrial?

Medical Waste

The medical sector comprises a multitude of different sources of waste, all of which have unique reasons for requiring careful handling:

- Dental practices and clinics
- Dental laboratories
- Veterinary practices, hospitals, and clinics
- Primary care practices
- Outpatient clinics and surgeries
- Hospitals
- Rehabilitation and long-term care centers
- Blood banks
- Funeral homes
- Tattoo parlors

Although not strictly medical by nature, the last two sources have as much need for the disposal of similar types of waste as the medical institutions. Three of the four following types of waste commonly associated with the medical sector are found in funeral homes and tattoo parlors.



4 Common Types of Medical Waste

1. Biohazardous waste, such as blood, blood products, body fluid spill cleanup materials, dialyzers and tubing, saturated or soiled disposable items, small pathology waste, tissues, and anything contaminated with biohazardous waste that is not classified as sharps.
2. Contaminated sharps, such as blades, broken glass, glass pipettes, microscope slides, needles, razors, scalpels, staples, syringes, tubes, wires, and any contaminated item that is sharp and could puncture a bag.
3. Pathology and anatomy waste, including tissue samples from tests and biological matter removed during surgery are examples of pathology waste. Anything that was once a part of an animal or a human goes into this category. These types of waste should be packaged and labeled for incineration.
4. Biological waste, which is typically generated in laboratory environments. This includes items such as bacteria cultures, live and attenuated vaccines, culture dishes, and any devices that come in contact with such waste.

Pharmaceutical Waste



While pharmaceutical manufacturers naturally churn out large quantities of waste, many companies outsource the packaging and distribution to others. In addition, institutions that generate medical waste often also produce pharmaceutical waste, which typically falls into one of three categories:

#1: Listed Pharmaceutical Waste

Listed waste is contained in one of four hazardous waste lists produced by the Resource Conservation and Recovery Act (RCRA). Three of these are the P-list, the U-list, and the D-list. The P-list and the U-list apply to hazardous pharmaceuticals, such as those that include commercial chemical products. The D-list includes waste products that are not strictly pharmaceutical, but have hazardous properties that make them flammable, corrosive, toxic, or highly reactive

Controlled (Schedule II-V) and non-controlled pharmaceutical waste types present serious challenges to health and safety, and they can result in misuse and abuse if they fall into the wrong hands. When these items are flushed into the sewage or disposed of in landfills, they can cause harm to the environment through being dissolved in water and then consumed by livestock and plants.



#2: Chemotherapy Waste

Chemotherapy waste is technically a type of pharmaceutical waste, which is listed as a single category for legal purposes. The medical disposal industry breaks it into two sub-categories, however, which are:

- Bulk chemotherapy waste: This category includes any material that is a characteristic waste, listed, and still contains more than 3% by weight of the regulated ingredient. Examples include IV bags leftover after treatment and materials used to clean up chemotherapy spills.
- Trace chemotherapy waste: This category includes intact and unused EPA "listed" or "characteristic" chemotherapy waste that is less than 3% by weight of the ingredient (RCRA Empty). It also consists of any items that come into contact with hazardous substances, such as rubber gloves and gowns.

#3: Controlled Substance Waste

Controlled substances are divided into five schedules that are determined by the Drug Enforcement Administration (DEA). To be properly discarded, the substances must be “destroyed beyond reclamation” with two healthcare professionals documenting the process. Incineration is the preferred choice for this task.

Disposal of controlled substances is tightly regulated, regardless of their hazardous qualities under RCRA. If they are not destroyed securely, the originator risks DEA legal action or fines, and you could lose your license or damage your reputation.



Industrial Waste

This is potentially harmful waste generated by manufacturing or industrial processes, such as scrap metals, oil, solvents, chemicals, and similar wastes. Hazardous industrial waste may result from manufacturing or other processes, including commercial activities such as cleaning, painting and pest control.

A Closer Look At Industrial Waste

Common industrial waste byproducts to consider include a variety of things, several of the most common will be briefly explored here.

Land-clearing, which involves wrecking and demolition, often produces ignitable or toxic wreckage and debris, including lead piping. Heavy construction often results in asphalt wastes, used oil, and petroleum distillates. Asphalt is often recycled.

Carpentry can result in acetone adhesive waste-products, coatings, methylene chloride, methylethyl ketone (MEK), methylisobutyl ketone (MIK), solvents, treated wood, toluene, mineral spirits, trichlorethylene, and xylene.

It's a bit surprising how much waste is generated from paint preparation and application. Acetone chlorobenzene, methanol, MEK, glazes, general paint, chloride, petroleum distillates, pigments, stripping compounds, solvents, wastewater, and toluene are common industrial waste products from paint. There's a lot of crossover with carpentry.



Industrial Waste

When it comes to industrial electroplating, there are many waste-waters that are generated, and these waters can be recycled. Metal salts additionally develop, and there are in-process recycling methodologies. Off-site recycling is also an option.

There are hundreds of examples of industrial waste generated by countless manufacturing processes in use on a regular basis. Managing the disposal of this waste is a big responsibility since each type of waste may be impacted by a variety of rules and regulations.

Transportation of waste materials can be difficult and costly for companies, prompting them to seek more effective means of disposal. This is an issue most industrial sectors face in some capacity--even educational and vocational shops generate ignitable wastes, solvents, acids, and paint waste. Having industrial waste management protocols in place beforehand makes a lot of sense. Management, disposal, recycling, and disposition services can be key for EPA-compliant industrial waste management.



What You Should Know About Hazardous Waste

Facilities that generate hazardous waste are held accountable for all their waste, from the time it's generated until it has been completely disposed of in a manner that complies with EPA requirements.

Hazardous Waste Considerations

One of the most difficult components of managing hazardous waste involves identifying whether compounds generated through industrial production fall into this category.

Under RCRA (Resource Conservation and Recovery Act), a small amount of wastes are of the "hazmat" variety. There's a "mixture rule" under RCRA pertaining to varying liquid and solid wastes. It says that anything listed as a hazardous material mixed with a non-hazardous material that's solid is still hazardous. Meanwhile, under the "derived from" rule, waste which comes either from storage, disposal, or treatment of varying hazmat compounds is still hazardous waste.

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Hazardous Waste

Certain compounds and their management are covered under "listed waste" categories. Any waste matching listed waste descriptions in terms of hazardous materials will always be included under such listing. It doesn't matter how it's treated after the fact, RCRA will yet define it as hazardous. In a nutshell, if normal industrial waste comes in contact with listed hazmat compounds, the normal industrial waste is also considered a hazardous material.

Characteristic hazardous wastes are defined by ignitability, corrosivity, toxicity, and reactivity. Any industrial waste exhibiting these characteristics is hazardous. There are exemptions to mixture rules and derived-from rules, these will generally be quite specific.

In terms of solid hazardous waste, those materials included under this definition are solids that are no longer useful for original intended purposes and will be discarded, and solids that must be processed or reclaimed prior to reuse. Such wastes can actually be "liquids" or "semi-solids". They might contain gases. The term "solid waste" doesn't necessarily refer to physical states. It can be interchangeable for any waste, liquid or solid.

There are exclusions. Domestic sewage and industrial wastewater discharges are generally excluded. Presently there are 19 exclusions under EPA or Congressional rules. Regulations, non-existent data, regulation impracticality, public policy, and economic impact have resulted in certain exclusions. Management, disposal, recycling, and disposition services are fundamental in classification and handling of such materials.

Waste Disposal Regulations

EPA regulations state that “cradle to the grave” legislation of the Resource Conservation and Recovery Act (RCRA) gives the EPA control over hazardous waste from the start to the end. You are required to use approved and permitted companies and methods of disposal to transport and treat the waste. Every company or individual handling the waste from start to finish is required to complete documentation to maintain the chain of custody, until the waste reaches the end of its viable lifespan.



Your Liability

The liability for safe disposal of all hazardous waste stays with the originator until the end of the lifecycle, regardless of whether you use a waste removal company or handle it in-house. To comply with regulations, you need to have complete control over the method you use, whether the final resting place is a landfill or a permanent storage facility.

Improper disposal of the waste can present a serious risk to anyone who comes in contact with it, which includes the workers in the waste disposal and recycling facilities. In the past, companies have had to pay large fines on occasion for failing to manage their waste properly and lawfully.

Legislation and penalties aren't the only reasons why disposing of your hazardous waste safely is important, though. For example, healthcare facilities typically aim to provide healing, so it's important for them to avoid actions that could cause harm to people. If your hazardous waste isn't suitably protected and it ends up becoming accessible to people or animals, you could find your company facing problems that require exceptional legal expertise to overcome.

Approved Methods of Disposal

Seven primary methods are used to achieve cradle-to-grave disposal of hazardous waste in the U.S.:

1. **Incineration**, which is when hazardous waste is burned in a controlled environment using an incinerator specifically designed for this purpose. This is a good waste treatment technology that applies varying levels of heat depending on the type of waste. Incineration kills even hardy pathogens by breaking them down into harmless organic materials, which vastly reduces the quantity of waste that goes into landfills.
2. **Autoclaving**. This method uses a type of pressure cooker, which has sealed mechanical chambers in which items like surgical instruments and contaminated sharps are sterilized to kill all micro-organisms and their spores. Once sterile, the items are disposed of as standard solid waste.
3. **Mechanical processing**, during which waste is sorted using an automated mechanical system. Recyclable materials such as glass, plastic and some metals are removed, stabilized then disposed of. Solid waste items are ground down and then added to liquid chemicals for microwaving or incineration.
4. **Chemical disinfection**, which uses agents such as chlorine to disinfect liquid waste and ground-down solid waste. The liquids are then disposed of through sewer systems, and the residual solid waste that remains is sent to landfills.
5. **Microwaving**. This method uses radiation to inactivate biohazardous materials containing moisture. It requires less energy consumption than other methods, and is viable even for solid waste that is mechanically ground down. Water is added if the overall product is too dry for microwaving.
6. **Irradiation**, which is the use of gamma rays and electron beams such as those employed in cancer radiation treatments. These are fatal to bacteria, so the treatment of infectious waste with radioactive isotopes of cobalt renders it harmless enough to dispose of in landfills or other means.
7. **Vitrification**, which combines the waste or waste residue with chemicals in a furnace to convert it into molten liquid. The liquid is poured into canisters and solidifies after cooling, causing the pathogens in the waste to become stabilized. These canisters are then stored indefinitely in secure areas.

Getting rid of your hazardous medical, pharmaceutical or industrial waste is a challenging process, and any mistakes can have serious repercussions. For this reason, many companies prefer to outsource their waste management operation to approved, accredited service providers.

Why Use a Hazardous Waste Management Vendor?

Managing hazardous waste is a necessary part of business, and it is not a process to take lightly. Medical and associated sectors are the largest generators of hazardous waste, with more than two-thirds of each year's 400 million tons of waste coming from medically-related organizations. Inappropriate disposal can violate state and federal laws, as well as cause serious health and environmental risks.

Proper waste management reduces these risk factors and promotes a safe, healthy work environment that enhances your company's performance and profitability. Here are the top reasons to use a vendor to handle your hazardous waste:

Risk Mitigation

Mitigating your company's risk for liability is a primary factor in outsourcing your hazardous waste management operations. While you still retain a portion of the risk due to the "cradle-to-grave" policy, an approved vendor will begin by auditing your existing waste handling methods and implementing best practices in their place.

Better Compliance

Since non-compliance carries a high price tag, it's best to ensure you toe the line when it comes to waste management regulations. This applies to every person handling your waste, but a professional vendor will not only take on the responsibility for treatment and disposal, but will train your staff to be stakeholders in the waste management process.

Less Stress

More compliance and less risk simply have to make your job less stressful, and a hazardous waste management company will work closely with you to develop a medical waste service plan that meets your needs and notably lowers your compliance risk. You'll also be able to manage your time better, because most reputable companies have professional, dependable drivers.

Scheduling Flexibility

Few things in life are certain, and even though you have a routine for everything in your company including waste collection, there are times when everything doesn't go according to plan. That's when you need to be able to arrange flexible scheduling, so you can meet the requirements for getting rid of waste even when you're in a pinch.

Why Use a Hazardous Waste Management Vendor?

Stress-Free Operations

Whether you're transitioning to a new service provider or dealing with ongoing daily waste management operations, having a reliable and approved vendor handle your hazardous waste can help you achieve stress-free and painless management of high volumes. You no longer need to recruit or manage employees to handle your waste management, and you can eliminate the risks of having someone less qualified overseeing the process.

Cost Savings

Cost management is an essential factor in every business, and a waste management vendor has the expertise to keep your company compliant at a lower cost than you would be able to achieve. By delivering a one-stop environmental solution, vendors can reduce your risk of non-compliance and the hefty EPA fines that accompany it.

A waste management vendor can take charge of your overall waste inventory, profile and segregate it, prepare it for incineration and shipment, and dispose of it--leaving you to enjoy the cost savings, convenience and security of knowing it has been competently managed.

Service Level Agreements

Any waste management vendor with whom you enter into a contract should provide you with a detailed service level agreement (SLA) outlining all aspects of the services.

Service level agreements are an important factor in ongoing customer satisfaction and retention, and a safety net of accountability that reputable waste management companies offer to their clients. They consist of mutually agreed terms to ensure the services meet particular thresholds such as performance and responsiveness. A comprehensive SLA strengthens the customer's relationship with a waste management vendor at its core, which leads to reduced operational issues and improved profitability.

Service Level Agreements

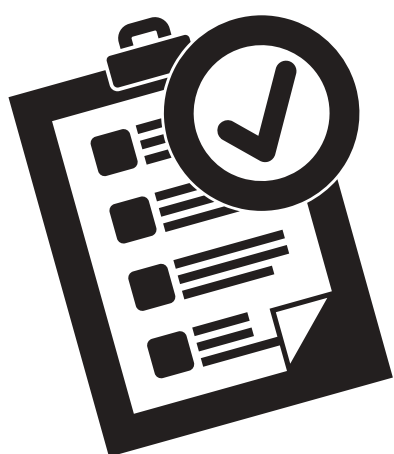
Some of the ways SLAs achieve this include:

- A detailed timeframe for customer liaison and contact. This helps to prevent customers from feeling as if they have been forgotten, or being penalized for non-performance.
- Defined communication boundaries, which empowers both sides during times of difficult conversations. An SLA is key in reaffirming communication guidelines, which increases productivity and staff morale.
- Performance monitoring, which is vital for the ongoing goodwill of clients.

The quality of your vendor's SLA can make or break the deal, particularly if you've experienced poor service delivery in the past.

The Take-Away

Dealing with hazardous waste of any type can be challenging and potentially costly. Companies in the medical, pharmaceutical and industrial sectors can now enjoy all the benefits of having their waste documented, treated, packaged and disposed of professionally in compliance with applicable legislation in their state. By choosing the right waste management vendor, businesses can achieve significant cost savings while managing their risk and reducing their liability.



Use the checklist that follows to help you identify a hazardous waste management company that is a perfect fit for your needs.

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A Checklist for Choosing A Waste Management Company

Here are key criteria you can use to help you examine available waste management services:

- ☐ Comprehensive documentation of practices for handling the different types of waste. This includes stating clearly their timeline for packaging, treatment, transport, and disposal of your waste, so you know exactly what your risk profile is.
- ☐ A strong local presence, which ensures knowledge of legal procedures in your area and compliance with regulations that apply in your region. This may also mean conveniently-located treatment facilities, which reduces the distance your waste is transported. This gives you more control over your risk level and improves environmental sustainability.
- ☐ A detailed cost structure without any hidden costs, which is flexible enough to meet your budgetary conditions.
- ☐ Experience in the challenges of your particular industry, a comprehensive service level agreement that includes all your requirements and a pick-up schedule compatible with your needs based on the type of waste you generate, the amount of secure storage you have available, and your resources for packaging it
- ☐ Strong customer service orientation and an on-call option for unforeseen or emergency circumstances.
- ☐ Training for your employees on how to deal with hazardous waste at the point of generation.
- ☐ Provides you with a detailed service level agreement (SLA) outlining all aspects of the services.
- ☐ The waste management process your vendor should follow depends on the type of waste to be removed. Can they provide you with a streamlined workflow?

An example of a streamlined workflow includes:

- Creating waste profiles for each material to determine the waste disposal stream, which is required in order to know how to handle the waste material, as well as the method of destruction as per state and EPA regulations.
- Developing segregation flow charts of the waste materials, which helps the generator properly package and prepare for shipping as per D.O.T. guidelines.
- Handling all logistics and providing all documents for the waste to move from the generator's facility.
- Scheduling and preparing all manifest and pre-ship certification documents needed to get the waste into the incineration facility.
- Handling any issues that may arise with the disposal facility.
- Ensuring the generator receives all documents and certificates of destruction pertaining to their waste.

A Checklist for Choosing A Waste Management Company

Additional Waste Management Solutions to explore

Are there options for bundled service packages, or other custom solutions available to you? Here are several you might want to look for:

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 Lab Packs

Lab Packs and Bulk Waste. Both are considered hazardous waste, but bulk waste would consist of one or more containers of a particular waste stream while lab packs are large quantities of more than one small-volume waste streams. For example, a university lab has an inventory of small volumes of 200 different chemicals used for testing (i.e. 10oz., 1 liter, 100gm, 1g). When the lab needs to clean out old product due to expiration dates or for other reasons, they would provide their waste management vendor with an inventory list showing the quantities of each chemical, whether it is a solid, liquid or powders, and the container type for each one.

A hazardous waste vendor can determine how each chemical must be overpacked, based on its hazardous content. Flammables are packed together, corrosives are grouped by whether they are base or caustics, toxics by organic or inorganic, oxidizers, etc.

The vendor creates a packing list indicating which chemical products can be packed together for shipping. A representative comes on-site and packages this hazardous waste according to the packing list, preparing it to be safely transported to the disposal site. These steps are necessary wherever the generating company does not have a certified RCRA hazardous waste management person to do so, because the TSDF will not accept waste into their facility without certification.

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 A Sharps Management Program

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