TRIUMVIRATE ENVIRONMENTAL

End-Of-Life **Waste Stream Processing**



Facilities across niches generate a lot of diverse waste streams—each of which requires different technology for safe, efficient, and compliant disposal. Any good waste disposal partner will utilize varied techniques to process waste in a way that best suits the waste stream and the client. Here, we will explore these different technologies in detail to give a clear view of how waste is processed within each.

Incineration

During incineration, drums filled with waste are fed into a high-temperature kiln, typically burning between 1,700 and 2,000 °F. This burning results in an almost 80-90% reduction in waste volume. Leftover ash from this process is treated to meet Resource Conservation and Recovery Act (RCRA) standards and then sent to a hazardous waste landfill. Not all waste can be burned, per RCRA regulations. On top of this, not all waste burns well or is a good candidate for incineration.

Landfill

Landfills are simply that—they fill the land with generated waste. There are two types of landfills: a RCRA Subtitle C landfill is used for hazardous waste, and a RCRA Subtitle D landfill is used to hold non-hazardous waste. Material is typically shredded, crushed, or solidified before being placed in the landfill to make best use of the allocated landfill space. Landfills are required to maintain strict Environmental Protection Agency (EPA) pollution control standards.

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Waste-to-Energy

Waste-to-Energy (WtE) utilizes incineration processes to produce steam, which will then power turbines and create electricity. Waste is burned at a lower temperature than in traditional incinerators, which promotes steam production. This process results in about 50-60% waste reduction, and any remaining material after incineration is sent to the landfill.

Recycling

Traditional recycling is typically reserved for universal waste (UW)—things like batteries, light bulbs, and aerosols. The different materials are extracted from these wastes; usable product (like metals) are turned into new products, while spent materials are disposed of individually according to the regulations and requirements for their treatment and disposal. Triumvirate Environmental is also able to recycle contaminated lab plastics (CLPs) and regulated medical waste (RMW). Our proprietary process decontaminates, shreds, and otherwise processes lab and industry plastic waste, then combines to meet a specific plastic polymer mix. Then, when the mix is perfect, the plastic is extruded as plastic lumber boards for reuse.

Fuel Blending

Fuel blending is a form of recycling that turns hazardous waste into an alternative fuel source. Waste chemicals and solvents are used to power processes that would otherwise rely on natural gas or other traditional fuel forms. Waste fuels are blended with other waste fuels to create a new substance with specific characteristics and properties that make it ideal for high-temperature burning. This new fuel, made entirely of waste chemicals and solvents, is then used to power operations. A common example is cement kilns—the high BTU burning potential of the alternative fuel is perfect to heat up these large (and hot!) facilities.

Treatment/Stabilization

Treatment/stabilization is most commonly used with inorganic acid and caustic waste, as well as RCRA-regulated metals. These wastes are treated to RCRA standards then mixed in a solution that stabilizes it—turning it from a liquid to more of a sludge or solid. This stabilized material is then sent to a hazardous waste landfill. Treatment/stabilization can also be used as a wastewater treatment technology. For wastewater treatment, this often means material neutralization and solids removal, after which the wastewater can be disposed of by landfill, WtE, or recycling technologies.

