

## **Assessment Resource Guide:**

### *Monitoring & Recording*

### *Hazardous & Non-Hazardous Waste*

#### **What's in this Guide?**

- I. Definition: What is Hazardous & Non-Hazardous Waste
- II. Methods for Disposal: Non-Hazardous Waste
- III. Methods for Storage and Disposal: Hazardous Waste
- IV. Additional Resources

#### **I. Definition: What is Hazardous and Non-Hazardous Waste?**

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The Basel Convention's international standard refers to wastes as substances or objects which are disposed of or are intended to be disposed of.

**A hazardous waste** is a waste that poses substantial or potential threats to public health or the environment<sup>1</sup>. Hazardous wastes are more explicitly defined as wastes with certain characteristics prescribed by Annex III to the Basel Convention<sup>2</sup>. (Radioactive wastes and wastes from ships are excluded from the scope of the convention.) These characteristics include substances that are:

- Explosive
- Flammable
- Poisonous
- Toxic
- Ecotoxic
- Infectious

A list of specific hazardous waste categories to be controlled can be found in Annex I to the Basel Convention: <http://archive.basel.int/pub/annexes.pdf>.

Common hazardous wastes include acids, disinfectants, glues, heavy metals, paint, pesticides, petroleum products, solvents, batteries and other electronic products. All hazardous materials are required to be labeled as such by the manufacturer so that they can be easily identified by final users of the product.

**Non-Hazardous wastes** include all other wastes that do not fit the definition of hazardous wastes.

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<sup>1</sup> <http://inece.org/topics/chemicals/hazardous-waste/>

<sup>2</sup> <http://archive.basel.int/text/con-e.pdf>

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#### **II. Methods for Disposal: Non-Hazardous Waste**

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Before discarding used materials, consider whether they can be reused in any way. If the used materials can be safely and effectively repurposed, this will decrease the company's total waste levels and conserve resources while saving money.

If a product cannot be reused or repurposed, the key to sustainable waste disposal lies in separating waste into these categories:

- **Hazardous Wastes:** As defined in Part I
- **Recyclables:** A recyclable is any material that can be recycled. Recycling is the reprocessing of materials into new products, which generally prevents the waste of potentially useful materials, reduces the consumption of raw materials, lowers energy usage and decreases greenhouse gas emissions compared to virgin production<sup>3</sup>.
- **Compostables:** A compostable is any material that can be used to create compost. Compost is the natural byproduct of decomposition, whereby natural systems break down organic matter – including both animal and plant materials – into a rich, dark brown material that nourishes soil and aids in growing strong, healthy plants and foods. This process is nature's way of recycling organic waste, and requires carbon and nitrogen ingredients that can be provided through compostable materials<sup>4</sup>.
- **Residual Waste:** Any non-hazardous waste that cannot be recycled or composted

#### **Step 1: Remove Hazardous Wastes**

Since hazardous wastes require specific treatment for disposal, it is important to keep them segregated from non-hazardous wastes. Part III provides details on internationally-accepted safe methods for the storage and disposal of hazardous waste.

#### **Step 2: Recycle and Compost**

Of all non-hazardous waste, a company should identify any materials that can be recycled or composted. Recycling and composting allow discarded materials to be used as inputs into newly manufactured products or productive organic material, respectively. By contributing such inputs,

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<sup>3</sup> <http://iris.thegiin.org/glossary/1#letterr>

<sup>4</sup> <http://www.ecolife.com/define/compost.html>

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the total amount of waste that must ultimately be disposed of through less-sustainable methods such as incineration and landfill can be reduced.

Recycling and composting often provide economic benefits, whether through decreased fees for garbage disposal or monetary incentives provided by governments or companies that reuse recyclables or compostables.

Below is a list of common materials that can be recycled or composted.

**Tip:** Create designated bins for recyclables and/or compostables and place them throughout the workplace in accessible locations to ensure that waste is sorted at the source as it is created.

For more best practices in recycling, please refer to “GIIRS EM Resource Guide: Workplace Recycling Guide”.

Common Recyclable Materials <sup>5</sup>	Common Compostable Materials <sup>6</sup>
Steel	Fruit and Vegetable Scraps
Other Metals (aluminum, copper, lead, zinc, nickel, titanium, cobalt)	Coffee grounds
Paper	Eggshells and Nutshells
Textiles	Wood ashes and Sawdust
Plastics	Livestock manure
Tires	Hair clippings and Feathers
Stainless Steel	Straw

Agricultural or food service company with high levels of organic waste that can be composted, may consider composting on-site. The following resources provide an overview of the process requirements:

<http://www.compost-info-guide.com/browns.htm>

<http://www.epa.gov/osw/conservation/materials/organics/food/fd-compost.htm>

#### **Case Study: Fetzer Vineyards**

Fetzer Vineyards, a worldwide producer and marketer of fine wines, reduced its waste by 86 percent in 3 years through reuse of materials, recycling and composting. Results include:

- 10,000 tons of grape seeds and stems composted each year
- 13.5 tons of plastic shrink wrap recycled each year
- 1.5 million pounds of solid waste diverted from landfill
- \$50,000 saved in disposal fees

<sup>5</sup> <http://www.bir.org/>

<sup>6</sup> <http://www.dep.state.pa.us/dep/deputate/airwaste/wm/recycle/facts/compost.htm>

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#### **Step 3: Use a Local Provider of Waste Disposal Services**

Once left with only materials that can be neither recycled nor composted, it is important to ensure that the remaining waste is disposed of through a municipal or certified third-party waste management system. Many large cities and towns will provide municipal trash pickup. If such a service is not available, a company can search locally for certified providers available privately.

Non-certified parties may be disposing of waste through processes such as incineration or landfill, which can be harmful to public health and the environment if not carefully controlled and approved by third parties. Municipal and certified providers ensure that proper regulatory and environmental protocols are followed, and that waste is ultimately disposed of at safe and controlled locations.

If a company is located in a rural area without a certified provider, it can identify the nearest town with a municipal or certified provider. It may be possible to make arrangements for periodic pickup or drop-off.

#### **III. Methods for Storage and Disposal: Hazardous Waste**

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If a company uses hazardous materials, proper precautions must be taken in the storage and disposal of these materials. Many common materials, such as paint, fertilizer and other chemicals, are considered hazardous. If such materials are not stored and disposed of properly, they could create health risks for employees, the community or the public at large.

Any hazardous materials purchased should include a **Material Safety Data Sheet (MSDS)**, otherwise known as a Safety Data Sheet (SDS) or Product Safety Data Sheet (PSDS). By mandate of the World Health Organization's Inter-Organization Programme for the Sound Management of Chemicals (IOMC), all manufacturers of hazardous materials are required to provide a MSDS so that end users can treat the materials properly.

If an MSDS is unavailable for a hazardous material that a business has on site, manufacturer should be able to provide a copy or it may be available on the online MSDS catalog for common products and chemicals: [http://msdscatalogservice.com/MSDS Sheets Free.html](http://msdscatalogservice.com/MSDS_Sheets_Free.html)

MSDS sheets tell if the material is in fact hazardous, as well as provide critical information on the specific hazard, how to store the material, and how to prevent and handle unintended exposure to the material. These sheets should be made readily available to all employees who come into contact with hazardous materials.

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**If a company uses hazardous materials on site, the below guidelines should be followed for as long as the materials are present on the premises:**

- Employees should be trained in the storage and disposal of hazardous materials. A manual for the storage and disposal of wastes should be available in the local language.
- Materials should be stored in sealed containers, in appropriate temperatures, and separate from regular business activities. They should be monitored once a week to ensure no spillage or damage to the container.
- Materials should be labeled with the following<sup>7</sup> (which can be found on the MSDS):
  - Standardized pictograms and/or words indicating the type of hazard
  - Product identifier disclosing the chemical identity of the substance
  - Precautionary statements covering prevention, response in case of exposure, storage and disposal
  - All words written in the language understood by employees and handlers
- Materials stored should be recorded and documented. The records should be reviewed periodically to identify trends in the use of hazardous materials on site and potential ways to reduce the level of such materials.

Hazardous waste must be disposed of through a certified third party. Contact the local government or search through private sources for information on pickup or drop-off.

#### **IV. Additional Resources**

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Directory of International Waste Resources:

<http://www.epa.gov/epawaste/hazard/international/directory.htm>

Environmental Virtual Campus: Best Practices in Waste Storage & Disposal:

[http://www.c2e2.org/evc/Grn\\_BP.html](http://www.c2e2.org/evc/Grn_BP.html)

Composting Report for Farms:

<http://www.das.psu.edu/research-extension/nutrient-management/pdf/compost-article7.pdf>

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<sup>7</sup> [http://www.unece.org/trans/danger/publi/ghs/ghs\\_rev03/03files\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html)

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IFC Report on Hazardous Materials Management:

<http://www1.ifc.org/wps/wcm/connect/47d9ca8048865834b4a6f66a6515bb18/1-5%2BHazardous%2BMaterials%2BManagement.pdf?MOD=AJPERES>

MIGA Hazardous Materials Management Guidelines:

<http://www.miga.org/documents/HAZMATMgt.pdf>