

# Labeling, Storage and Disposal of Nanomaterials at UAB

## Labeling and Storage

Before you begin working with nanomaterials from original or transferred containers, read the hazardous properties listed on the original container or in the Safety Data Sheet (SDS). If you do not have a SDS, order one.

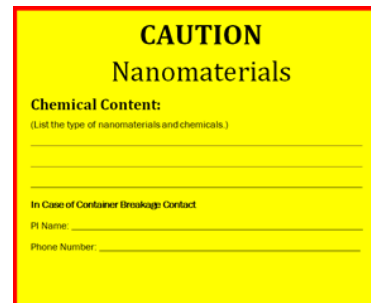
- Get a nanomaterial label like the one shown here and fill in all of the information.

- If you do not use this label, your label must include the word “nano” and indicate the chemical content and form.
- Ensure that every line is completed in case the container spills, breaks, or is opened so that others will know what to do.
- Place the label on the container so that it is visible.
- Add a Hazardous Waste label like the one shown here to the bottle along with the yellow label. The chemical hazards take precedence over the nanomaterial hazards. Both completed labels should be on the containers.

- Both sets of labels are available on the OH&S website.

The templates are designed for Avery Labels #5164.

- Keep liquids and dry particles in closed, tightly sealed, labeled, unbreakable containers whether they are suspended in liquids or in dry particle form.
- Use secondary containment (e.g., Ziploc® bags) for dry powders.



**CAUTION**  
**Nanomaterials**

**Chemical Content:**  
(List the type of nanomaterials and chemicals.)

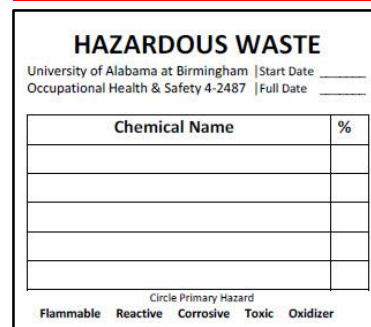
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\_\_\_\_\_

In Case of Container Breakage, Contact

PI Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_



**HAZARDOUS WASTE**

University of Alabama at Birmingham | Start Date \_\_\_\_\_  
Occupational Health & Safety 4-2487 | Full Date \_\_\_\_\_

Chemical Name	%

Circle Primary Hazard

Flammable Reactive Corrosive Toxic Oxidizer



As of 2015, regulations have not yet caught up with nanomaterial hazards. Manufacturers are required only to list the hazards of the original material. For example, carbon nanotubes (CNT) are described as “carbon.”

### Disposal

The following waste management guidance applies to nanomaterial-bearing waste<sup>1</sup> streams consisting of:

- Pure nanomaterials (e.g., carbon nanotubes)
- Items contaminated with nanomaterials (e.g., wipes, PPE, bench paper). Any material that comes into contact with nanomaterials becomes nanomaterial-bearing waste (e.g., gloves, other PPE, wipes, blotters). It must be managed as hazardous waste.
- Liquid suspensions containing nanomaterials
- Solid matrixes with nanomaterials that are easily crumbled, or have a nanostructure loosely attached to the surface, such that they can reasonably be expected to break free or leach out when in contact with air or water, or when subjected to mechanical forces. This does not apply to nanomaterials firmly bond in a solid base that will not release nanoparticles to water or when broken.

Any material coming into contact with nanomaterials becomes nanomaterial-bearing waste (e.g., gloves, other PPE, wipes, blotters).

- ***Never put nanomaterial-bearing waste into the regular trash or down the drain!*** There is a difference between nanomaterial bearing waste<sup>2</sup> and embedded nanomaterial waste<sup>3</sup>.
- Collect nanomaterial-bearing waste in closed, tightly sealed, labeled, unbreakable containers.

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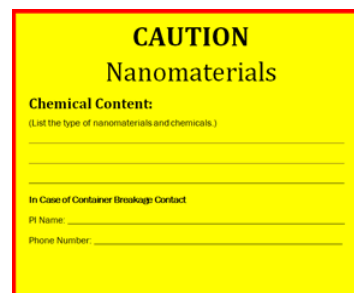
<sup>1</sup> Waste stream definition: The flow or movement of waste material from the point of generation (your lab) to final disposal (incinerator, landfill, etc.)

<sup>2</sup> Nanomaterial-bearing waste may have the nanomaterials come loose or completely out and go into the environment. These must be disposed of as hazardous waste.

<sup>3</sup> Nanomaterials that are embedded, we assume will not become come loose or out. These do not have to be disposed of as hazardous waste.

## Labeling, Storage and Disposal of Nanomaterials at UAB

- Label the container with both a nanomaterial and hazardous label (if it contains a hazardous chemical) like the ones shown here.
  - Label the container when the first piece of waste is placed in it.
  - If the nanomaterial waste stream has any chemical hazards associated with it, which takes priority over nanomaterial hazards. For example, if the nanomaterial is dispersed in a flammable liquid, then label as flammable. If the liquid is corrosive, then label as corrosive. If the nanomaterial is made of toxic metals, label toxic.
- Keep the container in a laboratory fume hood until it is ready for disposal. The container must remain sealed unless adding waste to it.
- When the container is full:
  - Secure the lid.
  - Remove it from the hood.
  - Place it in a second sealed container in a satellite accumulation area (SAA).
  - Complete the Hazardous Waste Manifest. Make sure that it clearly states NANOMATERIALS.
  - Check the date on your transcript for the last time you completed the Hazardous Waste Handling OHS\_CS055 course if you are completing the manifest.
    - It must be within the last 365 days before you can send the manifest, or it will be returned.
  - Send the manifest to UAB OH&S Support Facility.



**CAUTION**  
**Nanomaterials**

**Chemical Content:**  
(List the type of nanomaterials and chemicals.)

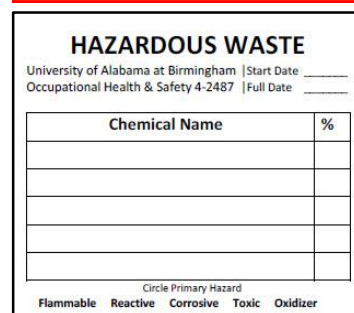
\_\_\_\_\_

\_\_\_\_\_

In Case of Container Breakage Contact

PI Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_



**HAZARDOUS WASTE**

University of Alabama at Birmingham | Start Date: \_\_\_\_\_  
Occupational Health & Safety 4-2487 | Full Date: \_\_\_\_\_

Chemical Name	%

Circle Primary Hazard

Flammable Reactive Corrosive Toxic Oxidizer

### Disposal of Nanomaterials in the Regular Waste Stream

Nanomaterials embedded in a solid material that cannot reasonably be expected to break free or leach out when they contact air or water can be placed in the regular waste stream (trash). We assume that these nanomaterials **will not** come out of the material and go into the environment.



If you have questions, please call OH&S at (205) 934-2487.