



CHAPTER 1.

CREATING WASTE INVENTORY LISTS

Regulated wastes and emissions from metal fabrication processes can include liquid and solid hazardous wastes, air emissions, and wastewater. Fabricators also produce non-hazardous solid waste, such as scrap metal. These wastes can be associated with the four general process steps: pre-fabrication, fabrication, post-fabrication and maintenance. **Figure 1** shows these four steps and the typical wastes that each step produces. Look around your business and think about how this figure applies to you.

Figure 1: Typical Wastes Encountered in the Metal Fabrication Processes

<u>PRE-FABRICATION</u>	<u>FABRICATION</u>	<u>POST-FABRICATION</u>	<u>MAINTENANCE</u>
<ul style="list-style-type: none"> • Cutting fluids • Solvent cleaners • Absorptive material (floor dry, vermiculite) • Contaminated shop towels • Metal swarf • Tramp oil • Biocides/fungicides/bacteriocides • Extreme pressure additives 	<ul style="list-style-type: none"> • Adhesives • Welding anti-splatter • Welds surface preparation (solvents) 	<ul style="list-style-type: none"> • Degreasing solvents • Cleaning wastewater • Alkaline cleaners • Etching acids • Solvent saturated rags • Surface coatings (paints, primers) • Spent spray gun cleaners • Paint strippers • Solvent distillation sludge 	<ul style="list-style-type: none"> • Antifreeze • Waste oil • Spent solvent from parts washers • Brake cleaners • Carburetor cleaners • Spent coolant • Spent cutting fluid • Fluid absorbents • Batteries

Creating a list of all of the waste streams at your facility makes good business sense. An inventory of wastes will:

- Allow you to distinguish between wastes that are considered hazardous, air emissions or water pollutants, and wastes that can be recycled or landfilled.
- Help you make changes in your operating practices as regulations change. Since you will know what wastes are considered hazardous and the quantities of these wastes, the impacts of regulations will be easy to identify.
- Guide you on controlling costs associated with meeting your environmental responsibilities.

Tables 1-4, on pages 4-5, separate the wastes identified in **Figure 1** into four categories: hazardous wastes, non-hazardous solid wastes, air emissions, and water wastes. **Note:** *While a waste may be listed under one of the four categories, this does not mean that the exact product you use will actually generate that type of waste.*

**Table 1: Possible Hazardous Solid Wastes Found in Fabrication Operations**

Spent cutting fluids	Solvents, metals, biocides
Partially full aerosol cans	Toluene, 1,1,1-trichloroethane
Improperly managed shop towels	Metals, oils, cleaning solvents
Unused solvents	Solvents
Waste paint, primer and other coatings	Oils, metals, cleaning solvents
Adhesive waste	Toluene, methyl ethyl ketone
Absorptive material (for spills)	
Tramp oil contaminated with solvents	Benzene, toluene
Welding anti-splatter	
Etching acids	Sulfuric acid, hydrochloric acid
Solvent distillation sludge	Xylene, toluene, methyl ethyl ketone
Alkaline cleaners	Caustics, metals, oils
Contaminated anti-freeze	Solvent contaminants, metals
Batteries	Acids, lead
Contaminated machine coolants	Solvents, metals
Sorbents	Used oil when disposed or contaminated

Table 2: Possible Non-Hazardous Solid Wastes Found in Fabrication Operations

Scrap or waste paper	Cardboard, office paper
Empty aerosol cans	Residual solvents
Empty chemical containers	Ignitable, toxic, corrosive residues
Empty coatings containers	Ignitable, toxic residues
Packaging wastes	Wood products, shrink wrap, packaging peanuts
Batteries (See footnote, Page 5)	Acids, lead, reactives

**Table 3: Possible Air Emissions Found in Fabrication Operations**

Compounds from aerosol cans during use	Smog-producing chemicals, solvents
Parts washer solvents during use or evaporation during storage	Methylene chloride, trichloroethylene, ignitables
Surface coatings (paints, primers)	Xylene, toluene, methyl ethyl ketone
Adhesives during use	Xylene, toluene, ignitable solvents
Paint strippers	Caustics, methylene chloride
Spent spray gun cleaners	Ignitable solvents
Parts degreasing operations	Ignitable solvents
Brake cleaners	
Carburetor cleaners	Chlorinated solvents, trichloroethylene, perchloroethylene

Table 4: Possible Water Wastes Found in Fabrication Operations

Rinsewater from aqueous cleaning operations	Heavy metals, solvents, oils, grease
Outside storage of process chemicals	Hazardous chemicals
Steam cleaning	Oils and grease, solvents

Develop your own inventory list of hazardous waste streams, air emission sources and water wastes for the processes in your facility. Refer to **Figure 1** on page 3 and **Tables 1-4** on pages 4-5 for lists of common metal fabrication industry wastes to help guide you in identifying the different waste streams your processes generate.

In Oregon, batteries are considered “universal wastes,” which means that if they are properly managed and disposed of, they are not counted towards total monthly hazardous waste generation.



Next, make copies of the worksheets provided on pages 7-9 (save the originals so you can make additional blank copies at a later date). Fill out the worksheets to inventory your hazardous and solid wastes, air emissions and water pollution sources. Each worksheet has different instructions, so be sure you record hazardous and solid wastes on the “*Hazardous/Solid Waste Inventory*” worksheet; record air emission sources on the “*Air Emission Sources Inventory*” worksheet; and record water wastes on the “*Water Pollution Sources Inventory*” worksheet. If you use a computer, you may prefer to create your own tables or spreadsheets and enter this information electronically to make calculating and manipulating the data easier.

Obtain a MSDS for Each Waste on Your Inventory Lists

All businesses are required by the Occupational Safety and Health Administration’s Hazard Communication (Worker-Right-to-Know) rule to maintain an up-to-date collection of Material Safety Data Sheets (MSDSs) for all products used onsite that may affect employee safety or health. You should already be maintaining a full set of relevant MSDSs in a file that is accessible to all employees at your business.

The MSDSs will be used to complete the steps in this workbook. You will need to have a copy of the MSDS for each product that is part of a waste you list on the inventory worksheets. If your file is missing a specific MSDS, the best place to obtain a new one is from the product vendor. Vendors are required by law to prepare MSDSs for their products and provide copies on demand to customers. If you are not able to get a MSDS you need from a vendor, other possible sources are specialized libraries or the Internet. Librarians at your state or county environmental agency or at a local college/university often will have MSDS databases. Check the local government section in your telephone book to find out if an environmental or chemistry library is available to you in a government agency or college. There are also several MSDS databases on the Internet (see ***Appendix A: Internet Resources***).

When you have completed each inventory list, check off these actions on the Checklist on page 2 and go on to the next action.

If you have questions or need help with your waste inventories, see ***Appendix B: Contacts List***.

