

### **3.11.1 Plastics Manufacturing: Fiber-reinforced Plastics**

*Tip Sheet #1*

**WASTE ORIGIN:** Raw Material Purchasing and Unloading

**WASTE TYPES:** Rejected and Excess Raw Materials

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! Improve **inventory control**.
  - ! Purchase material in **appropriate amounts**.
  - ! Purchase drums which are **returnable** or have plastic liners.
  - ! Return **unused materials** to suppliers.
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**WASTE ORIGIN:** Fabrication

**WASTE TYPES:** Gelcoat Resin and Solvent Overspray

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! **Test batch** formulation in lab.
  - ! Change **spray-delivered systems** (spray re-orientation and equipment modification e.g., air-assisted technology).
  - ! Use **non-spray resin application** methods (e.g., pre-spray fiber reinforcing, in-house resin impregnation, resin roller dispenser, vacuum bag molding processes, closed mold systems).
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**Source:**

*Guides to Pollution Prevention: The Fiberglass-Reinforced and Composite Plastics Industry*, U.S. EPA, October 1991, EPA/625/7-91/014.

### **3.11.1 Plastics Manufacturing: Fiber-reinforced Plastics**

*Tip Sheet #2*

**WASTE ORIGIN:** Piping and Treater Pan at End of Run

**WASTE TYPES:** Scrap-Solvated and Partially-cured Resins

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! Modify **resin pan** geometry (no more than 10" wider than fabric).
  - ! Reduce **transfer pipe** diameter size.
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**WASTE ORIGIN:** Equipment Cleaning

**WASTE TYPES:** Petroleum-based Solvents

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! Use **low-VOC** cleanup solvents.
  - ! Maximize **production runs**; schedule together to reduce need to clean equipment during batches; **schedule product families** in sequence to reduce cleanup between batches.
  - ! Clean equipment **before resin dries**.
  - ! Restrict **solvent issue**.
  - ! Replace solvents with **emulsifiers**.
  - ! Use less toxic, less volatile **substitutes** (biodegradable, water-soluble, resin-bed compatible, recoverable).
  - ! Reduce **rinse solvent** usage.
  - ! Use small lab-type wash bottles or squeegees for **treater pan cleanouts**.
  - ! Use **two-stage cleaning** process (first rinse with dirty solvent, then rinse with fresh solvent).
  - ! **Separate wastes**, keep water out of solvents.
  - ! Store and reuse **cleaning wastes**.
  - ! **Recover** on-site.
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**WASTE ORIGIN:** Cleanup

**WASTE TYPES:** Resin and Solvent Contaminated Floor Sweepings

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! Use recyclable floor **sweeping compound**.
- ! Reduce **solvent and resin spillage** and overspray. Use alternate material application and fabrication techniques.

**Sources:**

*Guides to Pollution Prevention: The Fiberglass-Reinforced and Composite Plastics Industry*, U.S. EPA, October 1991, EPA/625/7-91/014.