Checklistfor Waste Reduction Strategies

This checklist for reducing or eliminating unnecessary waste in plating operations appeared in the March 2000 issue of *P2 Xchange*, published by the Pollution Prevention Institute at Kansas State University, Manhattan, KS.

Inspectall parts before plating.

- Ensure that surfaces are clean, dry and free of rust and mill scale.
- If parts are consistently oil covered, ask to receive a cleaner part.
- Mask areas of parts that don't need to be plated to prevent unnecessary plating.

Continuouslymonitor baths.

- Monitor pH, chemical concentrations and metal content to maintain the baths in the ideal operating ranges.
- Establish written procedures for bath or chemical makeup and additives.

To extend bath life, prevent entrance of foreign material.

• Keep racks free from contaminants, protect anode bars from corrosion and filter incoming air.

Use the lowest possible chemical concentrations at which process baths can operate effectively.

• Determine the lowest bath concentration that will provide adequate bath quality. Chemical manufacturers may recommend operating concentrations greater than necessary.

Operate fresh process bath solutions at a lower concentration than replenished process bath solutions.

• Operate fresh process baths at lower concentrations than used baths. Makeup chemicals can be added to the bath to gradually increase concentrations. Use deionized water for process baths and risewater.

• Use deionized water to eliminate buildup of natural contaminants present in tap water. Use deionized rinse baths to replenish process baths.

Use workpiece withdrawal rates and drain times that are optimum and consistent for reducing dragout losses.

- Increase drain times to reduce dragout. Drain times of 10 seconds or more have been used successfully to decrease drag-out by 67 percent.
- Install a bar or rail draining process above plating baths to ensure consistent, effective drain times before rinsing, or automate the process if possible.

Use spray or fog rinses above heated baths.

• Use spray or fog rinses directly over plating baths to remove most of the drag-out from workpieces with a minimum of water. Rinses wash the drag-out directly back into the plating baths.

Use air knives above process tanks to decrease drag-out.

• Use air knives to drain fluids back into the process tank as the rack is raised from the tank.

Use drag-out tanks for capturing drag-out from workpieces.

• Use drag-out tanks to reduce water and chemical losses by 50 percent or more. Drag-out tanks capture the most concentrated drag-out and can help replenish process baths.

Have drain boards located between process and rinse tanks.

• Use drain boards to route process chemicals that drip from the workpiece rack back into process baths.

Position workpieces to keep dragout to a minimum.

• Orient workpieces so that liquids drain freely as they are removed from baths.

Avoid positioning parts directly over one another while draining.

Minimize the flow of freshwater fed into rinse tanks.

• Restrict rinse water flow to a minimum rate and turn off the flow when not in use. Flow restrictors can effectively maintain flow rates at predetermined settings.

Practice counter-current rinsing

• Use counter-current rinsing to significantly reduce rinse water use.

Reuse rinse water.

• Reuse rinse water from one process if it is suitable for reuse with another process. Acid rinse water may be used in a counter-current rinse process to provide the rinse for a preceding alkaline cleaner.

Keep waste streams segregated.

• Segregate waste streams to increase wastewater treatment and recovery efficiency. PRSF