

# COMPLETE TURNKEY SYSTEMS

Hardwood provides a full line of services to ensure a successful plating operation. Our expertise in the areas of Engineering, Equipment, Process and Technical Support ensures your success. We are the only vendor who provides a true turnkey plating facility. We will bring all the pieces together and are prepared to take total project responsibility.



## System Design

We will engineer a custom system based on your specific requirements:

1. Optimum system layout and work flow.
2. Equipment sizing and construction methods.
3. Part of source waste minimization.
4. Secondary and Tertiary containment.
5. State-of-the-art Ventilation systems.
6. Detailed layout, fabrication and installation prints.

## Process Application

Our services include identifying the optimum process that will meet the quality standards outlined while also being compatible with Zero Discharge Technology. Part of source waste minimization.

Of primary importance is designing processes that resist contamination and provide an extended bath life. Bath chemistry is, therefore, custom tailored for your specific use.

## Environmental Permitting

Typically three permits are required. Obtaining these permits is a complicated process that must be approached in the proper manner.

The following will be provided:

1. Initial permit investigation work.
2. A review of the permitting requirements and assessments of any pertinent changes.
3. A review of the equipment proposed to ensure that it exceeds the regulatory guidelines.
4. Preparation of the various documents and permit applications.
5. A presentation of the applications, along with system drawings, to the appropriate permit agency engineers, including a review outline.
6. Continued interfacing with the agencies so as to assist in permit issuance.

## **Waste Minimization**

The entire system is designed for maximum chemical recovery. This will ensure the EPA requirements are met and that you do not incur operation liabilities.

An additional benefit is that your chemical cost will be very low in proportion to the amount of work processed.

The considerations are air and water discharges, spill control and bath life.

## **Air Stream**

The special ventilation system used removes chemicals from the air stream and returns them directly back into the respective tanks.

## **Water Stream**

Almost 100% of the water used for rinsing is recovered. This is accomplished by the use of our recovery rinse tanks. The water from these tanks is pumped back into the bath to replace evaporative losses. Very little water is sent to waste treatment.

## **Spill Control**

Control of any inadvertent spill and/or overflow is easily handled as the entire system is enclosed in a lined concrete curbing-pit. This will contain any such liquid and allow for its recovery and reuse. Special filters are used for returning liquids to the appropriate tanks.

## **Bath Life**

All of the plating and process baths are designed to provide long life. Contamination is the only factor that will shorten a bath life. By following our recommendations, the bath will remain uncontaminated and will seldom, if ever, require remaking.

## **Plating Equipment**

State-of-the-art plating systems require the proper selection of equipment components, as well as their materials of construction. The following list of the equipment will be designed to the specifications relative to your application.

## **Tanks**

## **Barrels or racks**

## **Bussing**

## **Anodes**

## **Cooling Ventilation**

## **Filters**

## **Subsoil Liner**

## **Chemistry**

## **Rectifiers**

## **Fixturing**

## **Heating**

## **Agitation**

## **Pumps**

## **Containment Coating**

## **Hoist and Superstructure**

Hardwood will provide complete installation, employee training and full technical support or the entire system.

### **Equipment Start-up**

Hardwood will provide the initial start-up of all equipment components. This will ensure that the installation is complete and correct. Such things as continuity, lubrication, rotation, heating and cooling capacity, reclaim, etc. will be checked.

### **Bath Make-up**

It is extremely important that your initial bath make-up be done correctly. This will ensure a trouble-free start-up and continued success.

### **Operator Training**

Operator training is included as a part of our service package. This training is supplemented with your operation manual.

### **Technical Support**

We will provide complete support after your system is operational. This involves unlimited telephone consultation and assistance.

### **Lab Service**

Hardwood is available for any routine or detailed bath analysis for monitoring your plating baths.

### **Operation Manuals**

A complete operational manual that is specific for your system will be provided. The manual includes information on each bath, chemicals used, plating and activation procedures, maintenance, documents, quality control, safety, etc.

Hardwood would like to discuss your company's needs. We will take all aspects of the system into account from Engineering, Manufacturing, Installation, Start-Up and Training through the ongoing Technical Support you desire from a vendor you will base your business on.

Please contact us at your earliest convenience to discuss the next step in bringing your plating needs under control.



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