

- Cost Less to Use
- Reduce Maintenance Costs
- Have a Longer Service Life
- Produce Better Quality Results

"All lead anodes are not the same."

All lead anodes are not the same. There are actually big differences you can't always see. Differences that are vitally important to you - that can be measured in dollars and in plating satisfaction.

The most important difference is in the alloys used in fabrication. Republic anodes are extruded from many different alloys, such as tin, antimony, silver, calcium, tellurium, and chemical lead. These alloys are required to meet the needs of the many variations of chrome baths on the market today. While the content of many anodes remains a trade secret, we continually strive to upgrade quality and purity control to assure satisfactory plating results.

A second important difference is the positive electrical contact between the hook and the anode. For example, some manufacturers assemble their anodes by dipping the hook portion in a molten lead alloy. Then they place this "tinned" hook into a mold and cast a lead base around the hook.

The final step involves burning this hook assembly to the rest of the anode. Though this process is fast and inexpensive, it results in certain problems for the user - problems which platers unfamiliar with Republic anodes usually accept as unsolvable.

In the interval between dipping the hook and casting around it, the "tinned" hook surface cools and oxidizes, weakening the subsequent bond with the cast lead. When the anode is put into use the heat generated by the current flow causes both the hook and the lead around it to expand to the same extent. However, when the current is shut off and the anode cools, the hook contracts but the lead, having a weak bond, does not. Further use produces more expansion and contraction resulting in small gaps between hook and anode. Oxidation occurs and the positive electrical contact between hook and anode deteriorates (see Figure 1-A).

### **A Better Alternative**

Republic Metals utilizes an exclusive non metallic flux in its manufacturing process. This flux combined with a homogeneous burning process causes such a tight bond that the lead is forced to contract with the copper hook. This produces a positive electrical contact for the full life of the anode. This virtually perfect bonding technique eliminates the danger of oxidation between anode and hook and outperforms conventionally "cast" anodes.

Another important advantage attributed to this homogeneous bonding process is the uniform distribution of current throughout the anode. Burning the hook directly into the anode eliminates the use of cast lead with its low density and relatively poor conductivity. In a tong meter test conducted by a large Cleveland, Ohio electroplater using a four volt circuit, a Republic anode showed 550 amperes at solution level and 400 amps at the bottom of the anode. A conventionally made anode of the same shape and size showed 520 amps at the solution level and 220 amps at the bottom. Positive electrical contact between hook and anode plus uniform density throughout the anode produce the ultimate in operating efficiency for the life of the Republic Metals anode.