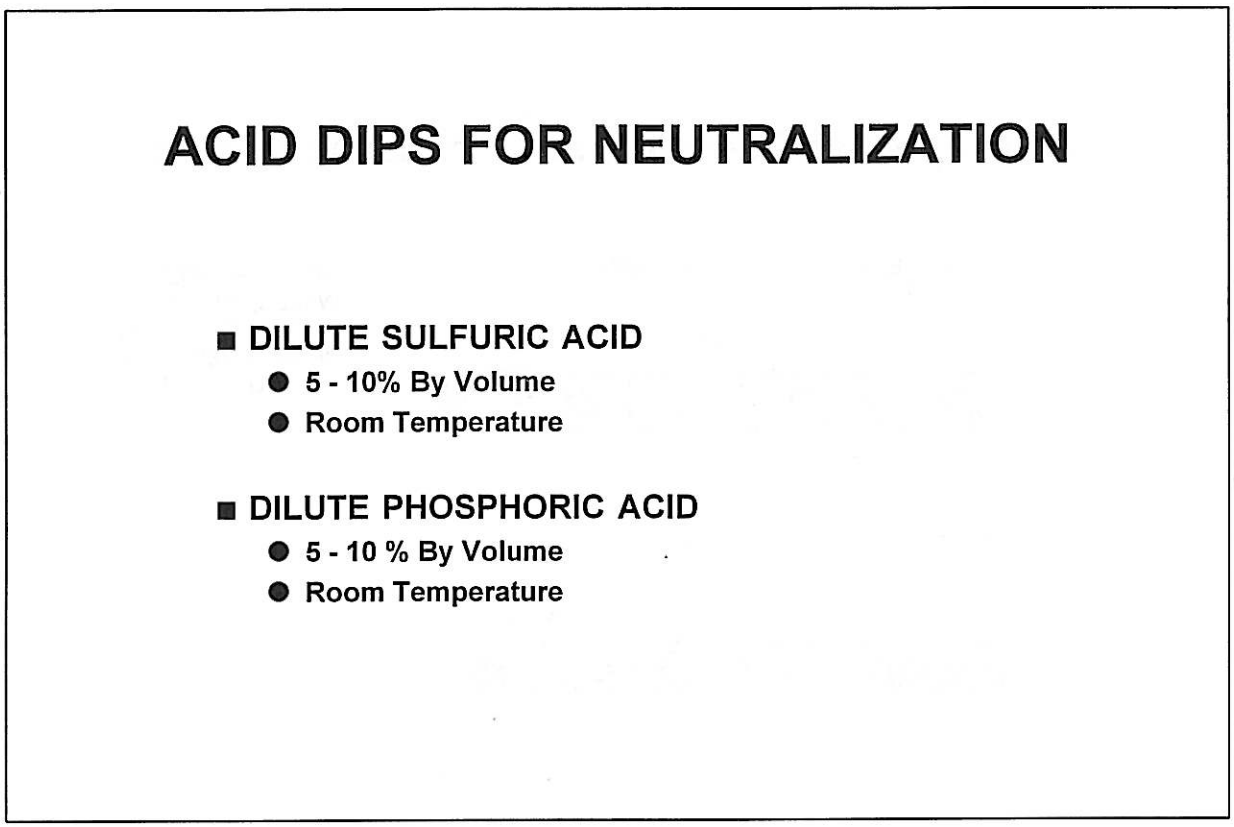
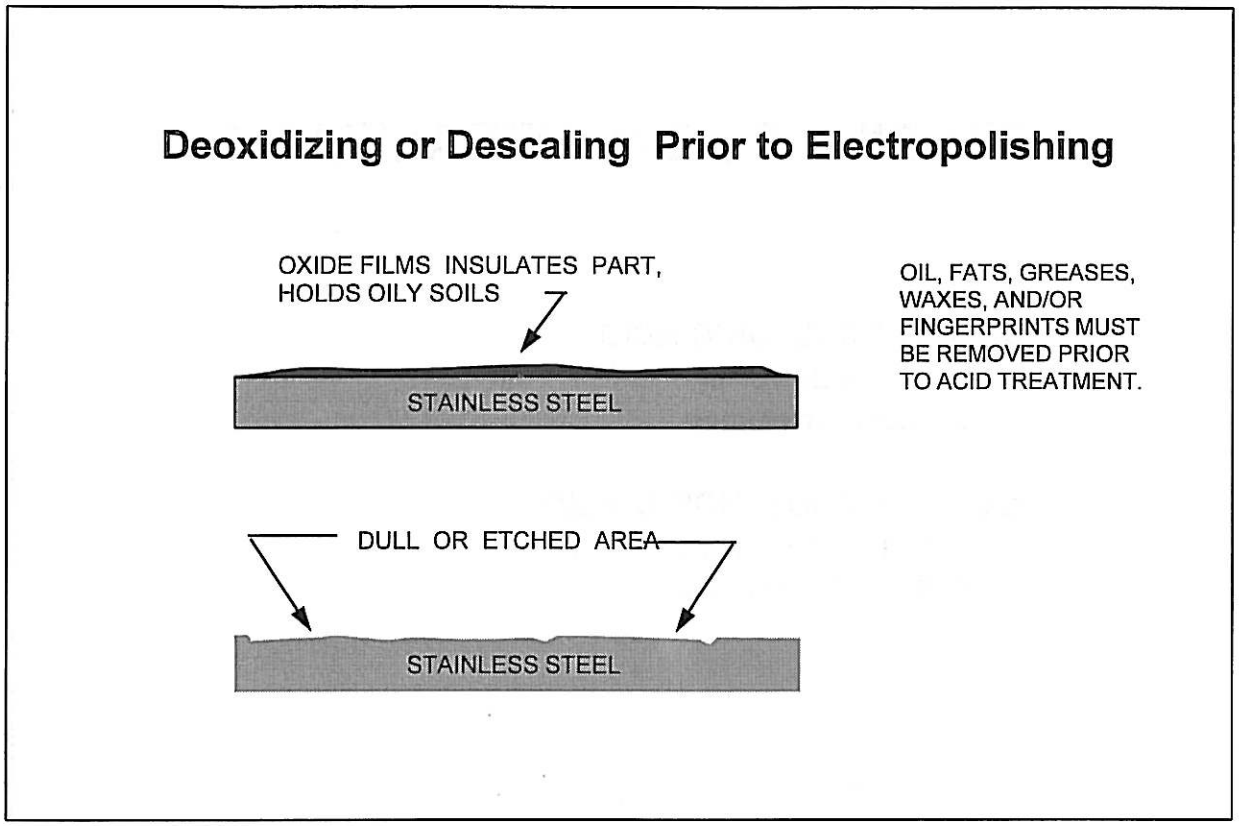


ACID DIPS FOR NEUTRALIZATION

Soak cleaning nearly always leaves a film of alkaline material on the surface of the parts. Neutralization refers to the chemical destruction of the alkaline film with little or no effect on surface oxides. Acid treatments for neutralization are generally dilute and are designed for operation at ambient temperatures.

If dragged into the electropolishing bath over a long period of time, the alkaline film can upset the acid balance of the solution. It is less expensive and less troublesome to use a dedicated bath to neutralize the cleaner, than to use the electropolishing solution.

Neutralization can be accomplished with dilute solutions of inexpensive acids.



DEOXIDIZING PRIOR TO ELECTROPOLISHING

Metallic oxide residues on the surface of the work create a barrier to direct contact between the electrolyte and the metal being electropolished. If not removed prior to electropolishing, such residues often create visible surface defects.

The film will gradually be dissolved by the electrochemical reactions, and the oxygen gas being generated at the surface. Nevertheless, on critical work, the insulating effect of the film delays the flow of current between the contaminated areas of the work piece and the cathode. As the film is removed, the contaminated area shrinks in size, allowing the current density in that area to rise. The existence of low or moderate current density areas for even short periods of time may create surface etching which then cannot be completely removed by electropolishing.

Surface oxides, such as rust, weld scale, or heat treat scale provide a porous, crystalline surface which readily absorbs oily or greasy contaminants. For this reason, it is important that the oily or greasy materials be removed first, before attempting to remove the oxides with typical acid treatments.

Modern electropolishing lines are equipped with one or more cleaning treatments to remove oily soils first, then to dissolve surface oxides, in that order.