#1036 - Deburring and Increasing Corrosion Resistance

**INDUSTRY:**
Appliance/Consumer - Manufacturer of kitchen utensils and cutlery

**MFG/METHOD:**
Formed, heat-treated and ground

**ALLOY:**
410 stainless steel

**PROBLEM:**
This component is part of a consumer assembly. The 410 alloy and fabrication processes were specified for this application: A cutting utensil. The grinding operation of the manufacturing left feather burrs along the entire length of the part (see higher magnification photo). The client needed deburring along the cutting edge of the blade while also enhancing its appearance. As an additional benefit, the client wanted to provide additional corrosion resistance for the part. These would all be made possible by stainless steel electropolishing.

**Before:**

**After:**

**SOLUTION:**
Electropolishing the product removed the flaking burrs, providing a smoother, sharper edge. This process enables us to precisely strip away the surface layer of metal, deburring, decontaminating and leaving behind a corrosion-resistant, clean finish. Unlike inconsistent and unpredictable mechanical steel polishing methods, stainless steel electropolishing allows us to determine exactly how much metal will be removed.

Note to Engineer: Electropolishing is a precise process when applied correctly, and in this case, exact metal removal will sharpen a cutting surface by removing the microscopic feather edge. However, if too much metal is removed, the edge begins to break and dull.

Because electropolishing is not a mechanical process, like steel polishing, it works equally well on hardened and soft or annealed materials. In this case and others, making electropolishing the final operation in part production leaves the component ready for final assembly.