

# NASA TECH BRIEF



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## Nonhazardous Acid Etches Weld Samples

### The problem:

Etching of weld samples of series 300 stainless steels and some other high temperature alloys is usually done in solutions of nitric and hydrofluoric acids. The use and storage of these acids constitute a hazard to operating personnel.

### The solution:

An etchant bath of harmless citric acid in conjunction with a 24 volt dc power supply.

### How it's done:

The etching action is activated by a 24 volt dc power supply through an anode connected by a spring clip to the weld sample and a cathode suspended in the citric acid bath.

### Notes:

1. The citric acid solution is limited in its use to a rather small range of metals it will successfully etch.

2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B66-10378

### Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: B. C. Allen  
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