

DATE 7-15-52
SH. 1 OF 1
COMPILED BY

TMC SPECIFICATION NO. S 104

TITLE: PASSIVATION OF STAINLESS STEEL

JOB

APPROVED *Xoe*

PURPOSE:

The purpose of this specification is to outline a treatment to be used to remove foreign non-stainless steel particles, which become imbedded in the stainless steel during machining and fabrication, and to form an oxide on the surface to increase its resistance to corrosion.

CLEANING:

In order to effectively passivate stainless steel, all surfaces must be absolutely free from oil, greases, dirt, oxide, scale and etc. If the parts are dirty they should be cleaned with an alkaline cleaner.

Parts having scale due to annealing must be cleaned by pickling in the following solution at 135-150 F.

25% by volume nitric acid (Nitric acid 40 Baume)
3% by volume hydrofluoric acid (50% Hydrofluoric Acid)
72% by volume water

Rinse thoroughly in clean, cold water, and if necessary, dry with an air blast.

PASSIVATION:

Treatment No. 1: For Type 300 Series Stainless Steels.
Immerse cleaned parts in a 20% solution of nitric acid at 120-140 F for 20 minutes. Remove and wash with clear boiling water and dry in oven.

Treatment No. 2: For Type 400 Series Stainless Steels.
Immerse cleaned parts in single solution containing 18-22% by weight nitric acid and $1\frac{1}{2}$ - $2\frac{1}{2}$ sodium dichromate at 110-120 F for 20 minutes. Remove and wash with clear boiling water and dry in oven.

NOTE: Where critical tolerance dimensions are required the immersion time shall be reduced.

SHIPPING AND MARKING:

All passivated material shall be shipped in suitable containers to give maximum protection during transit. All containers shall be plainly marked with the purchase order number, manufacturer's name and the TMC part number.