This invention relates to a composition of matter and more particularly to a dry mixture of hemi-sodium phosphate and chromic acid adapted for use in deanodizing aluminum and aluminum alloys.

One of the standard methods of treating aluminum or aluminum alloy materials now in use is the anodizing process. In this process the aluminum articles are immersed on aluminum racks in a bath of the electrolyte, and an anodizing current passed therethrough. Eventually the racks themselves acquire a heavy anodized coating. This coating has a high electric resistance and forms an insulation. The racks themselves are part of the electric circuit so that as the anodized coating builds up it interferes with the passage of electricity. Periodic stripping of this anodized coating is, therefore, a requisite of the process.

Various corrosive materials have been employed in the past for such stripping operation. The requisites of a suitable stripping bath are:

(1) Ability to remove the anodized coating within a short period of time, generally less than 15 minutes.

(2) Ability to leave the resulting surface bright and free from smut.

(3) Non-corrosiveness to the underlying aluminum.

No combination of solid materials has heretofore been available which will satisfy all three of the above requirements. A mixture of liquid phosphoric acid and chromic acid may be employed satisfactorily but it must be handled in carboys and is impracticable from an economical and commercial viewpoint as compared with the present composition which can be dispensed, shipped, and stored in solid form.

The present composition consists of a dry mixture of approximately 80% hemi-sodium phosphate \((\text{Na}_2\text{HPO}_4, \text{H}_2\text{PO}_4)\) and 20% chromic acid \((\text{CrO}_3)\). This dry material is added to water when it is desired to use it, preferably at the rate of 12 ounces per gallon of water. The solution is employed at about 180°F, and will completely strip the anodized film from the aluminum racks within 3 to 10 minutes. The aluminum is left bright and free from smut and is not corroded.

The proportion of hemi-phosphoric acid may be somewhat reduced, but as it is lowered it takes longer to strip the anodized coating. The chromic acid appears to be used up in the removal of the anodized film. It also acts to prevent corrosion by the phosphoric acid. The proportion of chromic acid, therefore, should not be reduced greatly below the 20% limit. The proportion may, however, be somewhat increased.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom.

What we claim as new, and desire to secure by Letters Patent, is:

A dry mix consisting essentially of 80% hemi-sodium phosphate and 20% chromic acid.

JOSEPH JANOTA, JR.

BLAND B. BUTTON, JR.