Extreme Exposure Requires a Coat

Barre, Jessie

How does coating aircraft grade aluminum with a polyurethane top coat reduce the effect of corrosion? If aircraft grade aluminum is properly coated with chromate primer and a polyurethane top coat, then the control of aluminum is established. Put on protective gear. Take all pieces of the 2024-T3 and the 7075-T6 aircraft grade aluminum and scuff sand each piece down in preparation for the coating of the Chromate primer. Coat each piece of scuff sanded aircraft grade aluminum in Chromate primer, allow drying. Take eight each of the 2024-T3 and 7075-T6, scuff sand, then coat on a polyurethane top coat. Immerse all pieces of aircraft grade aluminum (32 pieces) in 10ml of muriatic acid /12oz water inside container. Observe the aluminum daily, take notes, and pictures. Repeat the experiment, if necessary, to receive more results. Of the 32 pieces of aluminum each was assessed for the amount of corrosion on the front surface of the aluminum. The highest amount of average corrosion surface area in centimeters squared was 2024-T3 primed (11cm2). The lowest of the surface area corrosion is 2024-T3 and 7075-T6 primed and top coat (0cm2). The mean of the 7075-T6 primed was 5cm2. The hypothesis is accepted because the pieces of aircraft grade aluminum coated in chromate primer and a polyurethane top coat(0cm2), exhibited less surface corrosion than the only primed pieces of aluminum (11cm2 and 5cm2), both began at 0cm2 surface corrosion. This was determined through the resulting average of each type of aluminum’s surface corrosion.

Awards Won: