TECHNICAL DATA SHEET OF PASSIVATION TREATMENT FOR CR-VI-FREE ALUMINIUM (SURTEC 650)

1. ***GENERALS***

It is applied on aluminum as a surface preparation for one subsequent painting or as a treatment for itself. Such processing replaces traditional chrome plating with chrome hexavalent of aluminum, in accordance with European environmental standards (ROhS etc.). The resistance to corrosion is quite good (about 72h according to UNI ISO 9227/06), excellent adhesion as a pre-painting layer and conservation of the electrical properties of the items.

2. APPLICATION

The process to which this technical data sheet refers is applicable to all types of aluminum alloys. In particular a various small parts and carpentry up to 3 meters length. In some cases it is necessary a preventive sand-blasting with microspheres. The procedure of processing is carried out with reference to internal standards. Passivation is often preferred to other treatments for the characteristics of electric conductor, to bind tightly to the metallic surface, to have a certain porosity that the makes it ideal as a pre-paint protective layer.

3. ***PROPERTIES***

- Passivation/conversion for hexavalent Chrome (VI) free aluminum, contains trivalent chrome
- suitable for alloys and aluminum castings
- also suitable for the conversion of magnesium and Zamak
- applicable by spray or by immersion
- produces a colorless-iridescent layer, with slightly blue shades
- excellent protection against corrosion of aluminum in protection processes in itself (bare corrosion protection), comparable to that of chrome (VI) based passivations. Excellent anti-corrosive protection of painted aluminum, suitable as a pre-treatment before powder, liquid and glue painting (Qualicoat and GSB approvals)
- low contact resistance: <5000 µOhm per square inch as per MIL-dtl-81706b, scale equivalent to a value <32.25 mOhm cm2
- the conversion layer is inorganic and therefore resistant to heat.

4. ***CYCLE***

CHEMICAL DEGREASING: it is a hot bath (T> 30 °C) that contains a patented alkaline solution specific for aluminum and alloys. The bar stays in the tank for about 10 minutes for the purpose of completely eliminate the organic component from the surface of the substrate. The fatty substance that by its nature is an insulator acts as a pollutant of the conversion process because it inhibits the contact between reagent and substrate.

PICKLING (OPTIONAL): it is a hot bath based on caustic soda and carbonates. Pickling has the purpose of eliminating the presence of mixed surface oxides of inorganic nature, bare the surface of the substrate. Working temperature > 30 °C. Time maximum immersion of 60 seconds. The manual processing allows an accurate visual examination of the surface between the different phases of the treatment.

RINSING: the piece once treated must be washed for the purpose of making the surface pH neutral between one dip-bath and the other; this to make treatment more incisive and prevent pollution between tanks with different chemical nature. The washing operation is carried out by running water with air insuffled for a period of one minute.

PASSIVATION: takes place by immersion in the thermostated tank with the reagent for a minimum of 3 minutes to allow the complete surface-conversion. The dip-bath temperature must be guaranteed at about 40 °C. The particular assumes a passivation colorless with blue-green iridescent reflections.

DRYING: as soon as the covering is shaped as one jelly-layer, badly anchored to the support and partially water soluble. It is therefore necessary to dry it by a dehydrator that improves its characteristics. It is carried out by the oven a temperature not exceeding 65 °C.

LUBRICATION (OPTIONAL): to obtain an increasingly product resistant to aggressive agents and increase the gloss effect, a surface spray oiling can be performed with 50% diluted Vaseline oil or other not- emulsified oils.