

ANODIZING PROCESS

Shown below is the Empire Plaza building in Dallas, Texas, which features an aluminum color finish produced by an anodizing process based in part on NASA technology. Used to produce Tru-Color® products, the process was developed by Reynolds Metals Company and is licensed to industry by Reynolds Aluminum International Services, Inc., Richmond, Virginia. Its principal advantage lies in the considerably reduced time and energy required to produce a color finish; Tru-Color product finishes take about half the time of other anodizing methods and are processed at lower voltages, resulting in energy savings of 60 to 75 percent.

The anodizing process traces its origin to the 1960s, when Reynolds Metals Company, under contract with Goddard Space Flight Center, developed a multipurpose anodizing electrolyte (MAE) process



to produce a hard protective finish for spacecraft aluminum surfaces; NASA subsequently granted the company a patent waiver for MAE. In the mid-1970s, rising costs of energy led Reynolds International to look for an alternative to the existing method of color anodizing, which was becoming increasingly expensive. The result of several years of development is a two-step anodizing operation in which the MAE process is the first step; MAE produces a high-density, abrasion-resistant film prior to the coloring step, in which the pores of the film are impregnated with a metallic form of salt.

The process was developed principally for the architectural market and it has found wide acceptance in such Tru-Color product applications as building fronts, railings, curtain walls, doors and windows. It is also being used in automotive applications, primarily for car bumpers (left). Other applications include builders' hardware—such as shower enclosures, light standards, shelving brackets—and a variety of products such as boat masts, signs, belt buckles, picture frames, cookware, camera housings and decorative trim.

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