Care of aluminum

The Aluminum Association



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SEVENTH EDITION, NOVEMBER 2007

The 2007, seventh edition has beeen revised through the support of the Technology Committee of the Sheet and Plate Division.

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About The Aluminum Association

The Aluminum Association, Inc. is the trade association for producers of primary aluminum, recyclers and semi-fabricated aluminum products, as well as suppliers to the industry. Based in Arlington, Virginia, with offices in Detroit, Michigan, the Association provides leadership to the industry through its programs and services which aim to enhance aluminum's position in a world of proliferating materials, increase its use as the "material of choice," remove impediments to its fullest use, and assist in achieving the industry's environmental, societal, and economic objectives. Member companies operate about 200 plants in the U.S and many conduct business worldwide.

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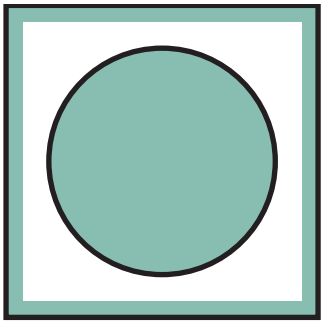
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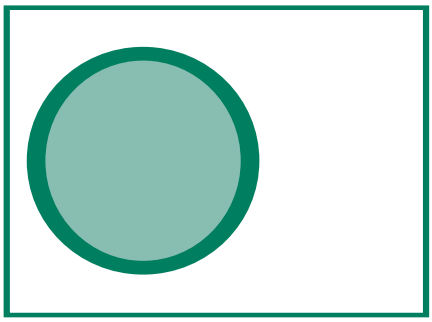
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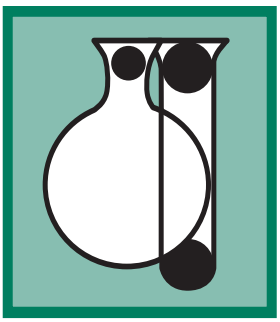
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non-finished


anodized finishes


painted finishes


chemical conversion finishes

care of aluminum
introduction

1
aluminum finishes

One of aluminum's most desirable attributes is its natural resistance to corrosion. When the bare metal is exposed to air, it readily combines with oxygen to form a tough, transparent, protective oxide coating. This oxide layer allows aluminum products to perform virtually "maintenance-free" in a wide variety of environments.

Aluminum can also be treated or "finished" in many ways. Painting, anodizing and plating with other metals can provide a variety of surface appearances and provide further protection to the base metal.

Apart from the purely aesthetic reasons for keeping aluminum surfaces clean, there are also practical reasons as well. In certain aggressive environments, especially those containing salt, excessive surface oxidation and pitting can occur. These can shorten service life of the aluminum by reducing its strength and promoting fatigue failures.

All the finishes, including the non-finished or bare, may be kept clean and bright with mild soap and water alone. However, if cleaning has been postponed for too long, and the dirt is especially tenacious, a more aggressive cleaner and cleaning technique may be required.

This publication will provide insight into the proper methods and materials to be used to maintain the various finishes of aluminum products — from architectural to transportation, from industrial to home and recreational products. Sections include:

- tips to help identify surface finishes
- properties of various types of cleaners
- step-by-step care and cleaning procedures for a variety of aluminum products
- proper handling and storage techniques for aluminum products
- a comprehensive list of commercially available cleaning products and their producers

Aluminum is available commercially in at least seven different finishes, each with its own characteristics. Aluminum care and cleaning programs must, therefore, be tailored to the metal's finish as well as to the needs and conditions of service.

non-finished

Non-finished (bare) surface is simply the metals own, self-produced oxide layer. It is thin but tough, transparent, tenacious and protective. Bare finishes vary in appearance depending on fabrication technique. The texture may be smooth and mirror-like, similar to satin or embossed with stucco, woodgrained or other patterns.

With time, the unfinished surface may darken and discolor. Near the sea it tends to turn gray. In cities and near factories it tends to turn brown or black.

anodized finishes

Anodized finishes are extra-thick oxide coatings produced by electrochemical treatment. The thickness of the anodic layer can be varied from 0.05 to 1.5 mils (0.0013-0.038 mm).

The anodic layer may be transparent or integrally colored; in both