

POTTER INTERIOR SYSTEMS

ALUMINIUM

CARE + MAINTENANCE

Technical information

A unique combination of properties puts aluminium and its alloys among our most versatile engineering and construction materials. All alloys are light in weight, yet some have strengths greater than that of structural steel. The majority of alloys are highly durable under most service conditions. No coloured salts are formed to stain adjacent surfaces or discolour products with which they come in contact, such as fabrics in the textile industry and solutions in chemical equipment. They have no toxic reaction. Aluminium and most of its alloys have good electrical and thermal conductivities and high reflectivity to both heat and light.

Aluminium and most of its alloys can easily be worked into any form and readily accept a wide variety of surface finishes.

Aluminium's best known characteristic is perhaps its light weight, having a density of approximately 2.7×10^3 kilograms per cubic metre at 20°C as compared with 7.9×10^3 for iron and 8.9×10^3 for copper.

Handling, storing and maintenance

Aluminium is one of the easiest materials to keep in good condition. It has a high natural resistance to corrosive conditions normally encountered during shipment and storage and a little care will maintain its original appearance for a long time. The principal things to guard against are conditions that might cause surface abrasions or water stains.

Suppliers make every effort to pack aluminium so that 'traffic marks' or 'rub marks' do not occur during shipment and so that it remains dry. All incoming shipments should be inspected promptly, since suppliers generally have a time limit in which damage claims will be honoured.

Traffic marks may appear as scratches, surface abrasions, or a condition resembling cinders embedded in the metal. They result from mechanical abrasion and subsequent oxidation of the abraded areas. Their principal disadvantage lies in their unsightliness and their effect on finishing operations.

Water stain is a superficial condition and the mechanical properties of the metal having such a stain are not affected. If a shipment of aluminium arrives in a wet condition, it should be thoroughly dried before storing. This may be done by evaporation in air or by means of dry air currents. When the moisture is removed in this manner within a short period after the metal becomes wet, no stain will result. If stain has occurred and the moist condition causing it, is removed, the stain will not develop further. Once safely dry, the metal should not be stored near such obvious water sources as steam and water pipes and should be kept at a reasonable distance from open doors and windows.

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Cleaning

Aluminium is a proven construction material for buildings, vehicles, appliances and products, both as a framing and cladding material. In the building industry, it is by far the most common material used for window and door joinery, curtain walls and shop fronts. It is widely used in every aspect of the transport, leisure, boating and household appliance industries. Its selection is based on many criteria – one being its ease of fabrication to provide visual appeal and easy maintenance.

Aluminium has a natural beauty and lustre of its own, yet its surface can be treated in various ways to protect and enhance appearance, which can be maintained with regular, low maintenance attention. The surface of fabricated aluminium, whether untreated, anodised or coated, can be spoiled by improper care. Here we briefly summarise the methods of maintaining the appearance of aluminium surfaces after installation. Usually this care is no more than periodic cleaning, similar to window glass. Anodising treatment will substantially enhance appearance, render the surface more resistant to various forms of attack and facilitate cleaning and maintenance.

The Architectural Aluminium Fabricators Association of New Zealand has published a guide which deals with all aspects of the design, use, care and maintenance of aluminium. Here we only briefly highlight the cleaning aspect since it applies to so many users of architectural aluminium products.

Grime which causes deterioration cannot be prevented from settling on exposed surfaces. If cleaned reasonably frequently then the mildest methods of washing will produce satisfactory results. There are many ways to clean aluminium, from using plain water to harsh abrasives. The type of cleaning that should be used is governed by the finish, degree of soiling, and the size, shape and location of the surface to be cleaned. The mildest method possible should be used, particularly for aluminium which has been anodised.

With anodised aluminium, surface deterioration occurs as a result of grime deposition and contaminated moisture attack. In coastal environments it is caused by airborne chlorides, in industrial or urban environments by sulphur compounds. Grime deposits absorb contaminated moisture like a sponge, assisting attack on the film, which cannot be restored without removal. Cleaning frequency depends on accessibility and environmental severity. In rural areas, cleaning may be needed only every six months. In industrial and marine environments, cleaning is recommended at least every three months, preferably monthly.

The following cleaning materials and procedures are listed in order of mild to harsh.

The mildest treatment should be tried on a small area and if not satisfactory only then should the next be examined.

1. Plain water
2. Water with mild soap or detergent
3. Solvents, e.g. kerosene, turpentine, white spirit
4. Non-etching chemical cleaner
5. Wax-base polish
6. Abrasive wax
7. Abrasives

After applying the cleaning agents, the surface should be washed down thoroughly and dried with a clean cloth to prevent streaking. There should be no concentration of the cleaner at the bottom edges of the aluminium. If using proprietary cleaners, the manufacturer's recommendation should be obtained and followed carefully.

If abrasives are used then the appearance of the aluminium finish may be altered. If there is a grain in the finish then cleaning should always be performed with the grain. If the condition of the surface indicates the use of abrasive or etching materials, it is advisable to consult a cleaning specialist. If all other methods fail it may be necessary to resort to heavy-duty cleaning. This involves the use of cleaners containing strong etching chemicals or coarse abrasives.