Maintenance of untreated aluminium

When untreated aluminium is used outdoors, a thin oxide layer is formed on the surface. The oxide layer is formed when aluminium comes into contact with oxygen. The oxide layer is strongly attached to the aluminium surface and protects the metal against further attacks, thereby increasing its resistance to corrosion.

If the oxide layer is damaged mechanically, e.g. by scratching, it will restore itself using oxygen from the surroundings. The layer is insoluble in water and resistant to numerous chemicals. Finally, the hardness of the oxide layer is equivalent to the hardness of glass. Because of the oxide layer formation, it is important to note that untreated aluminium does not retain its original, shiny surface.

If untreated aluminium is used in outdoor areas, it is important to know that despite the relatively high corrosion resistance of aluminium, certain factors will affect the resistance of the metal to corrosion. For this reason, it is recommended that direct contact between aluminium and the following be avoided:

- Other metals, such as copper, lead and iron (especially under humid conditions)
- Inorganic acids (for example, hydrochloric acid and sulphuric acid)
- Formic acid, oxalic acid and chlorinated solvents
- Bases
- Mercury and its salts
- Sea water and chloride solutions
- Water containing heavy metals
- Damp wood types and wood impregnated with copper-containing salts
- Alkaline building materials, such as fresh concrete

However, the corrosion risk from the above factors can be mitigated with various alloys and treatment methods.

Dirt build-up on the untreated aluminium surface can also reduce the corrosion resistance of the metal due to the prolonged exposure to moisture. This can be avoided by cleaning the soiled surfaces 1-2 times a year depending on the degree of contamination.

The following methods can be used for cleaning soiled surfaces. They are listed in order from least to most harsh on the untreated surface. Plain water is mild on the raw metal, whereas abrasive cleaners are very harsh on the surface.

- Plain water
- Mild soap/detergent
- Solvents, such as kerosene white spirit or mineral turpentine
- Non-corrosive chemical cleansers
- Polishing with wax
- Grinding with wax
- Abrasive cleaning agent