

## MANUAL FOR STORAGE, HANDLING, USE AND MAINTENANCE OF METAL ROLLS: BASIC RULES

Products concerned:



### Store the material in a dry place

Even with the use of the best finishing techniques, the base metal used in the production of prepainted metal (e.g. steel or aluminium) is vulnerable to corrosion. During coiling into rolls a capillary action may cause the accumulation of water, which may remain between the metal layers for a long time. Although indoor storage is not always possible, it is important to ensure that the rolls are dry and condensation does not form. In this regard, it is not enough to rely on plastic or paper packaging as this is not designed to prevent water infiltration; it may also cause other problems as it does not allow moisture to escape. It is important to ensure good ventilation so as to prevent the formation of water vapour and to allow water to dry out.

### Store the rolls on a clean and smooth surface

The rolls of painted metal can weigh several tons and for this reason it is necessary to eliminate all obstacles and surface irregularities. A small indentation on the outer circle can, through pressure, cause damage to several metres of material. It is best to store the material in a place designed for this precise purpose, but in any event the rolls must be stored on a smooth, clean surface.

### Prevent damage from handling

The rolls must be handled carefully and must not be dragged on the ground. During storage, an adequate distance must be maintained between the rolls to allow movement without risk of damage.

### Use as soon as possible

As in the case of other materials, the properties of painted metal may slowly change over time. Some products in particular can eventually harden and lose flexibility. Also, if a protective film has been applied, the material must be used as soon as possible to minimise the risk of adhesion of glue residues. Good operating practice recommends the use of all the material within six months of the date of production, which supports the FIFO (first-in, first-out) system of stock rotation.

### Store in indoor environments

The best way to ensure dry storage conditions is to keep the material indoors.

### Store in a temperature controlled environment

Even indoor storage conditions may be subject to sharp fluctuations in air temperature, which can lead to the condensation of humidity on the metal rolls, thus encouraging corrosion. For this reason the best thing is to ensure, as far as possible, constant temperature conditions above the dew point.

### Avoid condensation

If the rolls cannot be stored at a constant temperature they should still be protected from sudden temperature changes, which can cause condensation or precipitation of airborne moisture on the surface of the metal. This can happen when metal material is placed directly in a heated warehouse, so it is

essential to ensure good ventilation to remove any condensation as soon as possible.

The temperature can drop below the dew point in the following cases:

### **1. During storage**

During the storage of metal it is not advisable to leave the warehouse open, particularly in the spring and autumn months when the temperature between day and night can be more pronounced. If air temperature and humidity rise rapidly during the day, the dew point also increases rapidly. However, the temperature of the metal increases much more slowly and this creates the conditions for the formation of condensation on the metal surfaces. This can of course also occur at other times, or whenever there are marked differences in temperature and humidity.

### **2. During loading**

Metal taken from a cold warehouse and loaded on a heated vehicle during a humid day may result in the formation of condensation on the metal. This may occur at any time of year, but in some areas it is more pronounced in the summer.

### **3. Storage of cold metal in a heated warehouse:**

Condensation during unloading is more likely in the cold months. The following example may explain this situation:

Metal at a temperature of 16° C is loaded from the warehouse onto a truck and transported for two days. The outdoor temperature is around -1° C. During these two days the temperature of the metal gradually falls to the that of the external environment.

When the metal arrives at the destination it is unloaded and transferred directly to the warehouse, where the temperature is 16° C with a relative humidity of 50%, with a corresponding dew point of 5° C. As the temperature of the roll or sheet is at this moment lower than the dew point of the air, ideal conditions exist for the condensation of water on the metal surface, such as

on the edges of folded sheets or on rolls. The condensed moisture can penetrate between the individual layers and cause water stains.

### **Use purpose-built warehouses**

The best solution is to use shelving designed taking into account the end use with contact points in wood and rubber or felt surfaces. The shelving should be checked regularly to ensure it is in good condition. The contact surfaces of the shelving should have the shape of a "V" so as to protect the material

### **Do not stack the rolls on top of each other**

A tempting option is to stack the rolls on two or more levels. This method, however, increases the likelihood of damage to the material because the handling is more demanding and increases the load weight on the underlying rolls, leading to the risk of impressions or indentations. The stacking of rolls dramatically increases the risk of accidents. For these two reasons – security and damage prevention of – it is necessary to avoid stacking in multiple layers.

### **Using machines for correct handling**

Rolls are usually handled by crane or forklift. In both cases, it is good practice thoroughly cover the contact surfaces with soft material such as felt, rubber or cardboard, to avoid damage to the inner layers. Chains must not be used in any circumstances.

### **Adjusting temperature before use**

Some painted metals are designed for processing at a certain temperature, for example to ensure adequate flexibility. In these cases it is necessary to store the rolls at these temperatures for at least 24 hours prior to their use.

### Workability

The laminate has excellent ductility and can be bent to make folds up to 180°. To avoid micro cracks and lesions appearing in the coating, it is essential to observe a few simple rules (applicable to any coated laminate):

- a) avoid marking the laminate with awls or any other tool that may mark or scratch the coating;
- b) create rounded and not sharp or crushed folds; create folds with inner curvature radius as indicated in the data sheet.

Indice ECCA*	Schema
0T	 >100
0,5T	 ≈50
1T	 ≈33
1,5T	 ≈25
2T	 ≈20
2,5T	 ≈17

\* ECCA: European Coil Coating Association

Information on product specifications and in particular on the workability of laminates are available on the data sheets available on the website [www.mazonettometalli](http://www.mazonettometalli)

### Behaviour with other metals

During installation of roofing, facades and roof accessories, all precautions must be taken to avoid the direct contact of two metals with different chemical potential, especially if this difference is considerable. Contact typically is likely to occur when finishing works are carried out, especially the installation of gutters or downspouts made of metal other than that used in the manufacture of the cover plates.

### Removal of peelable film

Peelable film is sensitive to UV radiation and temperature; after long periods of exposure to sunlight and/or temperature variations, the glue hardens and the film becomes much more difficult to remove. For this reason it should be removed as soon as possible on site, ideally eight days after laying.

### **Tips**

Carefully cut the film in those parts that will become inaccessible after processing or installation. Remove beforehand those parts of the film that will be "trapped" during processing or in installation slots in metal pieces.

### **Behaviour with temperature changes and direct flame**

Laminate can be stored at very low temperatures without risk of damage because it is a material that is not subject to frost. Unlike other metals it can be bent even at low temperatures without the risk of micro cracks forming. It is recommended however that the material be worked temperatures above 0° C so as not to damage the coating.

Vestis should in no way be put in contact with direct flame; high temperatures can irreversibly damage the material.

### **Maintenance**

Roofing, cladding and roof accessories generally must be checked at regular intervals. It is therefore advisable to strike an inspection and maintenance agreement to ensure regular controls and component monitoring. The sooner any changes or damage is discovered, the more you can reduce costs for repairs or other maintenance measures, as well as the expenses incurred in resolving the causes of damages. The inspection consists of checks by specialised personnel to determine the current state of the material, particularly with regard to dirt deposits, plant growth, corrosion damage and cracking; checks are also made on the functionality of installed components.

If storage takes place in industrial environments, or where there are large quantities of fine particulates that can settle on the outer surface of the laminate, surface cleaning can be performed with water and a mild detergent.

Particular attention must be paid to the environment in which the product is installed. For environments with intense weather conditions together with exposure to industrial and/or marine environments, exacerbated by the effects of forces such as abrasion, high temperature and humidity conditions, contact with sea water, etc., it is necessary for the customer to carry out checks and in-depth technical analysis before using the product.