

## **CRAZING OF CONTINUOUSLY ANODISED ALUMINIUM**

### **Definition**

Crazing is the micro-cracking of the anodic film

### **Origin**

During the continuous anodizing process the aluminum strip moves through the anodising line across a number of different rolls.

The strip is wound around these rolls and the metal is put under stress/tension. The stress causes the micro-cracking of the anodic film on the external fibre of the metal.

This crazing, which is perfectly uniform, is a property of the continuous anodised aluminium; it does not affect or weaken it.

### **Characteristics**

Crazing in the continuous anodising process:

- appears such as thin white lines
- has a direction against the mill direction
- is present on the whole metal width
- has a uniform aspect
- is always visible
- has no effect on corrosion resistance

### **Factors affecting the crazing**

The intensity of crazing is directly proportional to:

- the anodic film thickness
- the metal gauge

The alloy (composition) and metal hardness, which can have a significant effect on the crazing

The brighter the metal, the more the crazing will be visible

### **Oiling**

The oiling of the surface is recommended for anodic films of 10 microns or above.

The benefits of oiling are:

- make the crazing less visible
- protect the anodic layer during subsequent handling
- minimise the risk of adhesive transfer

### **Protective film**

It is not recommended to apply film before leveling.

The pressure on the sheet during the leveling process tends to push the glue of the film into the crazing and, therefore, can cause a milky aspect on the surface .

It is better to apply film after levelling but before the shear.

### **Compatibility oil/film**

If film has to be applied on an oiled surface, it is recommended to check the compatibility between the oil and the film glue.

The quantity of oil applied has to be dosed to allow acceptable adhesion between the strip and the film.

Films with acrylic based adhesive are not recommended where strong adhesion is required.

The application of film must be in accordance with normal technical guidelines.

### **Other recommendations**

#### **Handling/Packaging**

The handling of continuous anodised products (coils or sheet) must be carried out by personnel with experience with this type of material.

This product is very sensitive, any non-uniform tension or stress created in the metal can generate non-uniform crazing.

Therefore, throughout the transformation process, each piece of equipment (leveler, cut to length, slitting machine, swaging etc.) must be set-up to take account of this sensitivity.

The packaging of the material must be undertaken without introducing any non-uniform tension in the metal.

Failure to observe the above precautions can cause:

- increased crazing
- creation of non-uniform crazing (which will result in in non-uniform appearance)
- in some cases the destruction of the anodic film layer (blemishes, dust etc.)

**Recommended aluminium alloy**

For anodic films of 10 microns or more, a 5005 AQ aluminium alloy is highly recommended.