

## Zinc Solution

Zinc provides good protection against rust for iron and steel. It can also be used to rework galvanized metals and re-galvanize missing areas. This electrolyte applies a shiny zinc coating.

### Application:

Positive cable with handle and electrode and pad as positive.  
Minus cable with crocodile clip attached to the workpiece and connection in the minus pole

Zinc electrode, possibly stainless steel anode and cotton pad

Voltage: from 4 volts

No hazardous material, irritant

Wear protective gloves, goggles

Use at room temperature at least

Can be used liquid or thickened - Thickening with our gel former possible

Polish surface to gloss by hand or machine

Degrease surface with electrocleaner, acetone or similar.

Then apply the zinc by means of anode pad with light circular movements on the surface until a rich layer is formed.

No drying phase or similar necessary.

Rinse off with water and polish to a shine with a soft cloth and our care product!

### Safety:

For your own safety, please work with gloves and protective goggles and follow the safety instructions on the label. A safety data sheet is available on request.

Special notes on pretreatment:

When galvanizing iron, special care must be taken to remove rust. For this purpose, we recommend the use of a rust remover and absolutely mechanical pre-treatment or grinding with suitable tools (Dremel, Flex with grinding additive). When grinding iron, scale and corresponding blackening can then occur. These blackenings should be removed with degreaser and appropriate mechanical reworking. Otherwise, please observe the general procedure for pretreatment (see complete instruction booklet).

### Fields of application of zinc electrolyte

Suitable materials for zinc plating: iron, steel, brass, copper.

Unsuitable: Chrome, aluminum, titanium

### Use of the zinc electrolyte with the bath electroplating:

#### General instructions:

Before first use, note: any orange flocculation that may be present in the electrolyte is not significant to functionality. These are only occasional flocculation of zinc salts (mostly due to temperature).

(mostly due to temperature). After galvanizing, the galvanized object comes out of the bath dull gray, this is normal. However, the item can be brought to a shine by polishing with steel wool and our polish.

### **Current and voltage:**

It is difficult to give an exact value here, as the key parameter is the "current density". This in turn depends on the surface and the arrangement of the electrodes. A guide value is 2.5 A / dm<sup>2</sup> surface. To set the current, it is recommended to first regulate the current to 0 amps and set the voltage to maximum. Then slowly regulate the current upwards. As soon as hydrogen forms on the object (visible by the formation of bubbles), the current should be regulated downwards. If the current is adjusted correctly, a grayish layer should then form on the object to be electroplated. Zinc electrodes should definitely be used as electrodes. Other electrode materials lead to chlorine formation (attacks already deposited zinc again) or mostly undesirable discoloration. In addition, the electrodes must be thoroughly cleaned and ground before use.

### **Electrode spacing:**

The distance between the object and the anodes should be as large as possible. In addition, the electrodes should evenly surround the object to be galvanized so that the most homogeneous metal deposition on the object can be achieved. A common procedure for more or less flat objects is the so-called 2-anode arrangement.

For round or cylindrical objects, a cylindrical setup is also recommended if possible.

a cylindrical arrangement (bent zinc electrodes) is also recommended.

### **Use of the zinc electrolyte for pin electroplating**

#### **General note**

If pin electroplating is used, small areas should be electroplated as far as possible, as it is difficult to achieve a sufficiently thick layer on larger areas. In addition, with larger surfaces, the zinc layer may dissolve again during deposition. This is the case if the surface is not closed and is under the influence of the electrolyte for too long (a quasi galvanic element is created). Therefore, we recommend galvanizing a maximum of 2 dm<sup>2</sup> of surface with the zinc electrolyte.

#### **Current and voltage**

When galvanizing with pin electroplating, it is important to work with the highest possible current intensity in order to apply as much zinc as possible to the object. To do this, it is recommended to first set the voltage to maximum and then slowly adjust the current from 0 up. If the current is set too high, the deposition will be dark even if the electrode is moved quickly. In this case, regulate the current downward until the deposit is silvery and no longer leads to "burning".

Zinc electrodes should definitely be used as electrodes. Other electrode materials lead to chlorine formation which attacks the already formed zinc layer. In addition, the electrodes must be thoroughly cleaned and ground before use.

## **After-treatment**

The zinc coating may contain black spots, but these can largely be removed by polishing with steel wool or polishing agent. In addition, "white rust" can form after galvanizing. To prevent this, the zinc must be protected after processing. Blue chromating is suitable for this purpose, for example, with which the zinc can be passivated. However, this treatment leads to the removal of up to 2  $\mu\text{m}$ , which can lead to problems with insufficiently thick layers. Another possibility is to treat the surface with a sealant or an appropriate rust protection.

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