

COMPAGNIE GÉNÉRALE D'ÉLECTROLYSE

WORKS AT ANGLEUR

LEZ-LIÈGE (Belgium)



Notes Upon our Electro Galvanizing Process

PATENTED IN :

America, Germany, Great Britain

Austria, Belgium, France

Spain, Italy & Scandinavia.



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IMPRIMERIE MODERNE, RUE AGIMONT, 23, LIÈGE

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The coating obtained by the Générale Compagnie d'Électrolyse's Process, presents several advantages, which has not been reached by any other similar Process until now. These advantages which are as follow.

- 1° A perfect uniformity in the thickness of coating.
- 2° A complete adherence of the coating to the coated metal.
- 3° A total avoiding of blisters or Spots of any kind.
- 4° Our Process permitting us to work the metal at an ordinary temperature, the consequence of it is, that the latter is not (as it is in the ordinary way of galvanizing) exposed to a quick refrigeration, which produces to a certain extend

a kind of hardening, which renders the metal brittle & spoils its ductile qualities, & also makes it very prejudicial for the adherence.

Sheets of iron galvanized by our Process could be bended to any angle without showing any sign for the coating to separate from the iron plate.

These results could not be obtained with the galvanization made with hot spelter.

Comparison between the Electro-Galvanizing Process & the Process usually applied which consist of dipping the metal into a mass of hot spelter.

Compagnie Générale d'Electrolyse's
Process of Galvanization

The thickness of coating can be regulated according to the necessities.

The coating uniformly deposited does not show any blister.

The zing deposited is chimically pur, the latter being of most importance, because pur zing does not bring an electrical disolving curant, which is always produced by the action of dampness upon impure metal (as it is with the ordinary way of galvanizing).

Our metal being absolutely pure, electrical action is avoided by that fact.

The purity of our deposited zing guarantee a great resistance as regard to the lasting of our coating, being not affected by any Chemical or Electro action of the air.

Process usually used, consisting in dipping the metal in spelter in fusion.

The thickness of coating could not be regulated & consequently does not presents the uniformity in the thickness of the coating. It presents, (the coating) blisters & spots of all kinds which break out in the manipulation that the metal has to sustain after galvanisation, or when put into contact with the dampness of the air. The consequence of it is that the coating by places ceased to cover the iron coated & consequently gets rusty very quickly.

By the ordinary Process the *metal* into which the Sheets or the material to be galvanized is dipped, is never pure & is a kind of alloid composed of zing, lead, antimonium & many others. Through its impurity that metal produces the Electrical couple & the latter brings the décomposition of the coating, the rust of iron appears & destroys & eats away the deposited coating of zing.

The bending or drawing of the metal coated does not produce any shelling off of the coating.

The physical or mechanical properties of the galvanized goods are not altered in any way.

The adherence of our coating is so perfect that it becomes, a kind of chemical alloy with the metal coated, which no mechanical action could separate from the deposited zinc.

The experience has showned that on an average a galvanized sheet of iron does not resist any more than 5 Years to the action of the air. The coating shells off the metal if the latter is slightly bended.

Concerning the physical & mechanical qualities of the metal coated, the latter are altered by.

1^o On account of the action of acid used in the Pickling of the metal.

2^o On account of the refrigerency of the metal, when coming out of the zinc in fusion. That refrigeration produces a Kind of hardening which renders the steel or iron brittle.

The coating being not a physical action, but simply a coating similar to that of an oil paint, shells off by the slightest mechanical action.

The considerable advantages which gives a good Electro-Galvanization on the usual way of galvanizing, has decided the English et German Admiralties, to apply this Process for their own use in Shipbuilding for instance every boiler tubes for marine purposes are galvanized by the Process we advocate here.

Besides Sheets Steel or Iron, we recommand specially our Patented Electro-Galvanizing Process, for the galvanization of cast Iron goods of all sorts. We have to add that it is almost impossible to galvanized Cast Iron by the usual

Process, therefore we don't hesitate to say that, for this particular material our Process is certainly the best.

When pieces in cast Iron have complicated or delicate sections, they break when galvanized by the usual way of galvanizing. Our Process is the only one applicable for such pieces, the reason same as given above, is that the mechanical properties are not destroyed when galvanized by our method.

Bolts & Nuts & Small Pieces in General

Our Process is particularly recommended for Bolts & Nuts, screws & small pieces in general. — When such pieces as Bolts & Nuts are galvanized by the usual Process, the threads of the screws are filled up with the melted zing & manufacturers are bound to rework them with the screw-plate, the consequence of that manipulation is that the zing is taken away from the covered iron & destroyed entirely the effect of galvanisation. As for the Bolts these latter could not have the threads properly galvanized inside & as a conclusion gives a very bad galvanization or rather none at all.

By our Process on the contrary Bolts & Nuts are perfectly covered up with Zing & need not to be reworked over with the screw-plate.

Removing of the oxidation before galvanizing

The removing of the oxid by acid's action as it is used in the ordinary galvanizing Process, presents numerous inconvenients.

The action of acid upon the oxid of the Sheets for intance, varies from one point to another according to the thickness of the occidation, which is always irregular, it happened often that the acid has eated away certain points of the metal itself while other points are still covered up by the occidation.

That brings kind of holes into the sheets & render the metal uneven.

As it is impossible to completly work away the acid when the sheets are drided the acid salts that remain on the metal, causes very bad adherence of the coating.