



## What Is ZINGA & How Does It Work?

**Zinga** is not paint. It is a pure zinc coating (with no pigments or extenders etc) and it will physically galvanise a car body or chassis and provide a great many years of protection against rust in any form. All conventional 2K automotive paints as well as basecoat or clear automotive paints can over coat Zinga. It can be primed with all standard 2K primers.

**Zinga Cold Galvani Zinc Coating** is a one-component anti-corrosion zinc coating system which contains a minimum of **96%** zinc in the dry film. Its unique formula provides environmentally safe cathodic protection to steel comparable with hot-dip galvanising, with the added advantage that it can be applied as though it were a paint.

## Where Can ZINGA Be Used?



Zinga is used in a vast variety of applications which can be divided into the following:

Repair for worn or damaged hot-dip galvanising or hot metal spray  
This is probably the most common use of Zinga as it requires the simplest surface preparation. Zinga's mechanism of protection is so similar to conventional galvanising that they work in complete unison, as they are merely different forms of zinc. Rather than replace galvanised assets, structures can simply have their protection "re-charged" by applying Zinga to the rough surface of the old galvanising after appropriate decontamination.

### **Stand alone system**

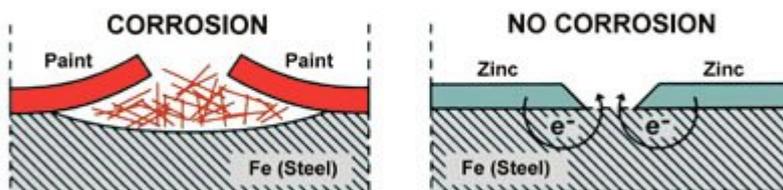
Zinga provides comparable protection to conventional galvanising without the need for topcoats. Although Zinga is only available in grey (the natural colour of zinc) the significant advantage of this form of application is that the Zinga layer can be re-coated at any point in the future with the bare minimum of preparation and without compromising the integrity of the coating (see Re-charging of Zinga). Zinga on its own is often used when specifiers are unable to galvanise because the structure is already in situ or too big for the molten zinc baths. Additionally Zinga is commonly specified on delicate structures (wrought iron gates, sculptures) or when architectural demands require a higher standard of surface finish (no need to drill to de-gas, fettle).

### **As a primer with suitable topcoats**

Not everybody likes the colour grey and with the additional protection of a compatible topcoat, the coating durability offered is significantly increased. Zinga does not even have to start actively working until the topcoat has been compromised and with no underlying corrosion creep or rust bubbling, the topcoat itself inevitably lasts longer (see Duplex Systems for more detail).

### **Active Protection**

Cathodic protection, or active protection, arises from the zinc (the anode) sacrificing itself in favour of the base metal (the cathode) with the resulting flow of electrons preventing corrosion's chemical reaction. In this way the protection of the metal is guaranteed, even when the zinc layer is slightly damaged. Other well established methods of cathodic protection include hot-dip galvanising (HDG) and zinc thermal spraying both of which exhibit a constant sacrificial rate of the zinc layer.



With Zinga, the sacrificial rate reduces dramatically after the zinc layer has oxidised and the natural porosity have been filled with zinc salts.

Additionally the zinc particles within the Zinga layer are protected by the organic binder without adversely affecting the electrical conductivity. This enables Zinga to create nearly the same galvanic potential between the zinc and the steel as hot dip galvanising but with a lower rate of zinc loss because, put simply, the binder acts as a "corrosion inhibitor" to the zinc.

"The zinc in Zinga becomes the sacrificial anode in relation to the steel but it corrodes at a much slower rate than would otherwise be expected"-  
Extract from B.N.F. Fulmer report of J J B Ward, Oxfordshire, Jan '92)

If the Zinga layer is sufficiently damaged to expose the base metal below, the steel would form a layer of surface rust but no corrosion would take place beneath it. In other words if the surface discolouration was removed the steel below would not be pitted or eroded. This is called "throw" and enables Zinga to protect bare metal up to 3 - 5mm or so away from where the coating ends - slightly less than new HDG. Zinc sacrificial anodes used on the steel hulls of boats below the waterline work on the same principle to protect metal in the surrounding area. Zinga is simply a different form of these anodes and is therefore sometimes referred to as a liquid anode or sheet anode when used in immersed conditions. However, it should be noted that like all forms of zinc protection, Zinga should not be used uncovered in immersed conditions above 65 degrees C as that is the inversion point where the steel starts to be sacrificed to protect the zinc.

The ability of zinc to provide galvanic protection is a function of its weight per given area. Dry Zinga contains a minimum of 96% medicinal quality zinc by weight, the particles of which are significantly smaller and purer than those found in normal "zinc rich" coatings. The Zinga particles small size and elliptical profile ensures maximum contact between both the individual particles and the substrate. This greater density of active zinc per given area combined with the good conductivity of the layer ensures that charge flows through every millimetre that has been coated and therefore provides excellent cathodic protection.

## **Passive Protection**

Passive protection, such as paints and cladding, creates a "barrier" between the steel substrate and the elements. Once this barrier is compromised the moisture and atmospheric salts will be able to start corroding the steel beneath the damaged area. This corrosion will then begin to creep extensively beneath the coating.

With Zinga, the organic binder and the zinc oxide layer that forms on the surface create an impervious barrier by blocking the zinc's natural porosity with oxide particles. Unlike other ordinary passive coatings, once breached the zinc oxide layer simply renews itself by re-oxidising. This layer of oxides is the reason behind the matt appearance of Zinga as opposed to the shiny hot-dipped finish.