



elZinc Alkimi<sup>®</sup>  
weathering  
characteristics  
statement

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elZinc

Designing with elZinc<sup>®</sup>

## Development by weathering

Expected probable weathering characteristics of elZinc Alkimi®. This document has been prepared in conjunction with Dr. W. E. Kallenberger of Kallenberger Ingenieur GmbH, Dusseldorf.

- elZinc Slate®
- elZinc Crystal®
- elZinc Oliva®
- elZinc Lava®
- elZinc Graphite®

All of these elZinc Alkimi® finishes are a zinc-copper-titanium product (Titanium Zinc) with an artificial pre-weathered surface, that is intended to give architects and designers a wide range of very specific aspects of a zinc-copper-titanium sheet (according to EN 988) each with a different grey surface finish, while still preserving the characteristics of a vivid living zinc sheet metal, even after years of weathering.

Due to the proprietary elZinc® process the Alkimi® conversion coatings will

- never delaminate
- never flake or blister
- always change colour only in the range of the original colour, that means always be of "one colour"

The elZinc® procedure is designed in such a way that the pre-weathered surface

- has the optical aspect and appearance of natural zinc-copper-titanium with added colour apparition that is very stable long lasting when exposed to weathering over years
- is much less affected by adverse exposure conditions than natural mill finish Titanium Zinc, which could otherwise lead to staining or discolorations or a generally uneven weathering of the natural Titanium Zinc cladding.
- is more than "just colour", but by the highly sophisticated chemical pre-weathering process the fresh, reactive surface of the base metal is changed by a special treatment to get the specific aspect that makes a difference compared with natural mill finish surfaces and is very stable over the years

elZinc Alkimi® finishes are therefore products that combine the optical and to some degree even corrosion stabilized properties of naturally passivated Titanium Zinc with a much more uniform appearance.

elZinc Alkimi® finishes are products that are designed to support the architectural intention right from the beginning, and remain unaltered over many weathering periods even under unfavorable conditions. As in most facades or claddings the weathering impact like rain and moisture, which drives the development of the natural patina, is never uniform over the whole facings area, the natural patina aspect development takes very long time until it shows a relatively even colour and aspect. And also during the time of developing the passivation layers that will protect the base metal from aggressive agents, natural Titanium Zinc is possibly very much affected and can form discolorations that will need years to become less and less visible. elZinc Alkimi® finishes do not need development but give an attractive aspect right from the beginning that will only slightly change over the years, but will still be in the original colour range.



## The technical nature of elZinc Alkimi® pre-weathered finishes

The proprietary elZinc process changes the surface by building a very thin conversion coating layer that anticipates the natural development in very many aspects. But in addition, colour tones can be reached that normally under natural weathering conditions will not develop, especially tones like elZinc Oliva®, elZinc Lava®, or elZinc Graphite® that do have a more intensely dark grey tone.

But still elZinc Alkimi® products are regular zinc-copper-titanium product as specified in the relative European Standard EN 988, fulfilling all requirements of said standard, with a surplus of the attractive sheltering layer.

The elZinc Alkimi® conversion coating layer is very stable and gives protection to the base metal over years, but still it is clear that there are some changes due to weathering in the long run. The following table gives information about the regularly to be expected development.

| Product          | Expected appearance during the medium term  | Expected long term appearance   |
|------------------|---|---|
| elZinc Slate®    | The elZinc Slate finish is designed to be gradually replaced by a natural passivation layer, leading to the evening out of any initial tonal differences and a very uniform patinated appearance. Areas protected from the rain will hold on to the initial conversion layer longer, but as there will be no sharp border line between the evolving natural colour and the elZinc colour, the aspect of the total view is one of an ideally naturally passivated Titanium zinc. | Very similar or equal to that of a naturally patinated zinc roof or façade  |
| elZinc Crystal®  | A little darker compared with the original colour; the development of the colour tone is also dependent on the surrounding environment, as atmospheric and airborne dirt will affect the colour development   | The finish will tend to gradually darken over time until in the very long term. The same factors that affect its medium-term development also affect its long-term appearance |
| elZinc Oliva®    | About constant, in some atmospheres becoming slightly brighter compared with the original colour  | More or less stable, possibly tending towards a slightly lighter colour in the very long term in some locations. Exposure to sun (UV radiation) may have some influence.      |
| elZinc Lava®     | A little brighter than the original starting colour.  | The development in the (very) long run will be to medium dark aspect that is still in the range of the original elZinc Lava but brighter                                      |
| elZinc Graphite® | A little brighter than the initial colour. Under heavy atmospheric conditions, such as near to the sea or industry output, the development cannot be absolutely even but show some misty slight discolorations after many years of impact   | The development in the (very) long run will be to medium dark aspect that is still in the range of the original elZinc dark grey Graphite but brighter.                       |

And as the conversion coating is a strong barrier that prevents premature and uneven oxidation, the colour development can form very uniform and slowly.

This leads to much more uniform colours of the weathered surface even under difficult conditions. Areas that are protected by overhangs against rain will eventually hold the initial colour tone much longer, but as the colour development of the elZinc Alkimi® finishes is slow and always in the range of the initial colour, and as there will be no sharp border line between the evolving colour and the elZinc initial colour, the aspect of the total view is that of an ideally naturally developed Titanium Zinc with the specific colour aspect.

## Development of different colours in different environments

The colour of elZinc Alkimi® conversion coatings is designed as a lively colour that can be expected under normal atmospheric conditions changing only slightly as outlined in the table above.

Like the development of the colours of natural passivation layers, the final colours of elZinc Alkimi® finishes can be affected by the atmospheric influence, e.g. dirt or gas pollution or salt in the surrounding air. This means that it cannot be expected that the final colour will be "absolutely" the same in all installations. But under the identical installation conditions, the development of the colour will be very close.

The very important advantage of the elZinc Alkimi® conversion coatings in comparison to any coloured lacquer coating is, that even if the pre-weathered surface has already the colour to be expected after years of weathering, still the surface has all aspects of a vivid metal surface and undergoes the characteristic colour development of building metals exposed to weather.

## Important features of elZinc Alkimi® finishes in use

The elZinc Alkimi® conversion coating combines many crucial properties that make the surface aspect attractive. Even if it can be expected by the customer that the colour will be very similar when delivered to the site, it has to be kept in mind, that some colour development starts immediately after the production.

elZinc Oliva®, elZinc Lava® and elZinc Crystal® are susceptible to slight tonal differences in colour, and since the human eye is able to detect very small colour differences in the grey range (and these elZinc Alkimi® finishes are fundamentally greys), it is recommended to supply and fit material from the same batch on individual roofs / walls of the building in these three finishes. The aforementioned recommendation is not necessary for elZinc Slate® or elZinc Graphite®. It should be strictly avoided to combine any pre-weathered material from a third source with the high quality elZinc material.

When producing bays or profiles from elZinc Alkimi®, it is recommended to make such products for one building all in the same direction of the original rolling direction, as the light reflection of the conversion coating can be very slightly different as long as the surface is fresh.

Some stains on the elZinc Alkimi® surface can be difficult to remove, such as flux residues from soldering or iron rust. The Product is delivered with a Plastic film to protect it during installation and from other trades during the construction process, and also an anti-fingerprint surface treatment, but nevertheless care should be taken to keep the surface as clean as possible.

Due to the self-healing properties of the layer (it re-patinates if locally removed) surface scratches will disappear over time.

Both during transport and storage, as well during installation the high quality elZinc Alkimi® surfaces should be treated with care.

Even if the elZinc Alkimi® conversion coating when installed gives a superior protection for the base Titanium Zinc, all precaution rules for transportation and storage that are common for natural Titanium Zinc apply also for elZinc Alkimi® finishes.

Of course, elZinc Alkimi® products can be formed, and with some precautionary measurement also soldered or bonded like natural elZinc® Titanium Zinc sheet.

For any questions regarding treatment, use or special applications of elZinc Alkimi® products, refer to our application techniques dept. or the local representative of elZinc®.

## elZinc Alkimi® - Pure elegance

The appearance of the elZinc Alkimi® range is the result of a unique surface treatment carried out with elZinc technology and know-how.



**elZinc Natural**



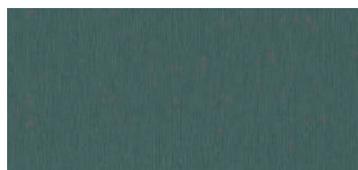
**elZinc Slate®**



**elZinc Graphite®**



**elZinc Crystal®**



**elZinc Oliva®**



**elZinc Lava®**



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