ZINGALU

ZINGALU is a one component high performance stand alone organic zinc rich coating. ZINGALU has 90% of ultra pure zinc (ASTM D520 type III) and 4% aluminium flakes in the dry film which provide long lasting cathodic protection to ferrous metals. The aluminium flakes offer barrier protection and a bright finishing color, matching the color of galvanised surfaces. Therefore ZINGALU is ideal for repairing and touching-up of damaged or old hot-dipped, Zinganised or other zinc coated structures.It can be applied by brush, roller or spray equipment on a clean and rough substrate in a wide range of atmospheric circumstances.
ZINGALU is also available as an aerosol and is sold as Zingaluspray.

PHYSICAL DATA AND TECHNICAL INFORMATION

WET PRODUCT

Components	- Zinc powder - Aromatic hydrocarbons - Binder - Aluminium flakes (non leafing)
Density	2,46 kg/dm³ (±0,06 kg/dm³)
Solid content	- 80% by weight (±2%) - 63% by volume (±2%)
Type of thinner	Zingasolv
Flash point	≥ 40°C - 60°C
VOC	530 g/L

DRY FILM

Colour	Grey with aluminium shine
Gloss	Shimmer
Active metallic content	Aluminium: 4% (±1%) by weight Zinc: 90% (±1%) by weight, with a purity of 99,995%. ZINGALU gives full cathodic protection and conforms to the standard ISO 3549 in regard to its zinc purity.
Special characteristics	- Atmospheric temperature resistance of dry film » Minimum: -40°C » Maximum: 120°C with peaks up to 150°C - pH resistance in immersion: 5,5 pH to 9,5 pH. - pH resistance in atmospheric conditions: 3,5 pH to 12,5 pH. - Excellent UV resistance

PACKING

1 kg	Available, packed in undividable boxes of 12 x 1 kg
2 kg	Available packed in undividable boxes of 6 x 2 kg
5 kg	Available
10 kg	Available on demand
25 kg	Available on demand

CONSERVATION

Shelf life	2 years in the original, unopened package. Can be used after being re-evaluated after shelf life.
Storage	Store in a cool and dry place at temperatures between 5°C and +25°C.
Pot life	If closed correctly after usage, ZINGALU will remain applicable.

CONDITIONS

SURFACE PREPARATION

Cleanliness	- The metal substrate should first be degreased, preferably by steam-cleaning at 140 bar at 80°C. After that it should be **grit-blasted or slurry-blasted** to **cleanliness degree SA 2,5** according to the standard ISO 8501-1:2007 or to the cleanliness degree as described in the standards SSPC-SP10 and NACE nr 2. This means that the surface must be free from rust, grease, oil, paint, salt, dirt, mill scale and other contaminants. Once the blasting is completed the surface should be **de-dusted with non contaminated compressed air** according to the standard ISO 8502-3 (max quantity 2) - Another method to obtain a clean surface is **UHP water-jetting** to cleanliness degree SSPC-WJ2. But keep in mind that **this method does not create surface roughness.** - This high degree of cleanliness is also needed when ZINGALU is applied on a hot-dip galvanisation or a metallisation layer, or when it is applied on top of an existing ZINGALU layer, but not the same roughness degree (see further). Please consult with the Zingametall representative. - ZINGALU can be applied on light flash rust occurring (after wet blasting) in the allowed time limit, but it is not advised for optimal results. - On small areas or on non-critical applications ZINGALU can be applied on a surface that is manually prepared to degree St 2 according to ISO 8501-1. - For more information on surface cleanliness, please contact Zingametall.
Roughness	- It is recommended to apply ZINGALU on a metal substrate that has a roughness grade of medium G according to the standard ISO 8503-4:2012. - **Make sure that the surface is degreased before the blasting.** - This high degree of roughness is not needed when ZINGALU is applied on a hot-dip galvanisation or a metallisation layer, or when it is applied on top of an existing ZINGALU. Old hot-dipped surfaces have adequate roughness, new hot-dipped surfaces require a sweep blast or adequate power tool roughening.
Maximum time to application	Apply the ZINGALU as soon as possible onto the prepared metal substrate (it is recommended to apply before flash rust appears). If contamination occurs before coating, the surface must be cleaned again as described above.

ENVIRONMENTAL CONDITIONS DURING APPLICATION

Ambient temperature	- Minimum -15°C - Maximum 50°C
Relative humidity	- Maximum 95% - Do not apply on a damp or wet surface
Surface temperature	- Minimum 3°C above the dew point - No visual presence of water or ice - Maximum 60°C
Product temperature	During application the temperature of the ZINGALU liquid should remain between 15 and 25°C. **A lower or higher temperature** of the product will influence the smoothness of the film when drying.

APPLICATION INSTRUCTIONS

GENERAL

Application methods	ZINGALU can be applied on a clean surface by brush and roller or conventional spray-gun or by airless spraying.
Stripe coat	It is always recommended to treat corners, sharp edges, nuts and bolts before applying a uniform coat by brush.
Stirring	ZINGALU must be **thoroughly mechanically stirred** to achieve a homogeneous liquid before application. After a maximum of 20 minutes, re-mixing is necessary.
Cleaning	Before and after using the spraying equipment, it must be rinsed with fresh Zingasolv. Brushes and rollers should also be rinsed with Zingasolv. **Never use White Spirit.**

APPLICATION BY BRUSH AND ROLLER

Dilution	For optimal use, dilute ZINGALU up to 10%, see dilution table
First layer	The first layer must never be applied by roller, only by brush, in order to fill the cavities of the roughness profile and to wet the surface.
Type of brush or roller	Recommended industrial round brush Short hair roller (mohair)

APPLICATION BY CONVENTIONAL SPRAY-GUN

Dilution	Up to 15% with Zingasolv depending on nozzle size, see dilution table. More dilution for same nozzle size will give a smoother surface finish.
Pressure at the nozzle	2 to 4 bar
Nozzle opening	1,8 to 2,2 mm
Special demands for spraying equipment	- For the spraying of ZINGALU, it is better to remove all filters from the pistol to avoid blockage. - Use short tubes when using a pressure-pot setup.

APPLICATION BY AIRLESS SPRAYING

Dilution	Up to 10% with Zingasolv depending on nozzle size, see dilution table. More dilution for same nozzle size will give a smoother surface finish.
Pressure at the nozzle	± 150 bar
Nozzle opening	0,017 - 0,031 inch

DILUTION TABLE

	10%	15%
1 kg	0,10 kg / 0,12 L Zingasolv	0,15 kg / 0,18 L Zingasolv
2 kg	0,20 kg / 0,20 L Zingasolv	0,30kg / 0,30 L Zingasolv
5 kg	0,5 kg / 0,60 L Zingasolv	0,75kg / 0,9 L Zingasolv
10 kg	1,0 kg / 1,2 L Zingasolv	1,5 kg / 1,8 L Zingasolv
25 kg	2,5 kg / 2,8 L Zingasolv	3,75 kg / 4,2 L Zingasolv

OTHER INFORMATION

COVERAGE AND CONSUMPTION

Theoretical coverage	- For 60 µm DFT: 4,26 m²/kg or 10,5 m²/L - For 120 µm DFT: 2,13 m²/kg or 5,25m²/L
Theoretical consumption	- For 60 µm DFT: 0,23 kg/m² or 0,95 L/m² - For 120 µm DFT: 0,47 kg/m² or 0,19 L/m²
Practical coverage and consumption	Depends upon the roughness profile of the substrate and the application method.

DRYING PROCESS AND OVERCOATING

Drying process	ZINGALU dries by evaporation of the solvent. The drying process is influenced by the total WFT, the ambient air (humidity and temperature) and the steel surface temperatures.
Drying time	For 60 µm DFT at 20°C in a well-ventilated environment: » Dust dry: 20 minutes » Touch dry: 45 minutes » Dry to handle: 90 minutes » Fully cured: 24 hours
Overcoating with a new layer of ZINGALU	Application by brush: 1 hours after touch dry. Application by spray gun: 30 min after touch dry. Maximum overcoat time depends on environmental conditions. If zinc salts have formed, they should first be removed. It is recommended to apply second coat on the same day.

Reliquidisation	Each new layer of ZINGALU reliquidises the former ZINGALU layer so that both layers form one homogeneous layer. Therefore, structures can be reloaded with ZINGALU after the layer has depleted due to cathodic protection.

LAYER THICKNESS MEASUREMENTS

Wet Film Thickness	- Preferably according ISO 2808. - The WFT of ZINGALU should be measured using a paint comb. - Depending on the dilution, the DFT of ZINGALU can be calculated from the measured WFT: DFT = WFT * (sbv/100) - If the WFT of a layer of ZINGALU is measured; it should be taken into account that the previous layers will reliquidise and therefore **the WFT is measured of the entire system** (different layers).
Dry Film Thickness	- Preferably according ISO 2808. - The DFT of ZINGALU should be measured using a magnetic induction gauge. - The DFT measurement of intermediate ZINGALU layers, can give false numbers, as the gauge is pressed in the not fully cured layers. It is better to measure after the final layer has been applied, since the intermediate layers will always reliquidise and will form 1 layer.
Number of measurements	According to ISO 19840
Correction values	- According to ISO 8503-1, the surface profile is defined as 'medium'. Therefore, **a correction value of 25 µm** should be used. - The correction value shall be subtracted from the individual reading to give the individual dry-film thickness in micrometres.
Acceptance criteria	- According ISO 19840. - The arithmetic mean of all the individual dry-film thicknesses shall be equal to or greater than the nominal dry-film thickness (NDFT). - All individual dry-film thicknesses shall be equal to or above 80% of the NDFT. - Individual dry-film thicknesses between 80% of the NDFT and the NDFT are acceptable provided that the number of these measurements is less than 20% of the total number of individual measurements taken. - All individual dry-film thicknesses shall be less than or equal to the specified maximum dry-film thickness.

RECOMMENDED SYSTEM

Unique system	- ZINGALU is used only as a stand-alone system, applied in maximum 2 layers to obtain a total maximum DFT* of 80 to 160 µm. - This system is strongly recommended because of the **easy maintenance**. In time the layer will become duller and thinner as the ZINGALU sacrifices itself due to the cathodic protection and reaction with the outside elements. A new layer of ZINGALU can be directly applied once the surface has been properly prepared and it will re-liquidise and recharge the previous ZINGALU layer. The DFT of ZINGALU that should be applied depends upon the remaining ZINGALU layer.

For more specific and detailed recommendations concerning the application of ZINGALU, please contact the Zingametall representative. For detailed information about the health and safety hazards and precautions for use, refer to the ZINGALU safety data sheet.