ZINGA

The Film Galvanising System ZINGA is a one pack coating that contains 96% zinc in the dry film and provides cathodic protection of ferrous metals. It can be used as a unique system as an alternative to hot-dip galvanisation or metallisation, as primer in a duplex system (active + passive) or as a recharging system for hot-dip galvanisation, metallisation or zinganised surfaces. It can be applied by brushing, rolling or spraying on a clean and rough substrate in a wide range of atmospheric circumstances.
ZINGA is also available as an aerosol and is sold as Zingaspray.

PHYSICAL DATA AND TECHNICAL INFORMATION

WET PRODUCT

Components	- Zinc powder - Aromatic hydrocarbons - Binder
Density	2,67 kg/dm³ (±0,06 kg/dm³)
Solid content	- 80% by weight (±2%) - 58% by volume (±2%) according to ASTM D2697
Type of thinner	Zingasolv
Flash point	≥ 40°C - 60°C
VOC	474 g/L (EPA Method 24) (=178 g/kg) measured by SMI, Inc.

DRY FILM

Colour	Grey (colour changes depending on environment)
Gloss	Matt
Zinc content	96% (±1%) by weight, with a purity of 99,995%. ZINGA gives full cathodic protection and conforms to the standard ISO 3549 in regard to its zinc purity and to the standard ASTM A780 in regard of its use as repair coating for hot-dip galvanisation.
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
Non-toxicity	A dry layer of ZINGA is not toxic. It has been tested according to the standard AS/NSZ 4020.

PACKING

1/4 kg	Available as sample (on request)
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
25 kg	Available

CONSERVATION

Shelf life	Unlimited. In case of long time storage it is recommended to shake the unopened tin in an automatic shaker at least once every 3 years.
Storage	Store in a cool and dry place at temperatures between 5°C and +25°C.
Pot life	If closed correctly after usage, ZINGA 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 **blasted** to a **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) or in the case of wet blasting the surface should be dried with non contaminated compressed air. - Another method to obtain a clean surface is **UHP water-jetting** to cleanliness degree SSPC-SP-WJ2. But keep in mind that **this method does not create surface roughness.** - Such a level of cleanliness is also needed when ZINGA is applied on a hot-dip galvanisation or a metallisation layer, or when it is applied on top of an existing ZINGA layer, but not the same roughness degree (see further). - On small areas or on non-critical applications ZINGA can be applied on a surface that is manually prepared to degree St 2 according to ISO 8501-1.
Roughness	- It is recommended to apply ZINGA on a metal substrate that has a roughness grade of medium G according to the standard ISO 8503-1:2012. - **Make sure that the surface is degreased before the blasting.** - Such a level of roughness is not needed when ZINGA is applied on a hot-dip galvanisation or a metallisation layer, or when it is applied on top of an existing ZINGA. 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 ZINGA as soon as possible on the prepared metal substrate before any contamination or corrosion occurs before coating. Otherwise the surface must be cleaned again as described above.
Please consult with a Zingametall representative.	

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 ZINGA liquid should remain between 5 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	ZINGA 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	ZINGA 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 ZINGA up to 5%, 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 (see dilution table) depending on nozzle size. 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 ZINGA, it is better to remove all filters from the pistol to avoid blockage. - The spray gun must be equipped with strong needle springs. - Use short tubes.

APPLICATION BY AIRLESS SPRAYING

Dilution	Up to 7% with Zingasolv (see dilution table) depending on nozzle size. 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

	Brush or roller 5%	Conventional spray 15%	Airless spray 7%
1 kg	0.05 kg / 0.06 L Zingasolv	0.15 kg / 0.17 L Zingasolv	0.07 kg / 0.08 L Zingasolv
2 kg	0.10 kg / 0.12 L Zingasolv	0.30 kg / 0.35 L Zingasolv	0.14 kg / 0.16 L Zingasolv
5 kg	0.25 kg / 0.30 L Zingasolv	0.75 kg / 0.90L Zingasolv	0.35 kg / 0.40 L Zingasolv
10 kg	0.50 kg / 0.60 L Zingasolv	1.5 kg / 1.70 L Zingasolv	0.70 kg / 0.80 L Zingasolv
25 kg	1.25 kg / 1.50 L Zingasolv	3.75 kg / 4.30 L Zingasolv	1.75 kg / 2 L Zingasolv

OTHER INFORMATION

COVERAGE AND CONSUMPTION

Theoretical coverage	- For 60 µm DFT: 3,62 m²/kg or 9,67 m²/L - For 120 µm DFT: 1,81 m²/kg or 4,83 m²/L
Theoretical consumption	- For 60 µm DFT: 0,28 kg/m² or 0,10 L/m² - For 120 µm DFT: 0,55 kg/m² or 0,21 L/m²
Practical coverage and consumption	Depends upon the roughness profile of the substrate and the application method.

DRYING PROCESS AND OVERCOATING

Drying process	ZINGA 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: 15-20 minutes » Touch dry: 30-45 minutes » Dry to handle: 90 minutes » Fully cured: 24 hours
Overcoating with a new layer of ZINGA	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 the second coat on the same day.

Reliquidisation	Each new layer of ZINGA reliquidises the former ZINGA layer so that both layers form one homogeneous layer. Therefore, Zinganised structures can be reloaded with ZINGA after the Zinc layer has depleted due to cathodic protection. For surface preparation on old Zinganised surfaces, contact a Zingametall representative or see document 'ZINGA on (old) HDG'.
Overcoating with a compatible paint	ZINGA can be overcoated with a wide range of compatible paints. In order to avoid blistering, pinholes and other defects (which will negatively affect the performance of the ZINGA layer), **it is advised to apply any topcoat with a mist/full coat technique.** First, a thin **continuous** layer is applied which gives air bubbles easy passage through the film. The first mist coat also provides a barrier for aggressive solvents in the topcoat. Mist coat: - Application at least 4 hours (at 20°C) after ZINGA is **touch-dry**. - 15 to 30 µm DFT (**continuous layer**). - Normal dilution according to the technical data sheet of topcoat. Full coat: - Application at least 2 hours after the mist coat is **touch-dry**. - Specified layer thickness minus 15 to 30 µm DFT (of mist coat). - Normal dilution according to the technical data sheet. To avoid any problems with application of topcoats, **we advise the use of a sealer**. Zingametall offers two compatible sealers which have been tested according ISO 12944: Zingalufer (PU sealer) and Zingaceram HS (EP sealer).

LAYER THICKNESS MEASUREMENTS

Wet Film Thickness	- Preferably according ISO 2808. - The WFT of ZINGA should be measured using a paint comb. - Depending on the dilution, the DFT of ZINGA can be calculated from the measured WFT: DFT = WFT * (sbv/100) - If the WFT of a layer of ZINGA is measured; it should be taken into account that the previous ZINGA layers will reliquidise and therefore **the WFT is measured of the entire system**.
Dry Film Thickness	- Preferably according ISO 2808. - The DFT of ZINGA should be measured using a magnetic induction gauge. - When applying ZINGA in 2 layers, we recommend that the first layer should be thicker than the second.
Number of measurements	Preferably according to ISO 19840.
Correction values	- According to ISO 19840, 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	- Preferably 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	- ZINGA is used as a stand-alone system, applied in maximum 2 layers to obtain a total maximum DFT up to 180 µm. - ZINGA should not be applied at DFT's exceeding 200 µm. - This system is strongly recommended because of the **easy maintenance**. In time the layer will become thinner as the ZINGA sacrifices itself due to the cathodic protection. A new layer of ZINGA can be directly applied once the surface has been properly prepared and it will re-liquidise and recharge the previous ZINGA layer. The DFT of ZINGA that should be applied depends upon the remaining ZINGA layer. - The ZINGA unique systems have been tested according to: • ZINGA 2 x 60 µm DFT: » **NORSOK M-501** syst. 7, syst. 1 » **ISO 12944-6:** C4-High, C5M/I-Medium • ZINGA 2 x 90 µm DFT: » **ISO 12944-6:** C5M/I-High
Duplex system	- In a duplex system, ZINGA should be applied in **one single application**, preferably by spraying, to obtain a DFT of 60 with a maximum of 100 µm DFT. - Several duplex systems have been tested according ISO12944. Please consult a Zingametall representative or the Zingametall website (www.zinga.eu) for more information.

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