İBA KİMYA SAN. ve TİC. A.Ş.
1. Organize Sanayi Bölgesi
Oğuz Caddesi No:22
06930 Sincan / Ankara / Türkiye
Tel:+90312 267 09 83 Fax:+90312 267 09 87
www.iba.com.tr

IBASHIELD – ZINC FREE

Technical Data Sheet

Description

IBASHIELD - Zinc Free primer powder coatings are zinc free epoxy or epoxy polyeser based thermosetting powder coatings designed to enhance the corrosion resistance of steel items. IBASHIELD - Zinc Free primer powder coatings have been designed as an undercoat for powder topcoats such as PE55, PE58, PS70, PS77... etc. IBASHIELD - Zinc Free primer powder coatings have sacrificial, barrier effect and corrosion inhibitor versions according to desired corrosion protection level.

IBASHIELD - Zinc Free / EE20 series primers are epoxy based thermosetting powder coatings with barrier effect designed to enhance the corrosion resistance of steel items. Barrier coatings provide a consistent film that prevents external elements from penetrating to the substrate. In other words, a barrier coating utilizes a thin layer and isolates the base metal from the environment which acts as a shield that blocks external factors from causing harm to the part. As long as the barrier is intact, the steel is protected and corrosion will not occur. However, if the barrier is breached, corrosion will begin.
IBASHIELD - Zinc Free / EE30 and EE40 series primers are epoxy based thermosetting powder coatings with corrosion inhibiting properties designed to enhance the corrosion resistance of steel items. Corrosion inhibitor coatings provide a protective barrier film, which in turn delays the corrosive reaction from developing. Passivation refers to a material becoming "passive," that is, being less affected by environmental factors such as air and water and these passivation coatings are thin protective film of oxidation products that forms on a metal and prevents its further corrosion.
IBASHIELD - Zinc Free / FF30 series rpimers are epoxy polyester based thermosetting powder coatings with corrosion inhibiting properties designed to enhance the corrosion resistance of steel items.

Characteristics

Increasing service life with excellent corrosion resistance
Less waste and pollution to the environment
Excellent corrosion protection
Good chemical resistance
Environment friendly
No zinc content

Applications

Doors
Automotive industry
Pipes
Tanks
Africultural machinery
Street and garden furniture
Valves
IBASHIELD - Zinc Free primer powder coatings have multitude of uses over aluminium and steel objects. It provides good anticorrosion property on chemically or mechanically treated substrates.

İBA KİMYA SAN. ve TİC. A.Ş.
1. Organize Sanayi Bölgesi
Oğuz Caddesi No:22
06930 Sincan / Ankara / Türkiye
Tel:+90312 267 09 83 Fax:+90312 267 09 87
www.iba.com.tr

IBASHIELD – ZINC FREE

Product Properties

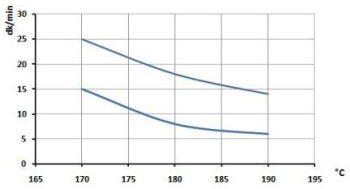
UV Resistance	Not recommended for exterior use.
Colour	Grey
Surface	Gloss GL – Semigloss HR – Semimatt CS
Specific gravity	1.5 – 1.8 gr/cm^3 (high for light shades, low for dark shades)
Shelf Life	12 months (< 30°C and < 50% RH)

Application Data

Application: Corona (Can be applied by tribo guns if product code has "T" for the 6th character)

Curing: 180°C 10 minutes recommended for full cure

Metal Temperature (°C)	Time (minutes)
170	15-25
180	8-18
190	5-14



Film Thickness: 40-60 µm (recommended)

Theoretical cons. 11-13 m^2/kg. Practical spreading rates will vary due to such factors as method and conditions of application, specific gravity, surface profile and texture.

Coating Properties

Test results shown below are based on 0.5 mm steel with 60µ applied powder coatings.

Direct Impact	>5 kgcm	(ISO 6272-2)
Reverse Impact	>5 kgcm	(ISO 6272-2)
Buchholz Hardness	>90	(ISO 2815)
Conical Mandrel	<5 mm	(ISO 6860)
Cross Hatch Adhesion	Gt:0	(ISO 2409)

Application Guide

Surface Preparation

All surfaces should be degreased and pre-treated for optimal performance.

Application recommendations due to corrosivity categories are given in sections *"Atmospheric Corrosivity Categories and Examples of Typical Environments (BS EN ISO 12944-2)"* and *"Zinc Free IbaShield Selection Guide"*.

Application Procedure and Equipment

IBASHIELD - Zinc Free primer powder coatings charging properties are optimized when powder is free-flowing and moisture-free. Aged or compacted powder may require preconditioning for several minutes to fluidise evenly.

If storage room temperature is lower than the application area, powder coatings, which are hygroscopic, should be acclimated in unopened containers prior to adding into the spray hopper. For optimum performance, It should be applied and stored at air-conditioning area. Storage temperatures should be kept below 30°C.

Powder should not be stored in hoppers for long periods of time. If moisture condensation occurs, fluidize powder to dry-out or replace moisture-laden powder with virgin powder.

Powder coatings are finely ground particulates. Respirators or dust masks should be used by workers exposed to powder in order to avoid dust inhalation.

Compressed air to the gun must be oil and moisture free.

İBA KİMYA SAN. ve TİC. A.Ş.
1. Organize Sanayi Bölgesi
Oğuz Caddesi No:22
06930 Sincan / Ankara / Türkiye
Tel:+90312 267 09 83 Fax:+90312 267 09 87
www.iba.com.tr

IBASHIELD – ZINC FREE

Silicone should not be used in application area.
For box feeders, ensure probe is fully inserted in powder and operated as per manufacturer's recommendations.
Contact points should be maintained to ensure metal-to-metal ground.
Apply by electrostatic spray. Relative humidity should be 50-60% for corona system, lower than 40% for tribo system.
It is recommended that IBASHIELD - Zinc Free primer powder coatings be top coated within 12 hours due to a possible moisture uptake of the coating.
If top coat applied within 12 hours. Partially cure for 3 - 5 minutes at 180°C metal temperature. Use top coat cure schedule to complete cure of IBASHIELD - Zinc Free primer powder coatings.
If top coat applied after 12 hours. Full cure for 10 minutes at 180°C metal temperature. Avoid over cure as this will inhibit intercoat adhesion with top coat. Store in clean, dry environment until the next stage the condition of storage between coats has direct effect on adhesion.
If no top coat to be applied. Full cure for 10 minutes at 180°C metal temperature.
Reclaim-to-virgin ratios should be carefully monitored to maintain spray consistency.
Sieving powder before adding to hopper eliminates potential clumping or foreign matter.

Atmospheric Corrosivity Categories and Examples of Typical Environments (BS EN ISO 12944-2)

Environments causing corrosion can be classified in different categories according to their corrosivity.

Corrosivity Category and Risk	Examples of typical environments in a temperate climate (informative only)	
	Exterior	Interior
C1 very low	-	Heated buildings with clean atmospheres, e.g. offices, shops, schools, hotels
C2 low	Atmospheres with low level of pollution Mostly rural areas	Unheated buildings where condensation may occur, e.g. depots, sports halls
C3 medium	Urban and industrial atmospheres, moderate sulphur dioxide pollution Coastal area with low salinity	Production rooms with high humidity and some air pollution e.g. food-processing plants, laundries, breweries, dairies
C4 high	Industrial areas and coastal areas with moderate salinity	Chemical plants, swimming pools, coastal, ship and boatyards
C5-I very high (industrial)	Industrial areas with high humidity and aggressive atmosphere	Buildings or areas with almost permanent condensation and high pollution
C5-M very high (marine)	Coastal and offshore areas with high salinity	Buildings or areas with almost permanent condensation and high pollution

Zinc Free IbaShield Selection Guide

Notes:
(1) For C5-I and C5-M environments, we kindly request to consult İba Kimya for specially formulated products for specific demands.
(2) Coating should be applied on abrasive blasted steel immiediately to prevent oxidation.

İBA KİMYA SAN. ve TİC. A.Ş.
1. Organize Sanayi Bölgesi
Oğuz Caddesi No:22
06930 Sincan / Ankara / Türkiye
Tel:+90312 267 09 83 Fax:+90312 267 09 87
www.iba.com.tr

IBASHIELD – ZINC FREE

(3) For C3, C4, C5-I and C5-M environments, for İba Kimya "X" and "B" coded metallic effect top coats, Iba Kimya Clear coats are recommended as final top coat.

Corrosivity Category	Protection Time	Examples of environments	Salt Spray Test	Pretreatment + IBASHIELD – Zinc Free	
C2, low		Rural areas with low pollution		Iron Phosphate, Zinc Phosphate, NT	-
C3, medium	2-5 years 5-15 yrs > 15 yrs	Moderately polluted urban / industrial areas	120 hrs 240 hrs 480 hrs	Iron Phosphate Iron Phosphate +EE20 / Zinc Phosphate Iron Phospate+EE40 / Zinc Phosphate+EE20	NT NT+EE20 NT+EE30 or EE40 / Sandblasting+EE40
C4, high	2-5 yrs 5-15 yrs > 15 yrs	Industry, tunnel, traffic ports	240 hrs 480 hrs 720 hrs	Galvanized Galvanized Galvanized+EE20	NT+EE20 / Sandblasting+EE20 NT+EE20 / Sandblasting+EE20 NT+EE30 or EE40 / Sandblasting+EE40
C5-I very high (industrial)	2-5 yrs 5-15 yrs > 15 yrs	Industrial areas with high humidity and aggressive atmosphere	480 hrs 720 hrs 1440 hrs	Galvanized+EE20 Galvanized+EE30 Galvanized+EE30+EE20	Sandblasting+EE20 Sandblasting+EE40 Sandblasting+EE40+EE20
C5-M very high (marine)	2-5 yrs 5-15 yrs > 15 yrs	Coastal areas with high salinity	480 hrs 720 hrs 1440 hrs	Galvanized+EE20 Galvanized+EE30 Galvanized+EE30+EE20	Sandblasting+EE20 Sandblasting+EE40 Sandblasting+EE40+EE20

Care and Maintenance

IBASHIELD - Zinc Free primer powder coatings are hard wearing coatings, most often used in areas where aesthetics are not important. Unlike common decorative coatings, no formal cleaning program is required.
However it is better to remove salts and other pollutant deposits where possible, and repair any exposed metal surfaces with appropriate repair kit.

Health and Safety

The SDS is an integral part of using this product as it contains information on the potential health effect of exposure, personal protective equipment needed. It is recommended to contact to Sales and Customer Service Offices for further information.

İBA KİMYA SAN. ve TİC. A.Ş.
1. Organize Sanayi Bölgesi
Oğuz Caddesi No:22
06930 Sincan / Ankara / Türkiye
Tel:+90312 267 09 83 Fax:+90312 267 09 87
www.iba.com.tr

IBASHIELD – ZINC FREE

Precautions and Limitations

As a result of possible wide application variations and stoving conditions, IBASHIELD - Zinc Free primer powder coatings may show variation, between İBA Kimya Powder Coatings prepared samples and production applied material. Therefore, it is the applicator and/or their customer's responsibility to ensure the product conforms to their requirements.
For optimum corrosion performance ensures recommended dry film thickness is obtained.
Not recommended for exterior applications. (unless an outdoor topcoat is applied)
Over baking may result in intercoat adhesion problems. For optimal intercoat adhesion refer the cure details in the "application guide" section of this data sheet.

Transport and Storage

Packaging	25 kgs. Heavy polyethylene bag in a corrugated carton
Shipment	Not dangerous goods. No special transport requirements.
Storage Conditions	Storage temperatures should be kept below 30 C° and 50% relative humidity. Powder should be stored in closed containers.

DISCLAIMER: All the information provided in this data sheet depends on our knowledge and experience up to date and may be subject to revision as new technology and experience evolve. Since the conditions of application may vary depending on the substrate, physical conditions and other variables, users should conduct necessary tests to determine the conformity of the product for its intended use. We do not accept liability since the application, use and processing of the products take place beyond our control and supervision. Moreover, our liability for breach of warranty is exclusively limited to replacement of the product or refund of its price and we are not liable for incidental, indirect or consequential damages under any circumstances.