INTENDED USE AND AREAS OF APPLICATION

ikorol is a surface shield used for the preparation of steel, zinc-coated surfaces, heavily corroded weathering steel (known as “corten steel”), and surfaces coated with old but well-adhered paint. **ikorol** shield is applied prior to any anticorrosive coating systems. **ikorol** shield also acts as a surface activator in relation to paint.

The thin layer of **ikorol** shield coating provides an adhesion for typical paint coatings. It can be applied to corroded steel surfaces (once loose rust has been removed) and to coatings that exhibit chalking after mechanic cleaning with steel brush. On average it increases the adhesion of the coating system by 3–4 MPa. The use of **ikorol** eliminates the unfriendly process of the thoroughly cleaning of the steel surfaces from rust, i.e. sandblasting or grinding, that is required when applying most paints. **ikorol** shield prevents blistering and improves the elasticity of the entire coating to prevent cracking, peeling and falling off. It extends the service life of coating systems by increasing the adhesion and corrosion resistance.

The effectiveness of the coating system is measured by its adhesiveness to metal when exposed to water. Water penetrating the undamaged coatings through micropores can cause the coating to locally detach from the metal surface. This is called poor adhesion in moisture. Water and oxygen dissolved in water can directly contact with the steel surface resulting in corrosion. During the corrosion process, Fe^{2+} and OH^- ions are formed, which leads to the formation of an osmotic cell. Osmotic pressure may reach 2500–3000 kPa, while organic deformation resistance is only 6–40 kPa. The resulting forces may peel off the protective film from the paint coating. Then a **blister** is formed which grows revealing more metal parts. This unfavorable phenomenon is prevented by the hydrophobic layer of **ikorol** shield which binds the metal surface with the applied paint.

ikorol can be used together with different types of solvent-based paints, varnishes and putties (including epoxide, polyurethane, epoxy-ester, chlorinated rubber paints, acrylic paints, modified alkyd paints and paints based on mixed synthetic resins). Industrial case studies on the **ikorol** shield have been successfully completed for painting systems applied on high voltage poles, on bridges, on telecommunication masts, in petrochemical plants and for renovation painting of steel constructions: i.e. car bodies, entrance gates or fences.

There is a great variety of paints available on the market. Therefore test painting prior use is recommended to check the compatibility between **ikorol** shield and the particular paint/varnish/putty. The minimum recommended thickness of the varnish coating is 60 µm, as such thickness of coating prevents discoloration (change of color) in light-colored and one-component paints (single-layer coating).

ikorol shield itself, without additional painting can be used for temporary protection up to 12 months. It should be noted, however, that the **ikorol** coating is not mechanically resistant and absorbs dirt (dust) from the air, so that before painting it requires thorough cleaning and re-painting with **ikorol** shield before painting with paint.

GENERAL FEATURES

ikorol shield contains organic solvents and derivatives of benzaldoxime that can form complexes and react with rust. It is a light brown or yellow liquid with a characteristic smell. It is freely miscible with most organic solvents but has limited miscibility with water. Density – around 0.8 kg/dm^3.

The active components of **ikorol** shield form stable complexes with iron, zinc and aluminium, that are insoluble in water, which inhibit corrosion of metals and make their surface hydrophobic. The product improves the adhesion of the applied coating system and stabilizes the corrosion products remaining on the metal surface. **ikorol** shield has outstanding penetrating properties. It penetrates deep into cracks and scratches to form an effective priming/tack coat for coating systems and putties.

APPLICATION CONDITIONS

ikorol shield in a liquid form can be applied using brush, roller, spray gun or using special applicators (for crevices and areas difficult to access). The surface (steel, cast iron or zinc-coated) should be cleaned from loose corrosion products and loosely adhering old coats before application, minimum to St 1 level according to norm PN-EN ISO 8501-2:2011. The surface must not be covered with too much dust (acceptable rating is no. 3 according to PN-EN ISO 8502-3:2017-03) and grease. The adhesion of old coats to the surface must not be higher than 3 according to PN-EN ISO 16276-2:2008 and not lower than 2 MPa according to PN-EN ISO 4624:2016-05. The remaining well-adherent coatings cannot be thicker than 400 µm.

For repainting undamaged varnish or paint coatings or zinc-coated substrates, a uniform, as thin as possible, **ikorol** shield layer should be used. The consumption is then lowest, usually in the range of 0.02–0.05 L/m^2. For slightly corroded substrates or for repainting old coats apply one layer, consumption 0.05–0.1 L/m^2. For more corroded substrates, when the corroded layer has 30–100 µm it is recommended to paint two layers of **ikorol** shield, consumption 0.1–0.2 L/m^2.

The drying time between application of **ikorol** shield and application of painting system depends on the ambient air temperature and the **ikorol** shield layer thickness, it is about 1 hour at 20 °C. **ikorol** shield has the ability to penetrate into new paint layers (it becomes chemically incorporated into the paint layer). If the solvent of **ikorol** does not fully evaporate, the **ikorol** shield can easier diffuse into the new paint layer. This is an advantage, however it can slightly alter the shade of the new paint and make the layer more flexible. **ikorol** shield is not a paint and should not make up a separate coating after applying and finishing a new paint. Therefore, it cannot be spread as a thick layer, in particular on smooth surfaces.

To avoid possible defects of the paint coating, it is recommended to perform test painting in order to determine the minimum open time under the given conditions.

ikorol should be applied on a surface that is dry and free of condensed moisture, when:

- the temperature of the metal substrate is between +5 °C and + 50 °C,
- the ambient temperature is between +5 °C and +35 °C,
- the temperature of the **ikorol** shield is between +5 °C and + 35 °C,
- the temperature of the metal substrate is higher at least 3 °C than the dew point,
- relative air humidity does not exceed 85%.

ikorol shield can be cleaned up with the help of isopropanol or typical organic paint thinners.

COVERAGE:

Strongly corroded steel substrates – **10 m²/L**
Zinc-coated substrates – **20 m²/L**
Smooth substrates (old chalking paints, slightly corroded zinc coat, smooth steel) – **30 m²/L**

SAFETY TIPS

H225 highly flammable liquid and vapour
H315 causes skin irritation
H317 may cause an allergic skin reaction
H318 causes serious eye damage
H336 may cause drowsiness or dizziness
H411 toxic to aquatic life with long-lasting effects

Temperature classification of equipment used for working with **ikorol** shield according to PN-EN 50014+AC:1997: T2
Flash point: 12 °C
Auto-ignition temperature: 400 °C

Due to skin irritating properties of ikorol, protective gloves and protective clothing must be used. If the product gets into the eye, it will cause risk of serious eye damage, therefore wearing goggles or glasses is required. If used in confined space, ensure good ventilation.

PACKAGING

Metal cans: volume **500 mL**,
PE canisters: volume **5 L, 10 L, 20 L, 30 L**
ON REQUEST: Steel drums: volume **200 L**, IBC container **1000 L**

TRANSPORT AND STORAGE

ADR/RID: classification code: **F1**, UN number: **1139**, packing group: **II** (limited quantity 5 L), hazard class in transport: **3**, name: **PROTECTIVE COATING IN SOLUTION** (isopropanol, extraction gasoline)
Storage – in compliance with regulations for flammable liquids, in **well-ventilated** rooms

WARRANTY PERIOD

Five (5) years from the manufacturing date indicated on packaging. When this period expires, the manufacturer can prolong the warranty.