

SPC CORROSION PROTECTION has developed a special mixture «GALVANOL®» possessing protection, which is specific for other types of galvanizing. The product is ready for use and is easily applied by any painting technique at any temperature (-35°C - +50°C), humidity and even on the rust

### Use and application of «GALVANOL®» special mixture



«GALVANOL®» coating is thin-film zinc coating, effectively protects ferrous metals from corrosion, possessing high protective properties and high adhesion to metal surfaces.



«GALVANOL®» coating is intended for anticorrosive protection of external and internal surfaces of industrial equipment and metal structures.



«GALVANOL®» coating provides both active (cathode) and passive (barrier) corrosion protection.



«GALVANOL®» coating is flexible, resistant to vibrational and shock loads, abrasion, works within the range -60°C - +150°C (shortly within the range +180 -210°C when powder coatings are applied).

Zinc-rich special mixture «GALVANOL®» is used in industrial and civil construction, transport construction, oil and gas complex, power engineering, railways, port and river developments, motor transport.

Anticorrosive protection of steel articles and structures operated in atmospheric conditions of all macroclimatic areas, types of atmosphere and categories of location according to GOST 15150-69.

The coating is resistant in fresh and sea water, aqueous salt solutions (pH = 6.0-10.0), ethanol and its aqueous solutions, use in centralized cold-water supply system is allowed.

The coating is not resistant in gasoline and some organic solvents

#### «GALVANOL®» (special mixture for cold galvanizing) specifications

«GALVANOL®» coating is single-component, liquid (ready for use) consists of chemically pure electrolytic zinc, volatiles and binding agents.

The coating is supplied in tightly closed packaging.

Each packing item has a label indicating:

- Manufacturer;
- Product identification code;

- Lot number and date of manufacture;
- Net weight.

Guaranteed storage life is unlimited, if stored in unbroken original package at - 40°C - + 30°C. It is recommended to tightly close package during further storage.

### Technical specifications of «GALVANOL®» mixture

Application	Application pressure	Orifice	Number of layers
Top tank spray gun	3 bar	2,0-3,0 mm	1-2
Lifetime	Unlimited, dilute with solvent, if necessary		
Dry film layer thickness	40-60 mkm		
Holding time between layers	10-40 min		
Painting by protective-decorative coatings	Only solvent-borne paint materials, drying time before application on «GALVANOL®»: 4-6 hours.		
Drying time at:			
- 30 <sup>0</sup> C	50 min		
- 10 <sup>0</sup> C	40 min		
+20 <sup>0</sup> C	20 min		
+60 <sup>0</sup> C	10 min		
Heat resistance	-60°C - +160°C (shortly till 210°C when powder painted over cold galvanizing)		
Adhesion	1 point		
Density at 20°C	2400 kg/m <sup>3</sup>		
Rate of uniform, open corrosion in sea water	0.020 mm/year		
Filing	Obtains metallic luster, but loses 5 mkm of coating,		
Operational conditions	-35°C +50°C		
Packing	spray can, 2 kg, 10 kg, 40 kg		
Use as	Protective, zinc-rich, anticorrosive coating (cold galvanizing) for metals and also as foundation for decorative paint materials		
Coverage rate	250 g/m <sup>2</sup> at 40 mkm thickness.		
Color	Matt grey, tone is not rated.		
Appearance of dry coating	After drying the film should even, homogenous, without foreign matters and stains, matt.		
Solvent	Solvent (petroleum, coal-tap), xylene.		
Viscosity, when applied (20 <sup>0</sup> C)	40 s (viscometer B3-4)		

### Compatibility with other coatings

Zinc-rich special mixture «GALVANOL®» is easily compatible with 90% solvent-borne finishing coatings. Compatibility with polyurethane, urethane-acrylic, acrylic, epoxide, vinyl, chlorinated rubber and alkyd coatings. It is strongly recommended to wait 4-5 hours after application of cold galvanizing mixture «GALVANOL®» to achieve ideal compatibility, during this period a solvent will volatilize and not prevent further adhesion.

In aqueous salt solutions (pH = 6-9), fresh and sea water, zinc-rich special mixture «GALVANOL®» effectively protects steel against corrosion. Due to non-toxicity of components it can be used for drinking water vessels. Zinc corrodes and runs out in time thereby protecting steel. Uniform corrosion rate in sea water is app. 10 mkm per year. For obtaining the best results and to prolong lifetime in sea water it is better to cover coating with polyurethane or epoxy lacquer.

Zinc-rich special mixture «GALVANOL®» shows better steel protection below ground if it insulated from media by lacquer.

The coating is not resistant in gasoline and some organic solvents so it is recommended to cover it with finishing coating, which is resistant to such media.

### **Application procedure**

1. Application procedure of anticorrosion coating attaining based on zinc-rich special mixture «GALVANOL®» consists of the following step-by-step operations:

- 1.1. Surface preparation for application of anticorrosive coating;
- 1.2. Preparation of mixture for application;
- 1.3. Application of protective coating;
- 1.4. Layer drying of coating;
- 1.5. Quality control of anticorrosive coating;
- 1.6. Final holding of anticorrosive coating before commissioning.

2. It is recommended to apply anticorrosive coating at the temperature not lower than 30°C.

3. During carrying out of outdoor anticorrosive protection in wintertime it is necessary to:
- Build shelter to protect from precipitation
  - Metal surface temperature should be on + 3°C higher than dew point.

### **Preparation of metal surface for application of coating.**

All parts of articles that are subject to protection should be accessible for inspection, surface preparation, and application of protective coating and its quality control.

Surface that is subject to preparation before application of coating should be free of burrs, sharp edges (radius less than 0.3 mm), welding splashes, rolls, burn-through and residual flux. Metal constructions' welding areas (standard sections, plates, etc.) should be free of hidden cracks and cavities. If there is any oil or fat containment clean them using detergents.

The metal surface should be prepared before applying «GALVANOL®» coating:

New steel (metal-roll) with heavy scale is subject to sandblasting to the second degree according to GOST 9-402 and should be degreased.

- New steel (metal-roll) without scale should be degreased
- Old rusty surface – loose rust is eliminated manually or mechanically (scrubbing) or by high-pressure fresh water (10-20 mPa) and then the surface is degreased.
- Previously zinc-coated surface – containment and upper layer of zinc salts are eliminated manually or mechanically (by high pressure fresh water 10-20 mPa) and then the surface is degreased.
- Previously painted surface – paint should be eliminated chemically, by remover (manually or mechanically by extra-high pressure water 175-275 mPa) and then degreased.

In manual abrasive machining of surface with fine wheel or sand paper, abrasive grit should be in 5-6 range according to GOST 3647-71 or in 180-220 range according FEPA standard.

Remove dust from surface after manual and mechanical cleaning. Presence of bare places is not allowed.

Compressed air used for cleaning should be dry and clean and meet the requirements of GOST 9.010-80.

### **Preparation of mixture**

During degreasing of small areas of surface use brush wetted with solvent, xylene.

The mixture is applied on clean and degreased surface not later than after 12 hours, if metal constructions are outdoors and 48 hours, if indoors.

«GALVANOL®» mixture is ready for use and application by brush, roller, and spray gun. The material can be diluted with solvents (petroleum, coal-tap), xylene, if necessary. Dilution of «GALVANOL®» mixture with other solvents is not allowed.

«GALVANOL®» mixture should be should be thoroughly stirred with mixer till total homogeneity.

### **Material application**

The mixture is applied on clean and degreased surface not later than after 12 hours, if metal constructions are outdoors and 48 hours, if indoors. Despite of chosen method of application of mixture on prepared surface, welds and hard-to-reach places should be firstly painted by brush. In case of cracks and hidden openings after welding eliminate possibility of ingress of moisture into them (by any nonpolluting means of waterproofing).

«GALVANOL®» mixture can be applied on the surface by brush, roller, and spray gun or by means of dipping.

- **Brushing:**

A brush should be from natural bristle, free of dust and containment. Dilution of «GALVANOL®» mixture under standard conditions is not required.

- **Roller application:**

A roller should be made from organic solvent resistant material, free of dirt and previously used painting materials. Dilution of «GALVANOL®» mixture under standard conditions is not required.

- **Hydraulic spraying:**

Equipment should be free of containment and previously used painting materials. Dilute, if necessary, with solvent or xylene in the ratio till 5% by weight. Air pressure – 0.2 – 0.3 mPa (2 – 3 bar). Nozzle diameter – 2.0 – 3.0 mm.

- **Airless spraying:**

Equipment should be free of containment and previously used painting materials. Dilute, if necessary, with solvent or xylene in the ratio till 4% by weight. Air pressure – 8 – 12 mPa (80 – 120 bar). Nozzle diameter – 0.0015 – 0.025 inches, 0.38 – 0.68 mm.

- **Dipping:**

Dilute, if necessary, with solvent or xylene in the ratio till 15% by weight.

**If applied by any of above-mentioned methods «GALVANOL®» mixture should be stirred regularly (each 20 – 30 minutes).**

The material is to be applied layer-by layer, covering edge of previous line.

Total thickness of coating should be min 40 mkm – max 160 mkm. When applied on constructions with minor mechanical strains, maximum thickness of application can be increased to 200 mkm.

All application works are carried out at  $-30^{\circ}$  -  $+50^{\circ}\text{C}$  and relative humidity up to 90%.

The mixture can be applied on wet surface. But the surface should be free of moisture as drops and at negative temperatures avoid crust of ice. It is recommended to use shelters in application of coating under rain or snow conditions.

### **Anticorrosive works quality control**

Quality of anticorrosive works is controlled both during implementation of separate operations and after completion of whole set of works.

Quality of coating is controlled by means of external examination. After polymerization the coating should be free of through pores, blisters and visual damages.

Thickness of coating is controlled after drying with thickness gauge.

### **Defect elimination and repair**

Defect spots (peeling, blistering) occurred during coating application and operation is subject to immediate elimination. Rub down the defect spot with sandpaper, degrease and dry.

Apply anticorrosive coating on prepared surface according to application procedure.

Thickness of coating on metal surface is measured with thickness gauge

### **Transportation and storage**

«GALVANOL<sup>®</sup>» mixture is shipped by any means of transportation in covered transportation means according to shipping rules applicable on each type of transport.

The material to be stored in close ventilated warehouses or under shelter at maximum temperature  $35^{\circ}\text{C}$ . If stored under higher temperature manufacturer does not guarantee meeting of specification requirements.

«GALVANOL<sup>®</sup>» material should be stored in tightly closed containers, excluding ingress of moisture, dust and other containment.

### **Manufacturer's guarantee**

Manufacturer guarantees meeting the requirements of specification under meeting the transportation and storage requirements and application guide.

Guaranteed storage life of material is unlimited.