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## riag PZn 941

### Activating agent for immersion- and spray phosphating processes based on titanium phosphate

**riag PZn 941** is a powdery activating agent which is added to the rinsing bath before an immersion or spray phosphating process. **riag PZn 941** has the effect to produce uniform and microcrystalline zinc phosphate coatings on iron, steel, aluminum and zinc-plated surfaces. **riag PZn 941** can also be applied with hard water and belt conveyer systems.

#### Properties

- Easy to operate, broad working area
- Suitable for applications in belt conveyer systems
- Produces uniform microcrystalline coatings
- Limited suitable for applications in hard water

#### Make up

	Application	Standard value
<b>riag PZn 941 Additive</b>	Spray process	0.05 – 1.0 g/L
<b>riag PZn 941 Additive</b>	Immersion process	0.5 – 5.0 g/L
Temperature		20 – 40 °C

Fill tank with water up to  $\frac{3}{4}$  of the final volume. Add the required amount **riag PZn 941 Additive** and fill up with water to the final volume. Heat the activator to a working temperature of at least 20 °C. If hard water is applied (over 20 °dH) use the maximum concentration for the make up; for soft water or DI water the concentration of the make up can be reduced considerably.

## Operating parameters

Temperature	20 – 40 °C
Time	5 – 120 s, depending on concentration, temperature and agitation
Make up	The concentration of the make up depends on the water quality, temperature and the specific process parameters.
Total alkalinity	Immersion: 2.5 – 25 points (in DI water) Spray: 0.25 – 5 points (in DI water) To increase the total alkalinity by 1 point add 0.2 g <b>riag PZn 941 Additive</b> /L electrolyte.
Conductivity	Immersion: 500 – 5000 $\mu\text{S cm}^{-1}$ (DI water) Spray: 50 – 1000 $\mu\text{S cm}^{-1}$ (DI water) To increase the conductivity by 100 $\mu\text{S cm}^{-1}$ add 0.1 g <b>riag PZn 941 Additive</b> /L electrolyte.  Conductivity and total alkalinity is affected by the quality of water and the drag-in of rinsing water.
pH – Value	8.0 – 10.5
Agitation	effective agitation is recommended
Parts movement	Barrel: 6 – 12 rpm Rack : 1 – 2 m/min.
Tank	Tank and installations: construction steel. However, we recommend the use of stainless steel, particularly when using demineralised water.
Heating	Stainless steel heaters
Cooling	not necessary
Exhaustion	according to law

## Process

**riag PZn 941** is monitored by measuring the pH-value and the conductivity or by measuring the pH-value and the total alkalinity. If the effectiveness of the activator decreases **riag PZn 941 Additive** has to be added or a new make up is necessary.

## Environmental considerations and product safety

All concentrates, rinse waters and waste solution must be treated and discharged in accordance with local effluent control regulations. Information can be gleaned from the material safety data sheets. Chemicals shall not be stored below 10 °C.

## Liability

This instruction manual was compiled with reference to the state of the art and all current standards, and is based on the long-term knowledge and experience of riag. However, riag cannot monitor compliance with this instruction manual and the methods described herein at the customer/end-user's premises. Work carried out with riag products must be adapted accordingly to meet local conditions. In particular, riag cannot accept liability for damage, loss or cost incurred due to a failure to adhere to this instruction manual, improper application of the methods, unauthorised technical modifications, insufficient maintenance or the absence of maintenance in respect of the requisite technical hardware or equipment, or in the event of use by unqualified personnel. riag is not liable for damage or loss caused by riag or its employees except where intention or gross negligence can be proved. riag furthermore reserves the right to make changes in relation to products, methods and the instruction manual without prior notice.

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## Analysis (Analytical methods)

Sample preparation:

The sample must be taken from a well-mixed location and allowed to cool down to 25 °C.

### Total alkalinity in activations

Reagents: Sulphuric acid 0.05 mol/L  
Bromocresol green (0.1 % in ethanol)

Procedure: 100 mL activation are transferred via pipette into a  
250 mL beaker, add  
5 drops bromocresol green  
Titrate with sulphuric acid from blue to yellow.

Calculation: Use of  $\text{H}_2\text{SO}_4$  in mL = total alkalinity (points)