



TECHNICAL DATASHEET

ZINCOSTAR NCZ ALKA 3600

NEW GENERATION NON-CYANIDE ALKALINE ZINC ELECTROPLATING PROCESS

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Process Information

The bright alkaline cyanide free Zinc process Zincostar NCZ ALKA 3600 is mainly used for plating on consumer parts to obtain very uniform brightness and levelling in all current density areas. High corrosion resistance in combination with suitable chromates and passivations. Can be used with all kind of passivations.

Working Parameters

Agitation	Necessary, preferably mechanical agitation (cathode rocker or barrel rotation at 4 to 8 RPM). Air agitation is not recommended
Filtration	Continuous recommended, 2 to 4 tank volumes per hour throughput, 10 micrometer mesh filter media.
Cathodic current density	Up to 6 A/dm ²
Temperature	25°C to 50°C (optimum 30°C)
Anodes	It is recommended to use insoluble anodes (Nickel plated steel anodes) in the working tank and to have a separate Zinc generator tank (equipped with catalytic coating or using nickel plated baskets to speed up zinc dissolution) connected via Bypass to the working tank
Tank ventilation	Strongly recommended (without air agitation)

Make up

Make up data (sodium based):

	optimum	range
ZnO	14 g/l	
NaOH	160 g/l	120,0 - 160 g/l
Na ₂ CO ₃	50 g/l	10,0 - 80 g/l
Zincostar NCZ ALKA 3600 Brightener	1 ml/l	0,5 1 ml/l
Zincostar NCZ ALKA 3610 Carrier	15 ml/l	10,0 15 ml/l
Zincostar NCZ ALKA 3620 LCD bright/purif.	1 ml/l	0,5 1 ml/l
Zincostar NCZ ALKA 3630 conditioner	15 ml/l	10,0 20 ml/l

* the addition of **Zincostar NCZ ALKA 3620 LCD brightener/purifier** is optional

Make up data for potassium based.

	optimum	range
ZnO	14 g/l	
KOH	180 g/l	150,0 - 220 g/l
K ₂ CO ₃	40 g/l	10,0 - 80 g/l
Zincostar NCZ ALKA 3600 Brightener	1 ml/l	0,5 1 ml/l
Zincostar NCZ ALKA 3610 Carrier	15 ml/l	10,0 15 ml/l
Zincostar NCZ ALKA 3620 LCD bright	1 ml/l	0,5 1 ml/l
Zincostar NCZ ALKA 3630 conditioner	15 ml/l	10,0 20 ml/l

* the addition of **Zincostar NCZ ALKA 3620 LCD brightener/purifier** is optional



Make up procedure:

- Into a separate and clean temperature resistant tank, DI water of is filled up to approximately 75 % tank volume.
- While stirring, add slowly and carefully the required quantity of NaOH, Na₂CO₃ and ZnO to the water and stir until fully dissolved. (Attention !: Exothermic reaction, wear protective clothes and goggles!).
- After the ingredients have fully dissolved while continuous stirring, the solution remains slightly turbid.
- Continue stirring until the solution becomes clear.
- Add 2 to 3 g/l activated carbon powder into the solution and stir for at least 30 minutes, then stop all agitation.
- Allow active carbon to precipitate.
- Filter the solution through a 10 micrometer mesh filter media into the working tank. Make sure no active carbon particles are in the working solution.
- Top tank with DI water to reach final volume and stir for 30 minutes to obtain a homogeneous electrolyte.
- Adjust operation temperature if necessary to operation range.
- Add the necessary quantity of additives.
- Dummy plate with 2.5A/dm² for approx. 2 AH per liter.
- Solution is ready for start up.

Maintenance

Under standard production conditions dosing of the *Zincostar NCZ ALKA 3610 Carrier* is sufficient to maintain the performance stable.

Regular addition of *Zincostar NCZ ALKA 3620 LCD brightener-purifier* is optional. Under normal circumstances, *Zincostar NCZ ALKA 3620 LCD brightener-purifier* is added only as a corrector depending upon Hull-cell results (Attention, always use steel anode for Hull cell testing). It is recommended to make corrective additions in small doses.

Consumption per 10.000Ah:

<i>Zincostar NCZ ALKA 3610 Carrier</i>	0,5 - 1,5 l
<i>Zincostar NCZ ALKA 3600 Brightener</i>	0,3 - 0,5 l

Trouble shooting:

- Dark LCD areas are an indication for metallic impurities coming from the anodes, drag in etc. To correct this add up to 4 ml/l *Zincostar NCZ ALKA 3620 LCD brightener-purifier* in doses of not more than 1 ml/l at a time.
- Poor thickness distribution of zinc deposit is mainly caused due to low temperature of the electrolyte or due to lack of *Zincostar NCZ ALKA 3610 Carrier*.
- *For detailed troubleshooting guide please contact with your chemical supplier or Galvano Mondo directly.*

Effluent treatment:

All concentrates and rinsing waters have to be treated according to local regulations.

Health and Safety

Material Safety Data Sheets are available for all GALVANO MONDO products, they are normally issued with relevant quotations and Technical Data Sheets. They explain hazards associated with the product following classification by European Statutory Requirements. Normally more than one product will be used in a process. Risk evaluation of the process is the users responsibility because the user controls men, materials, methods and machines. The user must consider all of the substances present in the solution, whether they present a risk to people and the environment, whether abatement measures are needed.