Galvano Mondo
surface treatment & finishing systems

TÜV AUSTRIA HELLAS
EN ISO 9001:2000

TECHNICAL DATASHEET

NILUX 1015

Bright Nickel Electroplating Process

Contents

Process Information

The highly levelled, ductile and mirror bright decorative nickel NILUX 1015 is used mainly on steel, zinc die cast and brass all kind items that require top brightness and excellent appearance uniformity along with whitish color of deposit.

Make up

	optimum		range			
$NiSO_4*6H_2O$	285	g/l	250	to	290	g/l
$NiCl_2*6H_2O$	65	g/l	50	to	70	g/l
H_3BO_3	40	g/l	40	to	50	g/l
Carrier NILUX 1100	4	ml/l	2	to	6	ml/l
Leveller NILUX 1110	10	ml/l	5	to	15	ml/l
Brightener NILUX 1015	0,5	ml/l	0,3	to	0,8	ml/l
Wetting Agent NILUX 1400	3-5	ml/l	3	to	5	ml/l

Make up procedure:

- Into a separate and clean tank, hot water is filled up to approximately 60 % tank volume.
- While stirring, add slowly and carefully the required quantity of Nickel chloride into the water. (Attention !: Nickel Chloride must be fully dissolved!).
- While continue stirring, add slowly and carefully the required quantity of boric acid into the water. (Attention !: Boric Acid must be fully dissolved!).
- While further stirring, add slowly and in small quantities the required quantity of Nickel Sulphate into the water. (Attention !: Nickel Sulphate must be fully dissolved!).
- Add 3 g/l activated carbon powder into the solution and stir for at least 30 minutes, then stop all agitation and allow carbon to settle down.
- Filter the solution through a 5 micrometer mesh filter media into the working tank. Make sure no active carbon particles are in the working solution.
- Top working tank with water up to operation level and switch on air agitation
- Measure and adjust the pH with diluted (1:10)sulphuric acid to operation range.
- Add the necessary quantity of additives.
- Switch on circulation filter pump.
- Adjust operation temperature if necessary to operation range
- Dummy plate for approximately 2 ampere hours per litre.
- Solution is ready for start up.

Working Parameters

Agitation	Necessary, preferably air, mechanical also possible
Filtration	Continuous, 5 to 8 tank volumes per hour throughput, 5 to 10 micrometer mesh filter media.
Cathodic current density	Up to 8 A/dm^2
Temperature	55^oC to 65^oC
Anodes	Bagged Nickel anode pieces in titanium baskets
Plating speed	1 micron per minute at 5 A/dm2
Tank ventilation	Necessary

Maintenance:

Under standard production conditions dosing of the Brightener NILUX 1015 to the electrolyte is done according to Ampere hours. In case Ampere hours are not known, additions of Brightener should not exceed 0,1 ml/l at once. It is recommended to make corrective additions in small doses. Regular addition of Carriers is not needed unless lack becomes visible by hullcell tests. Dosing of Wetting Agent NILUX 1400 is optional.

Estimated Consumption per 10 KAh:

NILUX 1015 1.5 to 2.5 liter

Attention: Consumption of additives for acid copper plated parts can be up to 50% lower!!

Hullcell tests (2A, 7min or 10 min, 60°C, without agitation) are carried out to control performance.

Trouble-shooting:

- Poor LCD performance is caused by lack of Carrier NILUX 1100 or by excess of or by third party nickel additives and residures. Add 1 ml/l Carrier NILUX 1100 to correct and stop dosing of Brightener for a while.
- Pit formation is caused by lack of Wetting agent NILUX 1400 or by drag in of oil and other impurity. Add first up to 1 ml/l Wetting agent NILUX 1400 .
- Lack of ductility or tendency to burn indicates lack of Leveller NILUX 1110.
- Permanent loss of compressive stress is caused by foreign additives and indicate the need for carbon treatment.

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.