

NIBRITE SB

INTRODUCTION

The Nibrite SB process has been developed to produce a semi-bright, levelled, ductile nickel deposit. The deposit is sulphur free and is ideal for use where a dual nickel deposit is required.

BENEFITS

- Sulphur free deposit
- Ductile and stress free
- Wide current density range
- Easy to maintain

SOLUTION MAKE -UP

The Nibrite SB process is supplied as a purified Base Solution, to which is added the Nibrite SB Additive.

Nickel Base Solution	as supplied
Nibrite SB Additive	0.5ml/L
Nibrite SB Wetter	0.5ml/L

It is essential that the tanks to be used for Nibrite SB are thoroughly cleaned and leached before any product is introduced.

If in any doubt as to the cleaning procedure please contact PMD Technical Department.

1. Add Nickel Base Solution to tank.
2. Add Nibrite SB Additive and Nibrite SB Wetter as required.
3. Heat to operating temperature.
4. Electrolyse for 4 hours at 1-2 ASD (10-20 ASF).

OPERATING DATA

Nickel	60 – 70 g/L
Nickel chloride	50 – 60 g//L
Boric acid	40 – 45 g/L
pH	3.9 – 4.5
Temperature	50 - 60°C
Cathode CD	2 – 4 ASD
Anode CD	1 – 2 ASD
Agitation	Air, cathode or solution movement
Deposition rate	0.6 micron/minute at 3 A/dm ²



MAINTENANCE AND CONTROL

The solution should be analysed regularly and replenished as necessary. (See analysis methods)

The Nibrite SB Additive and Wetter should be added on an ampere hour basis:-

Nibrite SB Additive	110- 150 mls/1000 amp hours
Nibrite SB Wetter	110- 150 mls/1000 amp hours

pH should be kept within the range 3.9 - 4.5 with additions of sulphuric acid (10% v/v) to lower or sodium hydroxide (100g/L) to increase. During use the pH will increase slowly.

EQUIPMENT

Tanks	Steel or GRP lined with PVC, polypropylene or hard rubber
Heaters	PTFE or titanium clad electric immersion heaters
Filtration	Continuous filtration recommended
Anodes	Depolarised or carbon containing nickel. Alternatively, 'S' Nickel in titanium baskets. Polypropylene or Terylene woven anode bags which have been thoroughly leached in hot water should be used
Extraction	Recommended

ANALYSIS METHODS

1. Chloride

Reagents

0.1N silver nitrate (standard volumetric solution)
Sodium hydrogen carbonate
20% w/v potassium chromate solution

Method

1. Cool a sample of the solution to room temp.
2. Pipette a 5.0ml aliquot into a 250ml conical flask.
3. Add 100ml DI water.
4. Add 2gm sodium hydrogen carbonate and stir until dissolved.
5. Add 2-3 drops 20% potassium chromate solution.
6. Titrate with 0.1N silver nitrate to an orange end point.
7. Record titre = t mls.



Calculation

$t \times 2.378 = \text{g/L nickel chloride}$

Replenishment

For every 1g/L required add 1g/L nickel chloride.

2. Nickel

Reagents

0.2N EDTA (Standard volumetric solution)

Ammonia solution

Murexide indicator

Method

1. Cool a sample of the solution to room temperature.
2. Pipette a 2.0ml aliquot into a 250ml conical flask.
3. Add 100ml DI water.
4. Add 10ml ammonia solution.
5. Add a pinch of murexide indicator.
6. Titrate to a purple end point with 0.2N EDTA.
7. Record titre = t mls.

Calculation

$t \times 2.935 = \text{g/L Nickel}$

Replenishment

For every 1g/L nickel required add 4.48g/L of nickel sulphate $6\text{H}_2\text{O}$.

3. Boric acid

Reagents

0.1N sodium hydroxide (standard volumetric solution)

Buffer solution (Dissolve 60g sodium citrate in 100ml DI water. Add 600ml glycerol. Dissolve 2gm phenolphthalein in 10ml methanol and add to the mix. Make up to 1 litre with DI water).

Method

1. Cool a sample of the solution to room temperature.
2. Pipette a 1.0ml aliquot into a 250ml conical flask.
3. Add 25ml of buffer solution.
4. Titrate slowly with 0.1N sodium hydroxide to the first permanent pink end point.
5. Record titre = t mls.



Calculation

$t \times 6.184 = \text{g/L boric acid}$

Replenishment

For every 1g/L low add 1g/L boric acid

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Nickel Base Solution	547007
Nibrite SB Additive (25Kg)	541010
Nibrite SB Wetters (Mechanical or Air)	541011

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