



ISO 9001:2008

# Deluxe

Meproché

TECHNICAL BULLETIN

## MEPROCHE NITRIDING SALTS

Nitriding process is suitable for components/parts which have been finally machined and a hard case is to be imparted on them without distortions.

This is achieved by formation of hard nitrides of iron on the top surfaces. However the layer of nitrides insulate further penetrations and therefore the case depth achievable is low and the process time is long.

**MEPROCHE N-4** is a specially designed salt for nitriding components by salt-bath technique, which is much cheaper than gas-nitriding equipments. **MEPROCHE N-2** is a salt which is added in the bath of **Meproche N-4** base bath, to increase the percentage of cyanates, which get consumed. Hence **Meproche N-4** is a base salt and **Meproche N-2** is a replenishment salt.

### Preparation of bath of MEPROCHE N-4:-

- 1) Use a dry and clean pot for the bath.
  - 2) Add **Meproche N-4** up to 1/3 height of pot.
  - 3) Heat the bath and attain temperature up to 580 °C.
  - 4) Add more **Meproche N-4** salt to raise the level of liquid salt. By and by reach up to 2/3 level of pot.
  - 5) Attain minimum 565°C temperature and start aeration in the bath. The temperature should be maintained within +/- 5°C.
  - 6) Add 10gms **Meproche K2S** per 100 kgs of bath material.
  - 7) Continue aeration and let it age for 24 hours.
- Now the bath is ready for use.

### Bath operation and maintenance:

- 1) Only cleaned, degreased and preheated components should be placed in the bath.
- 2) Oxidation products/sludge formed from time to time should be removed.
- 3) Bath temperature should not be allowed to go beyond 600°C in any case. The bath quality deteriorates at high temperature. The temperature for nitriding is 570°C.
- 4) The components should be dipped for 2 to 4 hours in the bath depending on case depth required, bath temperature, type of steel, and size of components.
- 5) After the specified time remove the fixture/components and let the excess salt drip down to the bath. The components can be washed with water.
- 6) Aeration should be continued even if the bath is idling.
- 7) It is advisable to keep the bath covered when not in use; it increases the life of bath.
- 8) The bath parameters mentioned below should be maintained by regularly checking the bath samples as directed in our technical bulletin '**Testing of Meproche nitriding bath**':



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**Cyanate content** : 31 to 40%  
**Carbonates** : 17 to 21%

If by mistake the cyanate content is allowed to increase then recommended then a white layer may come on the components which can be removed by chemical solution (10% of sodium cyanide solution in warm water.)

### Replenishment of salts:

- 1) By constant use the cyanate content of the bath reduces and the level of the bath goes down because of drag out losses.
- 2) To maintain the matrix of the bath **Meproche N-2** is designed to take care of imbalance generated.
- 3) After testing the bath for cyanates determine the shortage of cyanates. The level has to be 31 to 40%.
- 4) For every 100 kg of bath material add 0.9 kg of **Meproche N-2** to raise the cyanate percentage by one percentage point.
- 5) After addition of such determined quantity of Meproche **N-2** salt, if the level of salt is low then add more Meproche N-4 salt.

### Replenishment of Meproche K2S:

Add 2 -3 gms. Of **Meproche K2S** per 100 kg. of salt. Please keep in mind that it is only replenishment addition. If quantity added is more a black smut will be formed on the job and the same has to be removed. Extra addition of **Meproche K2S** may create porosity in the case and hence it is advisable to add **Meproche K2S** in two installments.

Finally test the components for designed parameters of the case.

For more details please contact to:-

**M/s. Deluxe Metal Processing Chemicals Pvt.Ltd.**

404, Sai Chamber, 365 /69, Narshi Natha Street,

Mumbai - 400 009.

Tel:-2344 31 48 / 66312982 /30020444

Fax: (91-22)2342 96 63

Email: [pcb@deluxemetal.com](mailto:pcb@deluxemetal.com)

Website: [www.deluxemetal.com](http://www.deluxemetal.com)