Contamination in Molten Salt Baths

Nitrate based molten salt baths have the ability to absorb carbon dioxide from the atmosphere. The salt will also absorb any carbonaceous material on the fixtures, racks, and parts immersed in the bath. Over time as the salt absorbs carbon, sodium carbonate will form in it. As the percentage of sodium carbonate increases so does its solubility temperature in the bath. If the operating temperature of the bath is higher than the solubility temperature of the sodium carbonate, the sodium carbonate will go into solution with the molten salt. If the operating temperature is lower than the solubility temperature of the sodium carbonate, the sodium carbonate will precipitate out of the molten salt and sink to the bottom of the bath and form sludge. De-sludging a bath consists of removing the sludge (sodium carbonate) from the bottom of the bath. The ideal procedure in de-sludging a bath is as follows:

1. Take salt temperature up about 50°F above your operating temperature.

2. Shut off power and any agitation.

3. Scrape down bath sides and heaters with a flat spade like tool

4. Allow bath to settle until about 50°F below operating temperature

5. Carefully drag a de-sludging tool across bottom of bath.

6. Repeat until all sludge is removed.

7. Turn heat back on and take bath to operating temperature.

8. Skim off any floating sediment.

9. Top off with fresh salt.

As the sludge builds up in the bath, it becomes increasingly harder to remove. Without routine de-sludging, some heat treaters have had to drain their baths and literally jack hammer out the sludge in order to remove it. The sludge should not be put back into the bath, but disposed of as hazardous waste.

For more information on Molten Salt Baths, Quenching and Tempering Salts and their processes, please contact our Molten Salt Specialist, John Williams at: jwilliams@heatbath.com or 413-452-2000 Ext. 162

**For Heatbath Products
Contact Us At:
(413) 452-2000
www.heatbath.com**