

Extract from
THE SOCACHIM HANDBOOK OF FUSION METHODS

RAW MILL

Cem-3 Cement flour (samples that contain large amounts of carbonates)

Flux: XRF Scientific LT100 & LT66:MT34

Additives to flux:

Oxidizer: NONE

Non-wetting agent: 2 drops of Lithium Bromide solution (250g/l).

Dilution: the sample/flux ratio is about 1/6 up to 1/12

Swirling: the mixture must be agitated strongly for to permit the complete dissipation of gasses (bubbles in the bead). Swirl speed: 60

Fusion of cement: Weigh 1 gram of dried/grinded samples, 10g of lithium borate flux and mix them together. The mixture is rigorously mixed to be sure the contact between sample and flux is perfect. The mixture is transferred into the crucible on the fusion machine and about 2 drops of lithium bromide is added on top of it. Start the fusion program.

When the cooling is finished, remove the bead from the mould.

Fusion Program:

- Premelt (preheating step): 5 minutes at 950°C
- Melting (without swirling): 1 minutes at 1050°C
- Melting (with swirling): 3 minutes at 1050°C
- Mould control (mould preheating step): 1 minute at 1000°C
- Cooling (bi-level cooling): T1= 1 minute — T2= 2 minutes
- TOTAL FUSION TIME: 12 minutes

Comments: A pre-heating step is necessary for to permit the slow dissipation of gasses. The samples with a high quantity of carbonates have the tendency to foam and spill over the top of the crucible during the fusion (due to the decomposition of the carbonates in carbon dioxide).

The use of a tall size crucible is recommended