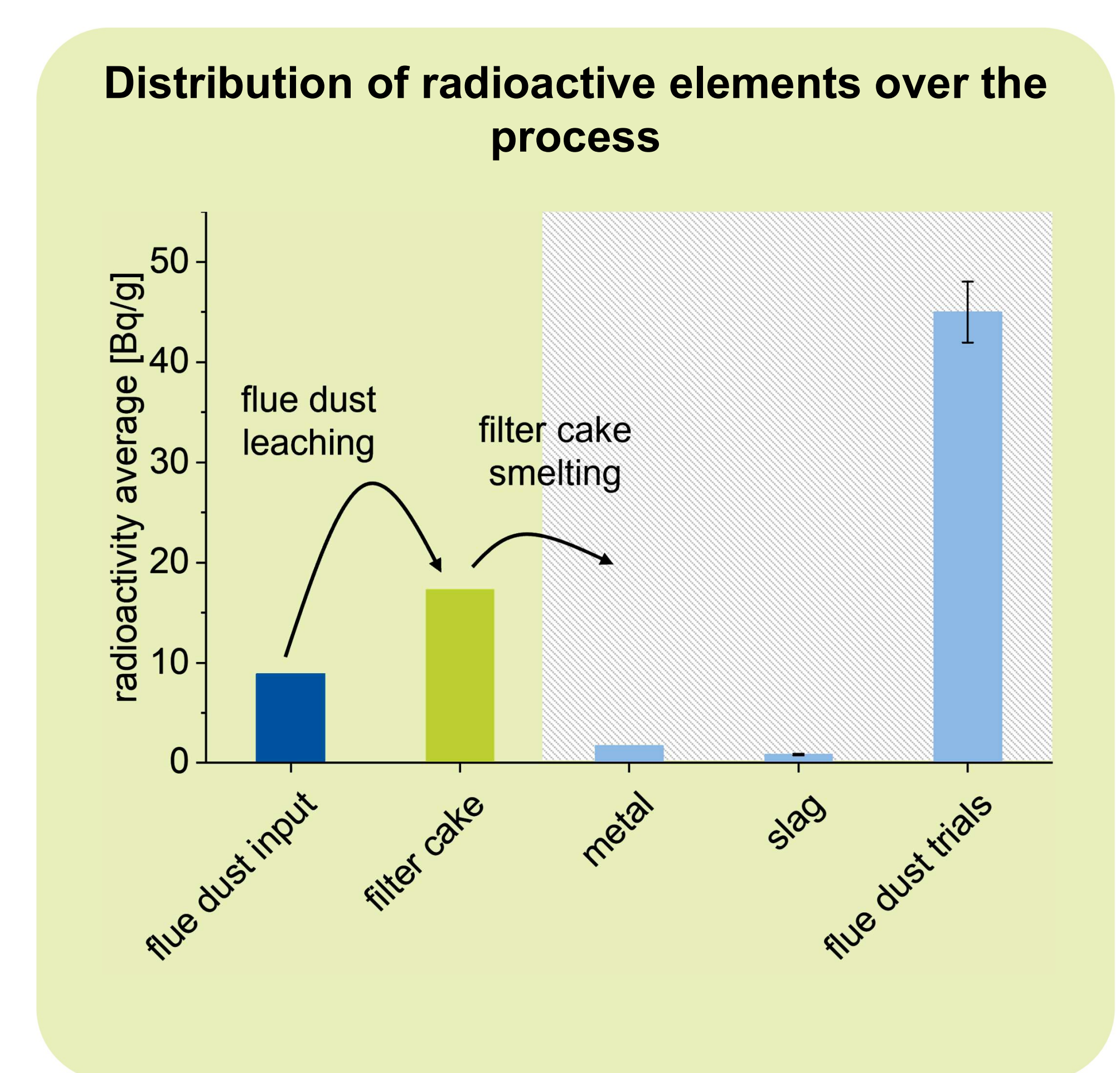
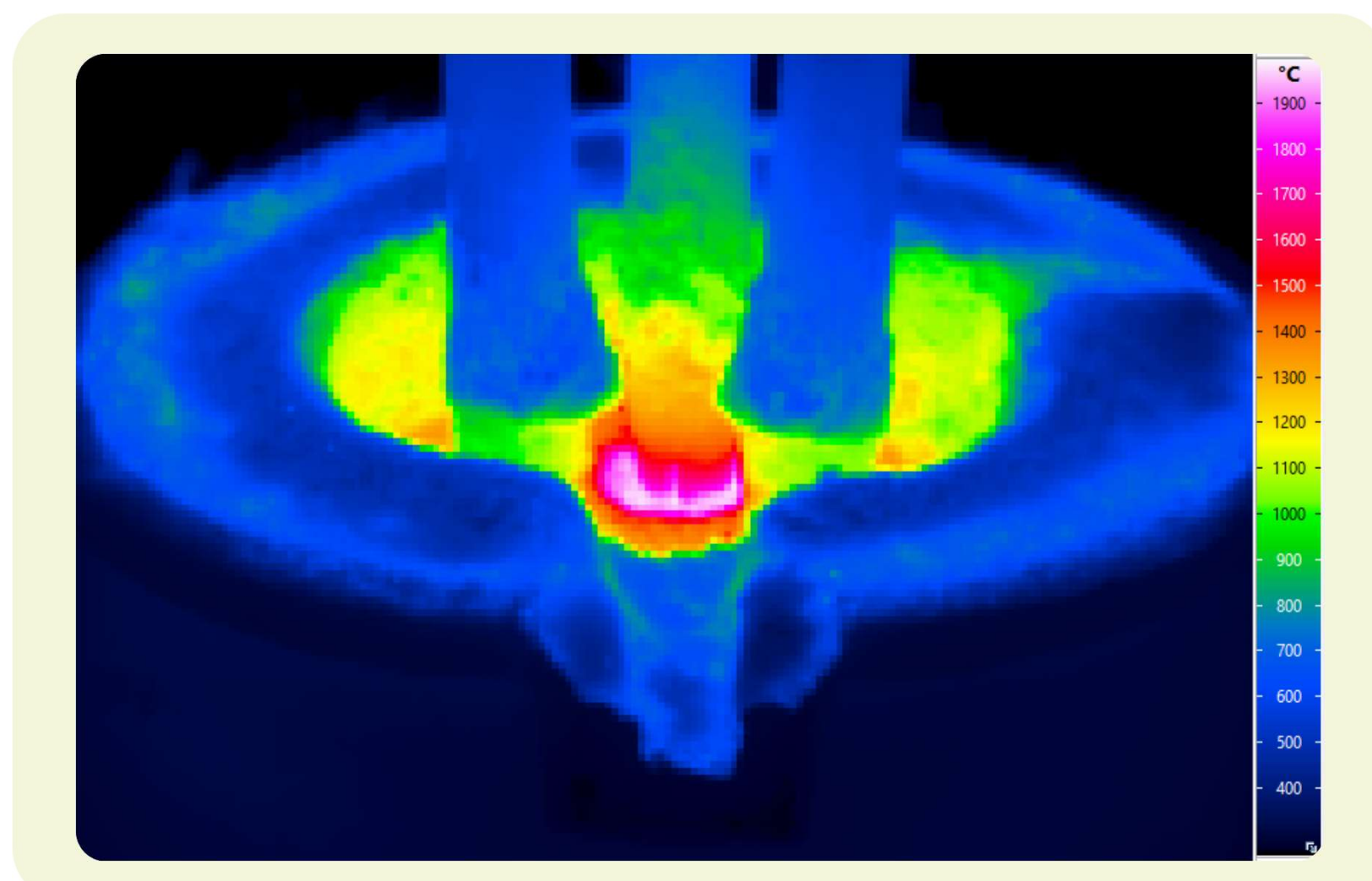
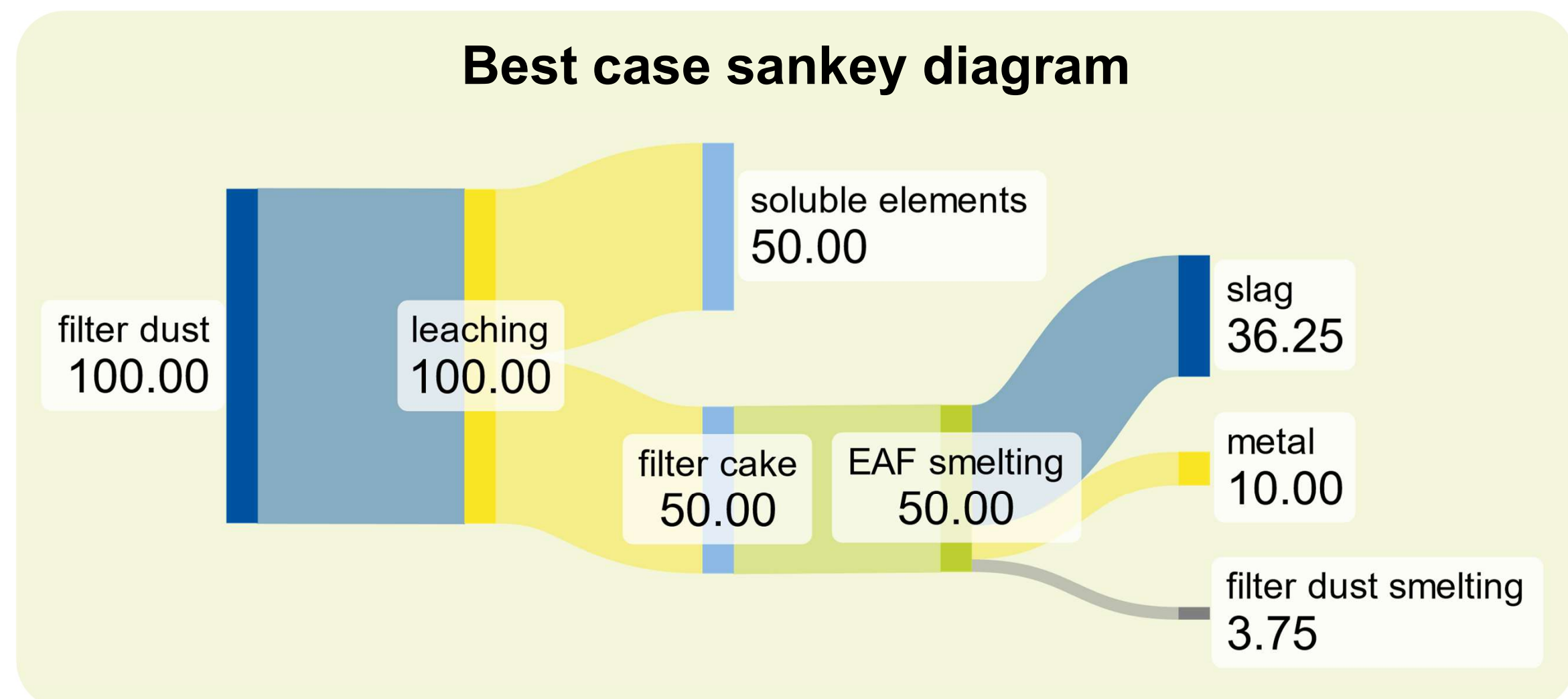
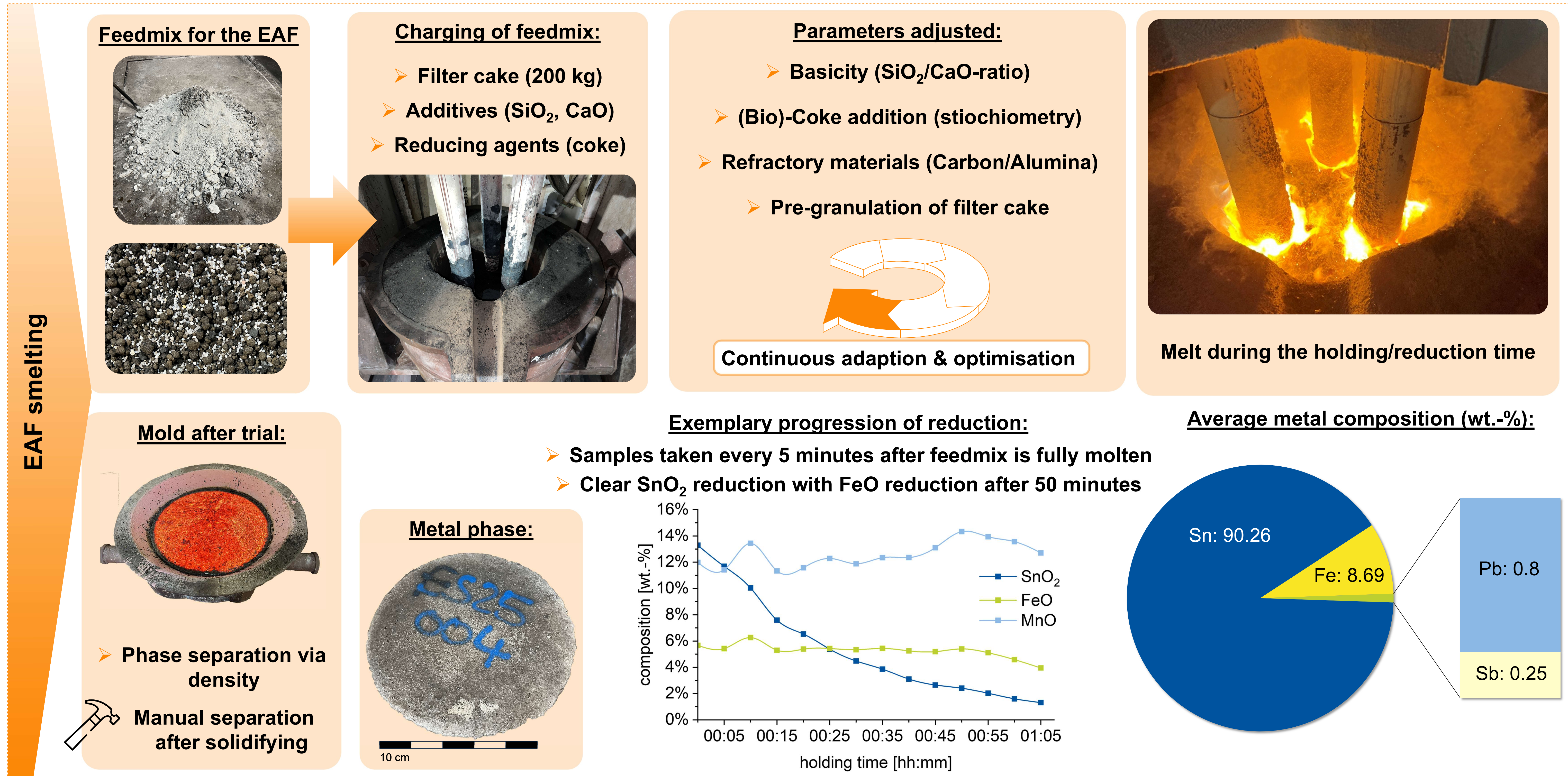
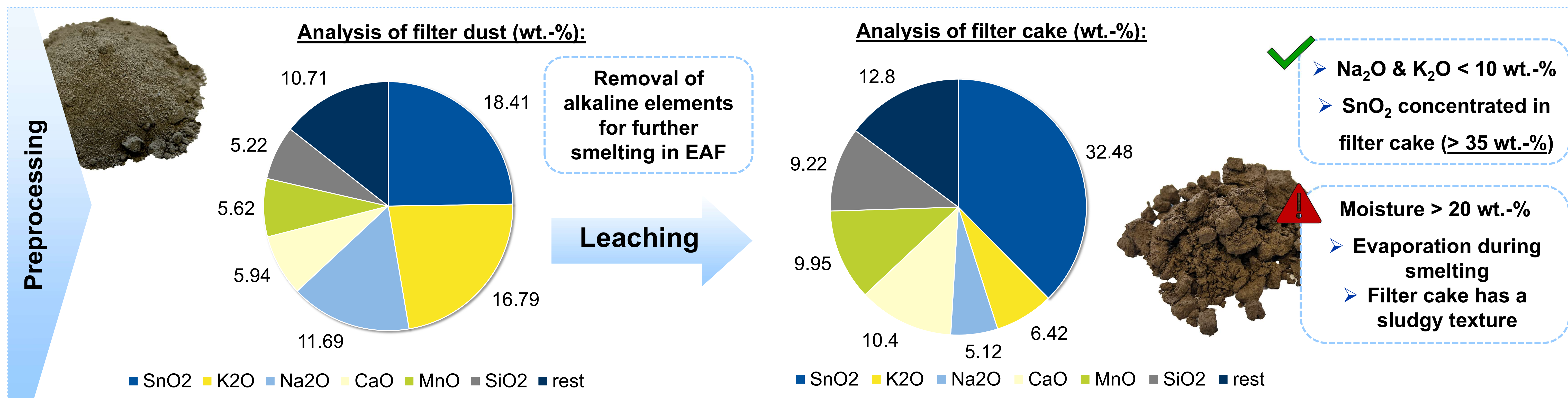


Recovery of tin from tin-containing filter dusts by carbothermic reduction in an EAF

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The Syncon process, operated by Taniobis Smelting GmbH in Laufenburg, Germany, generates tin- and alkali-rich filter dust as a by-product. Currently, this by-product is not recycled, which results in a loss of valuable strategic metals and an unnecessary increase in waste streams. At the same time, alkali-bearing residues pose potential environmental risks, particularly with regard to leaching behaviour during storage and landfill. Therefore, developing a recycling strategy for this dust offers the opportunity to conserve critical resources such as tin, tantalum and niobium, while reducing disposal volumes and the associated environmental impact. Furthermore, an integrated treatment process could improve the overall efficiency and economic performance of tantalum-niobium production by reintroducing recovered metals into existing production chains.



Conclusions:

- Successful implementation of a recycling process for filter dust
- Production of a slag with low Sn concentration: < 1 wt.-%
- High Tin metal recovery of above 80 wt.-%
- Low evaporation and filter dust generation during smelting: 3.75 wt.-% of the initial mass in the best case
- Possibility of CO₂-neutrality due to the successful usage of bio-coke