

Nina Kosova (I Solid St Chem Mechanochem)

Q: Does the morphology of nanoparticles changes after numerous charge-discharge cycles?

It concerns to a greater extent the particle size.

Q: What about impurities in the samples resulting from balls and other mill materials?

Since the reactants of low hardness are usually used and the time of the mechanical treatment does not exceed a few minutes, the contamination is negligibly small.

Q: How the defects induced by mechanical treatment affect Li diffusion?

The defects induced by mechanical activation and subsequent heat treatment are localized predominantly at the surface of the particles which noticeably reduces grain boundary resistance for Li ion diffusion (see slides with $\text{Li}_3\text{Ti}_2(\text{PO}_4)_3$).

Q: Charging curves for LiFePO_4 and LiMn_2O_4 demonstrate the capacity above theoretical value, which means contribution from electrolyte reduction. Are these capacities reliable?

No, the experimental specific charge capacity of LiFePO_4 is < 170 mAh/g (theoretical value) and that of LiMn_2O_4 is < 147 mAh/g (at 4 V range).