

Fig. 7. Microtomographic appearance of small pellet before and after direct reduction at 950 °C for 90 min in (a-a3) unreduced state, and (b-b3) reduced state; (a1-a3 and b1-b3)cross-sectipellets the porosity evolution of the investigated Cpellets mindirections (a1,b1) X, (a2,2)Y and (a3,b3) Z.

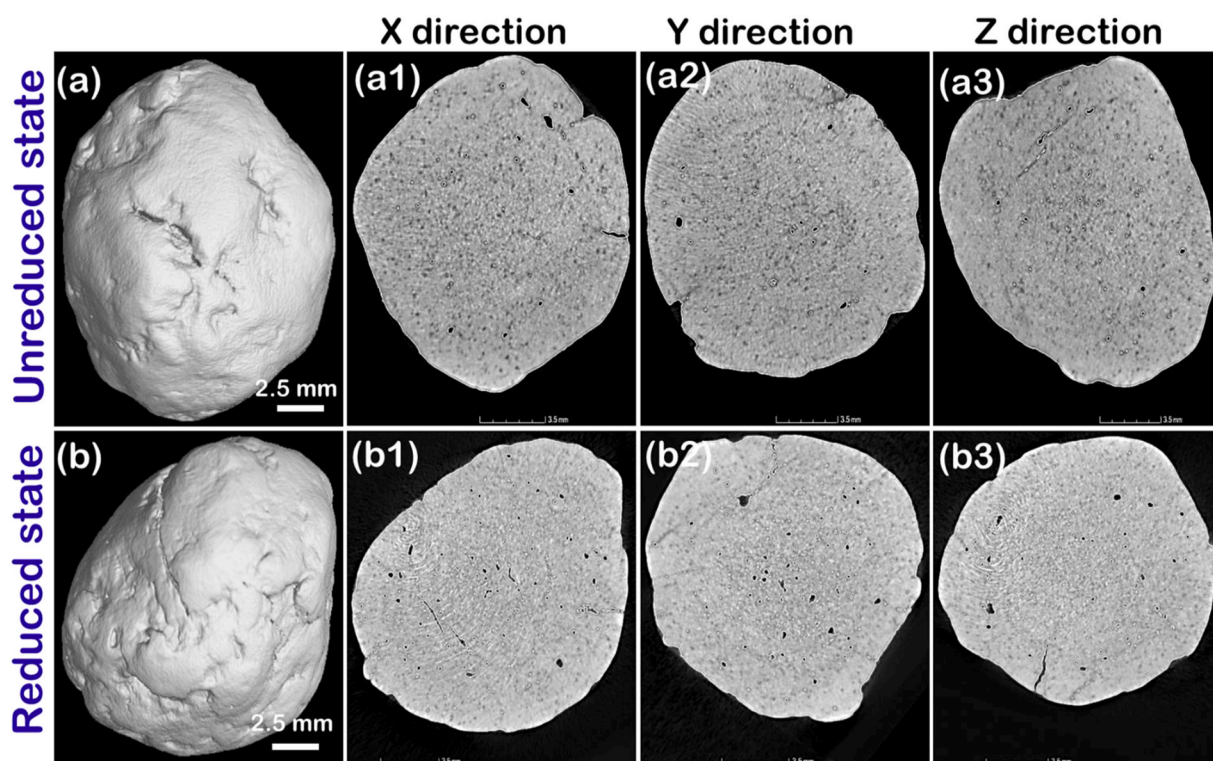


Fig. 8. Microtomographic appearance of medium pellet before and after direct reduction at 950 °C for 90 min in (a-a3) unreduced state, and (b-b3) reduced state; (a1-a3 and b1-b3)cross-sectipellets the porosity evolution of the investigated Cpellets mindirections (a1,b1) X, (a2,b2)Y and (a3,b3) Z.

after direct reduction at 1000 °C for 90 min. After reduction, the pores in the small pellets show a tendency to merge and form interconnected networks, especially in Fig. 10 (b1) and (b2). The medium pellet showed

a similar increase in porosity, with visible growth and coalescence of the pores. The porosity became more pronounced and interconnected, suggesting that higher temperatures favoured the coalescence of

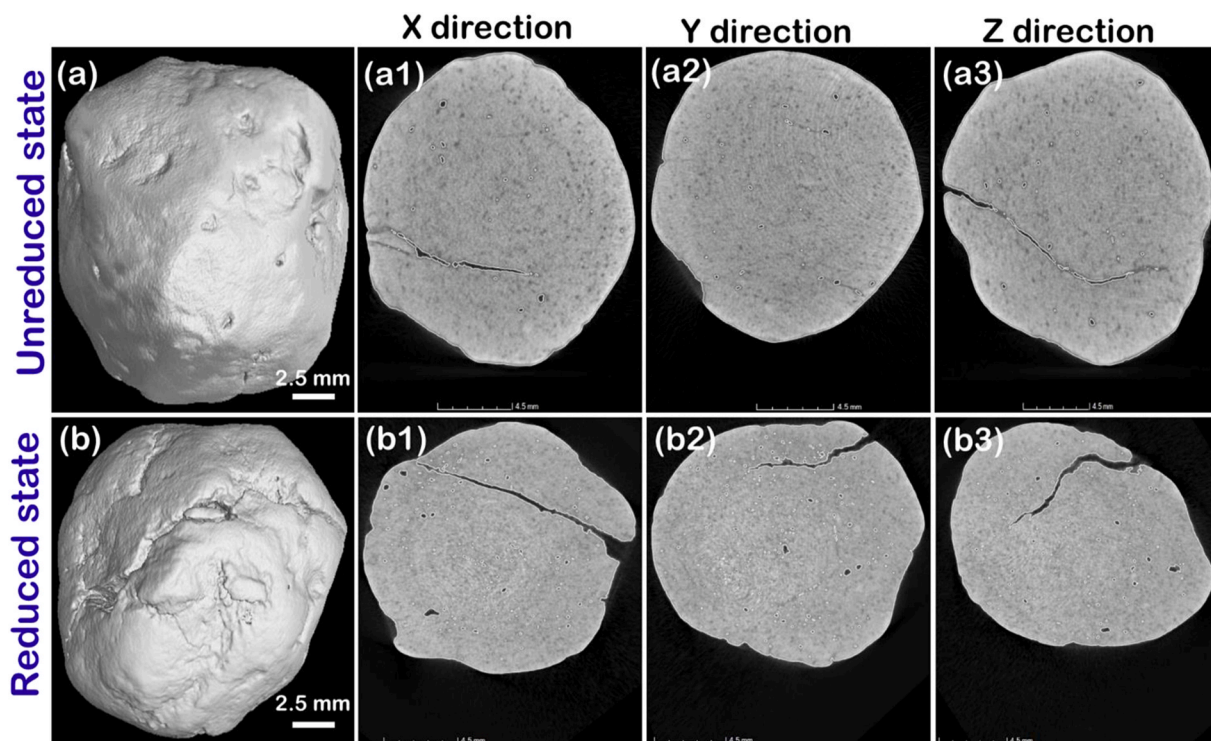


Fig. 9. Microtomographic appearance of big pellet before and after direct reduction at 950 °C for 90 min in (a-a3) unreduced state, and (b-b3) reduced state (a1-a3 and b1-b3) cross large pellets of the porosity evolution of the investigated Cd pellet in the directions (a1,b1) X, (a2,b2) Y and (a3,b3) Z. (a2,b2,c2).

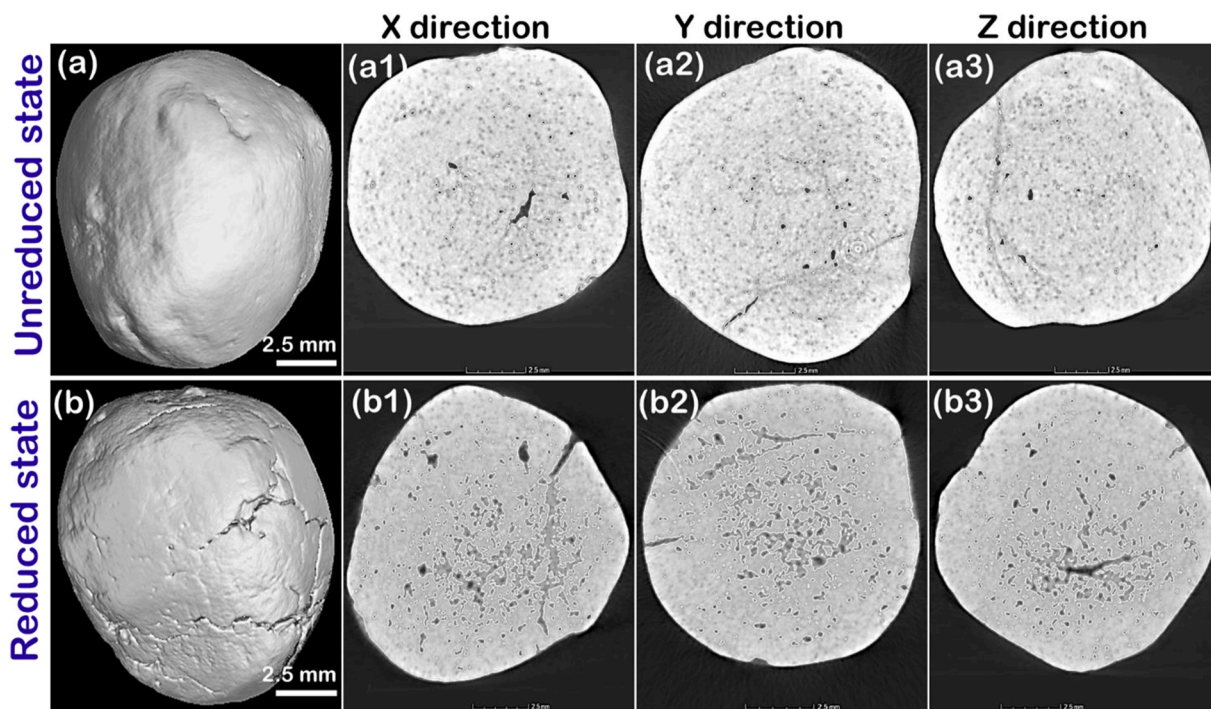


Fig. 10. Microtomographic appearance of small pellet before and after direct reduction at 1000 °C for 90 min in (a-a3) unreduced state, and (b-b3) reduced state; (a1-a3 and b1-b3) cross-sections of the porosity evolution of the investigated pellets in the directions (a1,b1) X, (a2,b2) Y and (a3,b3) Z.

individual pores into larger voids. For the large pellets, the increase in porosity after reduction was greatest for all three sizes. The pores in the large pellet not only increased in size, but also formed complex interconnected networks that spanned the cross-section of the pellet. This suggests that a larger pellet volume may have allowed a higher degree of porosity evolution. As for cracking, the surface of the small pellet

appeared rougher with visible cracks after reduction. The cracks were present but appeared to be less extensive compared to the larger pellets, possibly due to the smaller size leading to less internal stress accumulation during reduction. The medium sized pellet exhibited significant surface deterioration with distinct cracks. The large pellet thus exhibited the most pronounced cracks both on the surface and in the internal