

Characterization of Hybrid Beads by Scanning Electron Microscopy

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The synthesis of polymeric microspheres, combining organic and inorganic materials (hybrid beads), arouses great industrial interest as these beads may have new properties that can be suitable for new applications. Varying the composition, the size or the structure of the components through an appropriate chemical route, the researcher can make the sphere that best fits his/her purpose. However, the properties of hybrid spheres that can be useful for Applied Nuclear Physics, such as The Computer Automated Radioactive Particle Tracking Technique (CARPT) [1], Computed Tomography (CT, PET, SPECT) or Compton Cameras, are still unknown. This work presents the surface image of a PMMA-La₂O₃ sphere [2]. This sphere was synthesized by suspension polymerization using the recipe presented in Table 1. Then, it was characterized by Scanning Electron Microscopy (SEM) at the Nuclear Engineering Institute.

Table 1 –Reagents used to make the beads

polyvinilacetate – PVA	2 g
demineralized water	95 g
metilmetacrilate – MMA	5 ml
benzoyl peroxide	2 ml
lanthanum oxide	0,2 g
ethylacetate	2 ml

Figure 1 shows a SEM image of one of the microspheres.

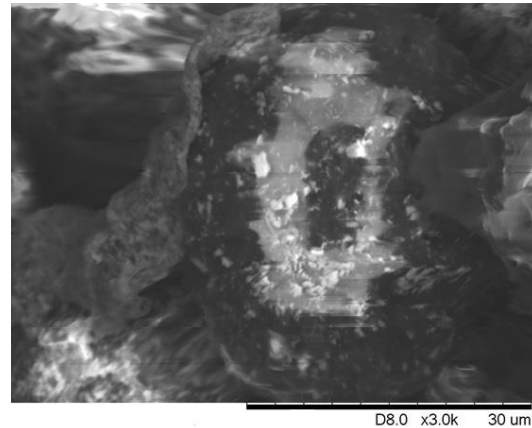


Figure 1: SEM Image of the bead, after a magnification of 3000 times and lens aperture of 8.0 mm, obtained using a Toshiba Tabletop TM 3000.

References

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