

Abstract

Hollow Core-Shell Particles

The invention relates to hollow nanoparticles that can be used for gas delivery. The invention specifically relates to hollow core-shell particle having pores extending through its shell and a plurality of polymer chains that are grafted to the outer surface of the shell, wherein the polymer backbone of said polymer chains comprises monomer units that are functionalized with a group selected from amidines, guanidines, amino acid derivatives and heteroaromatic or non heteroaromatic heterocyclic groups, wherein the heterocycles comprise 1 to 3 nitrogen atoms. These particles can be filled with gas molecules that can be released by external triggers, such as for instance the presence of increased carbon dioxide concentrations. The invention further related to processes to make the particles and to fill them with gas molecules as well as their uses in applications which require oxygen release in otherwise difficult to address environment, such as skin care products or tissue or cell regeneration.

[Fig. 3]