Nanofiltration and nanostructured membranes – should they be considered nanotechnology or not?

Abstract:
Nanofiltration is frequently associated with nanotechnology - obviously because of its name. However, the term "nano" in nanofiltration refers - according to the definition of the International Union of Pure and Applied Chemistry (IUPAC) - to the size of the particles rejected and not to a nanostructure as defined by the International Organisation of Standardisation (ISO) in the membrane. Evidently, the approach to standardisation of materials differs significantly between membrane technology and nanotechnology which leads to considerable confusion and inconsistent use of the terminology. There are membranes that can be unambiguously attributed to both membrane technology and nanotechnology such as those that are functionalized with nanoparticles, while the classification of hitherto considered to be conventional membranes as nanostructured material is questionable. A driving force behind the efforts to define nanomaterials is not least the urgent need for the regulation of the use of nanomaterials. Since risk estimation is the basis for nanotechnology legislation, the risk associated with nanomaterials should also be reflected in the underlying standards and definitions. This paper discusses the impacts of the recent attempts to define nanomaterials on membrane terminology in the light of risk estimations and the need for regulation.

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