Water scarcity represents today a problem of big concern, not only for Arabian or African countries, but for the whole earth. The increase of population, as well as the needs of modern society which are leading to a higher development of industrial productions (that means a higher use of water as feed source and a higher production of wastewater), are at the basis of the increase of the fresh water demand registered in last years. In this context, membrane technologies are playing an important role. Wastewater treatment by membrane operations is an interesting way to recover purified water from the effluent streams coming from industries, by improving the overall performance of the production process. This is the case, for example, of textile industries that discharge aqueous solutions containing dyes to the environment. By treating these streams by ultrafiltration, nanofiltration, reverse osmosis, membrane distillation, it is possible to obtain a water stream without dyes and a stream concentrated in dyes that can be recycled to the process (Calabrò *et al.*, 1990; Ciardelli *et al.*, 2000; Marcucci *et al.*, 2002; Tang and Chen, 2002; Purkait *et al.*, 2004; Mozia *et al.*, 2005; Mozia *et al.*, 2007; Van der Bruggen *et al.*, 2004; Banat *et al.*, 2005; Criscuoli *et al.*, 2008). In this way, the 'sustainability' of the process is ensured. Other interesting cases are the recovery of heavy metals from water by extraction by membrane contactors or by using supported liquid membranes (Yun *et al.*, 1993; Ho *et al.*, 2000; Ho and Poddar, 2000; Lin and Juang, 2001), the volatile organic compounds (VOCs) removal by pervaporation (Peng *et al.*, 2003) and the arsenic removal by nanofiltration or reverse osmosis (Waypa *et al.*, 1997; Brandhuber and Amy, 1998; Urase *et al.*, 1998; Kang *et al.*, 2000; Ning, 2002; Vrijenhoek and Waypa, 2000; Saitua *et al.*, 2005). More recently, also the arsenic oxidation (from As(III) to As(V)) with air by membrane contactors, has been successfully demonstrated (Galizia, 2007). Other examples refer to the treatment of olive oil wastewater streams (Molinari and