Antifouling, Fouling Release and Antimicrobial Materials for Surface Modification of Reverse Osmosis and Nanofiltration Membranes

Rikarani R. Choudhury^a, Jaydevsinh M. Gohil^{a,*}, SmitaMohanty^a, Sanjay K. Nayak^{a,b}

^a Laboratory for Advanced Research in Polymeric Materials (LARPM), Central Institute of Plastics Engineering & Technology (CIPET), Bhubaneswar-751024, Odisha, India

^b Advanced Polymer Design & Development Research Laboratory (APDDRL), Central Institute of Plastics Engineering & Technology (CIPET), Bengaluru, Karnataka, India

^cCentral Institute of Plastics Engineering & Technology (CIPET), Chennai, India.

Supporting Information

S1: Worldwide desalination capacities along with source water¹



S2: Global installed desalination capacity during (a) 2010-2016² and (b) 1980-2012³



S3: Various approaches adopted for the minimization of RO/NF membrane fouling^{4,5}



S4: Number of papers published in the last 7-8 years in the domain of (a) membrane surface modification, key words: TFC membrane surface modification + RO or nanofiltration [Source: Scopus), and (b) Pre-formed membrane surface modification, Keywords: Surface Modification+TFC membrane [Source: Elsevier +ACS]



S5: Rrepresents the typical surface modification techniques reported so far in the literature

Surface Modifications- Pre-formed Membranes						
		Chemical method			Physical method	
	Grafting √	Covalent Coupling Irradiation		Plasma treatment ✔	Adsorption V	Coating ↓
	•Radical initiated grafting •Redox-initiated grafting	•Small molecule coupling •Surface modifying molecules	•UV irradiation •High energy irradiation	•Plasma coating •Plasma polymerization	•LBL	•Uncured coating •Cured coating
	•UV-initiated grafting	• Click- chemistry		•Corona discharge treatment		
	 Plasma induced grafting Enzymatic grafting ATRP Initiated chemical vapour deposition RAFT 					

Commercial membrane modification scenario



S6 : The intrinsic interrelationship among membrane fouling, concentration polarization (CP) and reverse solute diffusion (RSD) in ODMP⁶



References

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