

Introducing semi-interpenetrating networks of chitosan and ammonium-quaternary polymers for the effective removal of waterborne pathogens from wastewaters

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Table S1. The main characteristic bands of semi-IPN hydrogels based on monomer VBTAC, crosslinker MBA and chitosan, and of the three types of chitosan (CC, CCH and SHC)

Sample	ν_{OH}	ν_{CH}, ν_{CH_2}	$\nu_{C=O}$	ν_{NH}	$\nu_{N+(CH_3)_3}$
CC	3410	2886	1657	1562	-
CCH	3353	2869	1646	1568	-
SHC	3317	2891	1659	1566	-
poly(VBTAC)	3412	3028, 2928	1645	-	1482
CC-IPN ₂	3412	3020, 2928	1653	1551	1480
CC-IPN ₃	3407	3020, 2920	1660	1547	1484
CC-IPN ₄	3445	3020, 2945	1654	1564	1489
CCH-IPN ₂	3413	3024, 2924	1651	1552	1483
CCH-IPN ₃	3407	3022, 2924	1655	1554	1483
CCH-IPN ₄	3385	3023, 2921	1647	1563	1483
SHC-IPN ₂	3427	3022, 2924	1655	1560	1487
SHC-IPN ₃	3422	3028, 2922	1650	1560	1487
SHC-IPN ₄	3407	3022, 2928	1628	1569	1482

Table S2. Specific decomposition temperatures and mass loss of the chitosan-based hydrogels and of the three types of chitosan (CC, CCH and SHC)

Sample	T _{d1} , °C	T _{d2} , °C	T _{d3} , °C	T _{d4} , °C	Mass loss, %
CC-IPN ₂	87	265	317	429	77.98
CC-IPN ₃	89	277	307	430	78.03
CC-IPN ₄	92	272	300	409	76.85
CC	-	287	-	-	69.35
CCH-IPN ₂	90	266	316	428	75.61
CCH-IPN ₃	92	267	305	427	79.89
CCH-IPN ₄	96	278	-	406	78.58
CCH	-	288	-	-	68.49
SHC	88	-	305	-	55.02
SHC-IPN ₂	89	264	321	429	80.61
SHC-IPN ₃	94	267	304	427	80.51
SHC-IPN ₄	96	276	301	408/426	80.57
		(hump)		(hump)	
polyVBTAC	90	295	-	406	84.25