

Supporting Information

Chloride Salt-Intercalated Ti_2C Membranes for Ultraquick Cationic Dye Removal

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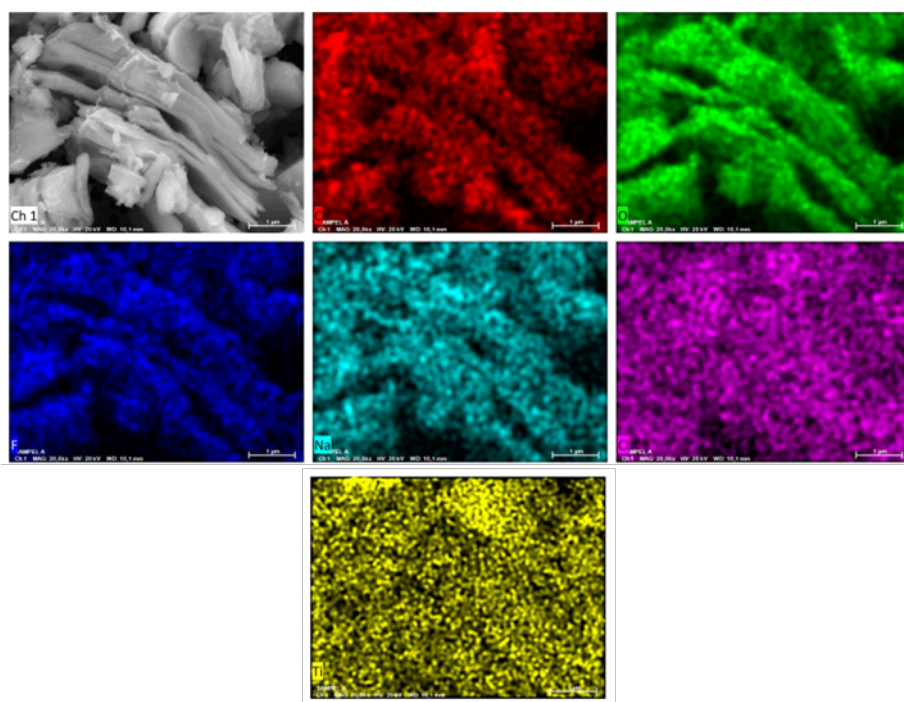


Figure S1 EDX mapping of MXM-NaCl.

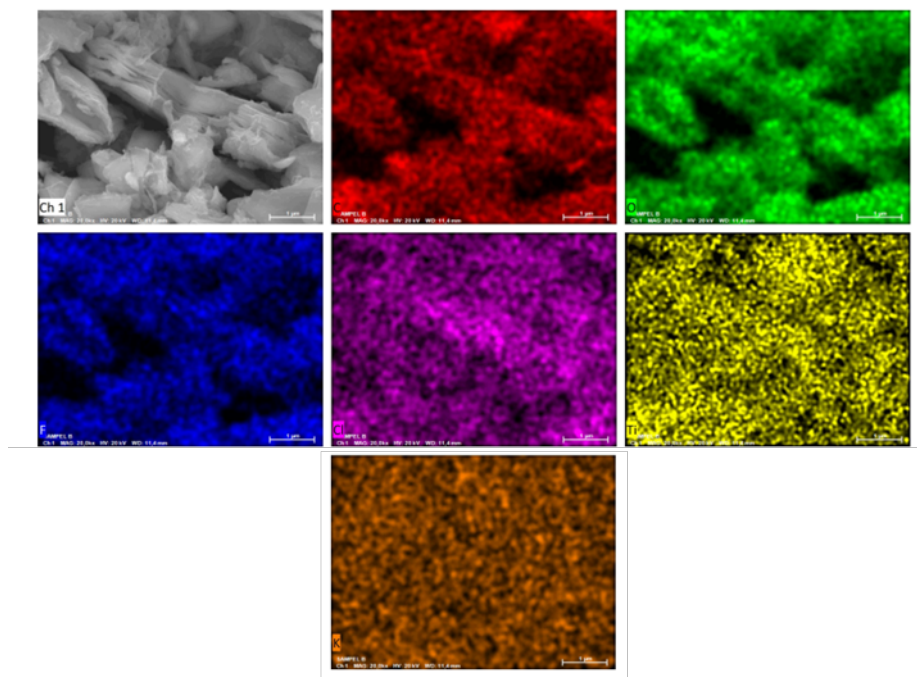


Figure S2 EDX mapping of MXM-KCl.

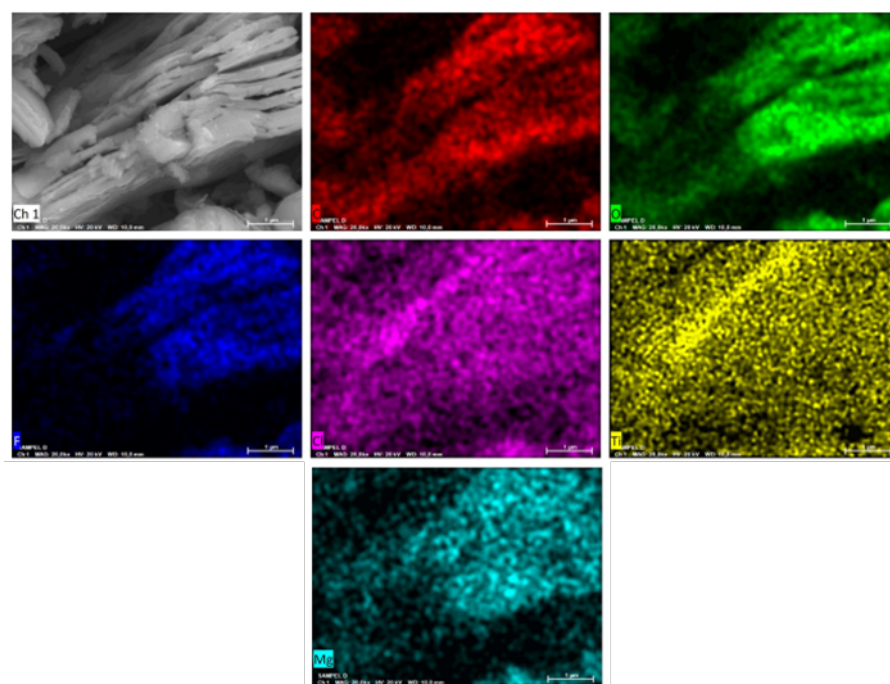


Figure S3 EDX mapping of MXM-MgCl₂.

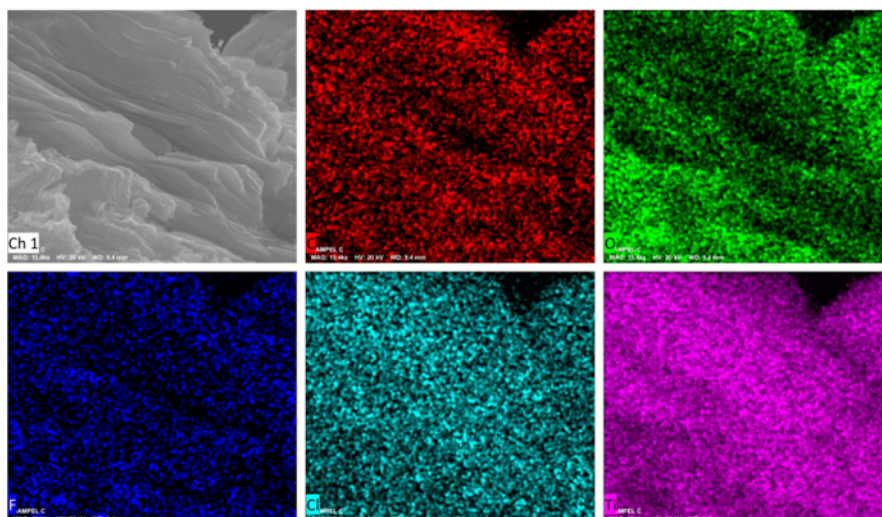


Figure S4 EDX mapping of MXM-CaCl₂.

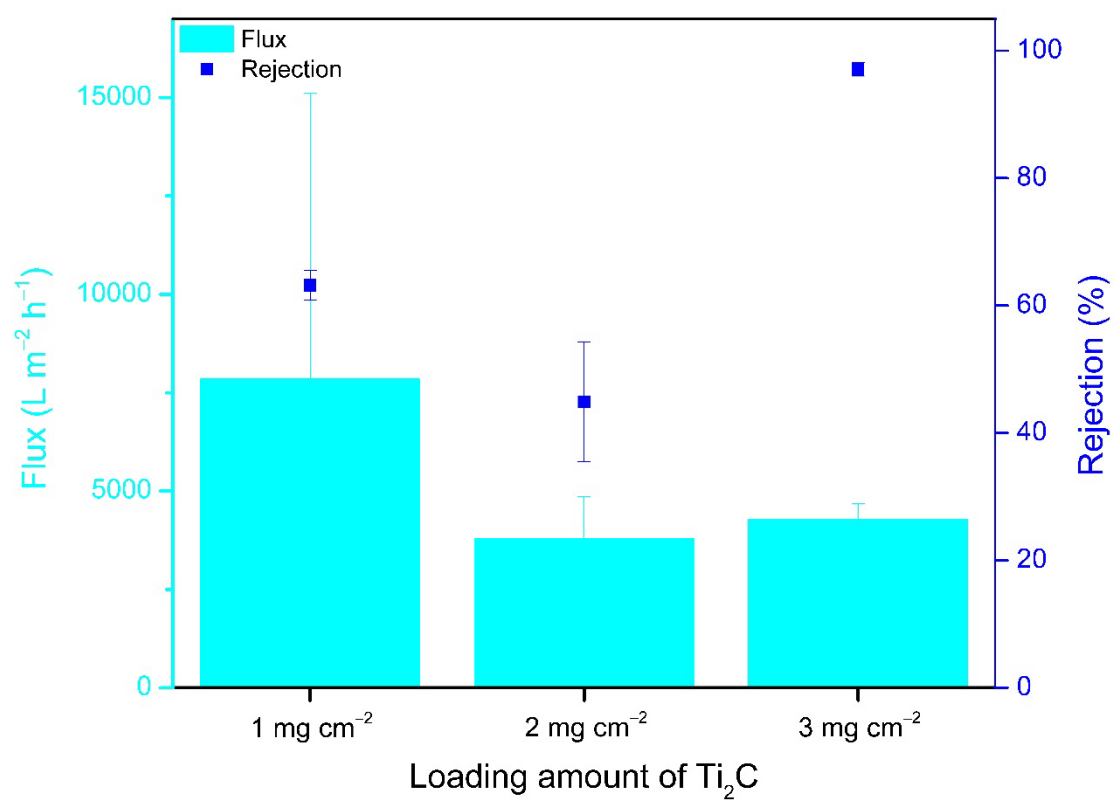


Figure S5 Various loading amounts of Ti₂C

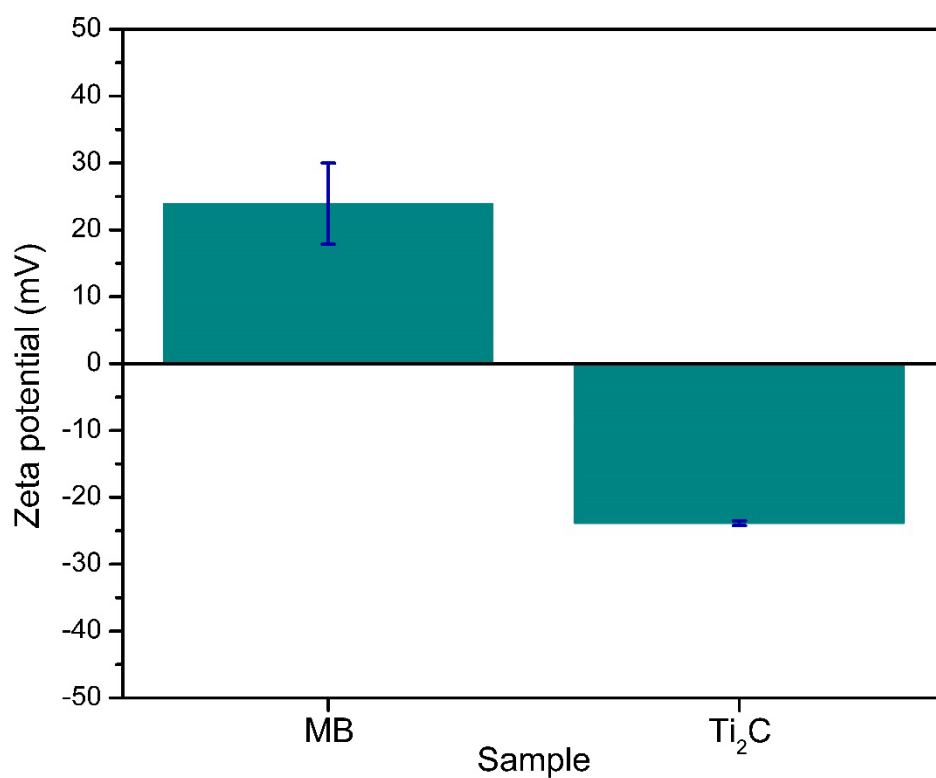


Figure S6 Zeta potential of methylene blue (MB) and Ti_2C .

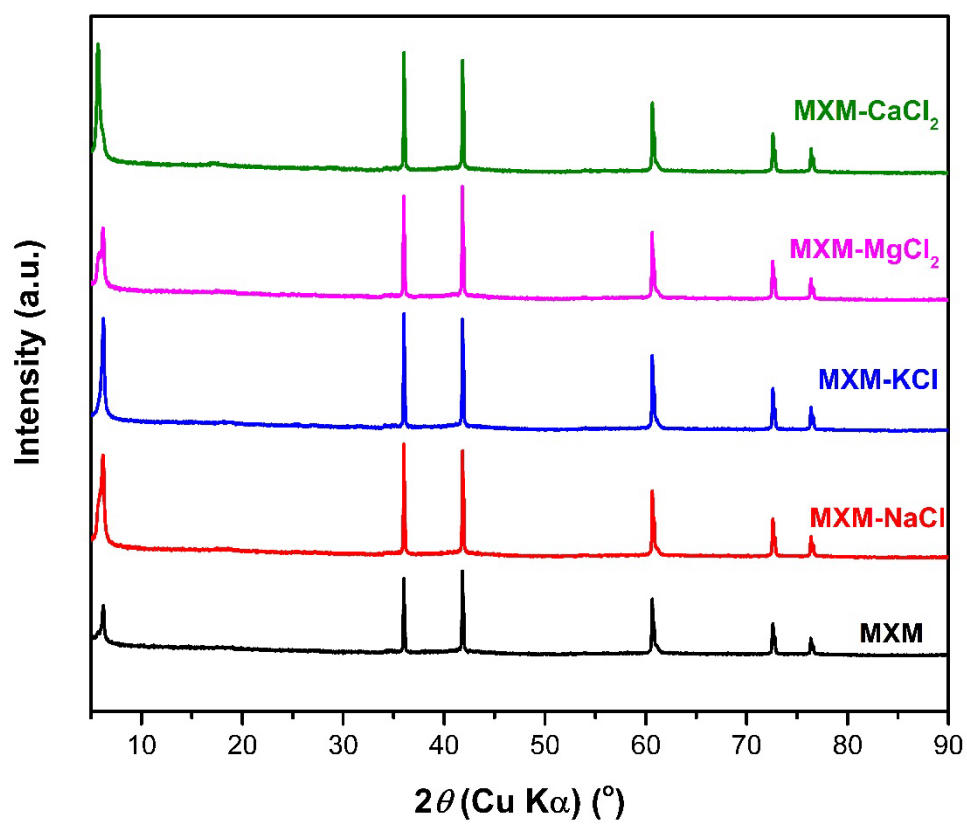


Figure S7 XRD pattern of chloride salt-modified Ti_2C after filtration.

Table S1. Decrease in rejection after two cycles of MB removal

Samples	Decrease in rejection (%)*
MXM	42.63 $\pm$ 6.56
MXM-NaCl	35.78 $\pm$ 1.53
MXM-KCl	32.72 $\pm$ 5.18
MXM-MgCl ₂	23.66 $\pm$ 3.51
MXM-CaCl ₂	28.31 $\pm$ 3.76

*relative to the rejection at the first cycle.

Table S2 Membrane filtration performance of this study and previous studies.

No	Membrane	Filtration method	Feed concentration	Rejection (%)	Flux (L m ⁻² h ⁻¹)	References
1	MCM 0.6	Vacuum filtration	75 mg L ⁻¹	100 $\pm$ 0.1	44.97 $\pm$ 2.19	[1]
2	MCM 0.6	Vacuum filtration	15 mg L ⁻¹	94.63 $\pm$ 3.8	28.94 $\pm$ 0.74	[1]
3	GO/MXene composite lamellar	Vacuum filtration	10 mg L ⁻¹	98.56	16.69	[2]
4	GO/tannic acid	Vacuum filtration	100 mg L ⁻¹	97.6	23.33	[3]
5	MXene/ATP 1:2	Vacuum filtration	15 mg L ⁻¹	90.47	46.51	[4]
6	MXene/GO composite membrane	Vacuum filtration	10 mg L ⁻¹	99.5	1.5	[5]
7	PLTK-SDS	Dead end filtration	0.1 mM	92.53	1.28	[6]
8	MM-KCl	Vacuum filtration	100 mg L ⁻¹	~100	141	[7]
9	MXM	Vacuum filtration	100 mg L ⁻¹	98.39	2680.19	This work
10	MXM-NaCl	Vacuum filtration	100 mg L ⁻¹	98.38	2809.76	This work
11	MXM-KCl	Vacuum filtration	100 mg L ⁻¹	99.01	3303.30	This work
12	MXM-MgCl ₂	Vacuum filtration	100 mg L ⁻¹	97.25	2829.13	This work
13	MXM-CaCl ₂	Vacuum filtration	100 mg L ⁻¹	97.54	3000.16	This work

References

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