Supporting Information

Table S1. Membrane characteristics of Liqui-Cel Extra-Flow (2.5 × 8) [1]

Characteristics (unit)	Value
Area (m^2)	1.4
Shell side volume (L)	0.4
Tube side volume (L)	0.15
# of Fibers	9,500
Internal diameter (µm)	220
Outer diameter (µm)	300
Wall thickness (µm)	40
Material	Polypropylene
Tortuosity	3
Pore size (µm)	0.04
Porosity (%)	40

Table S2. Characteristics of an opto-electronic industrial wastewater and the synthetic ammonia wastewater with similar composition. [2]

Parameter	Ref. [2]	This study
COD (mg/L)	100 ± 28	100
TKN (mg/L)	572 ± 6.6	~ 560
NH_4^+-N (mg/L)	567 ± 5.8	560
NO_2^-N (mg/L)	-	-
NO_3^-N (mg/L)	7 ± 5.5	-
PO_4^{3-}-P (mg/L)	0.7 ± 0.7	-
pH	9.4 ± 0.1	9.4
Alkalinity (mg/L as CaCO3)	1,260 ± 208	1,260

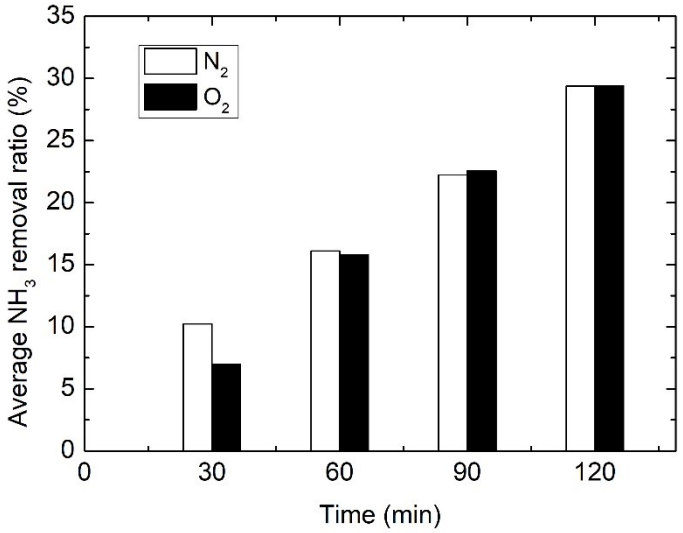

Fig. S1 Effect of type of sweep gas on average NH_3 removal ratio (Initial ammonia concentration: 530 mg/L, Temperature: 50℃, Feed water flow rate: 2.5 L/min, Sweep gas & flow rate: N_2 or O_2 4 L /min , Vacuum pressure: -0.7~0.8 bar, Initial pH: 10)

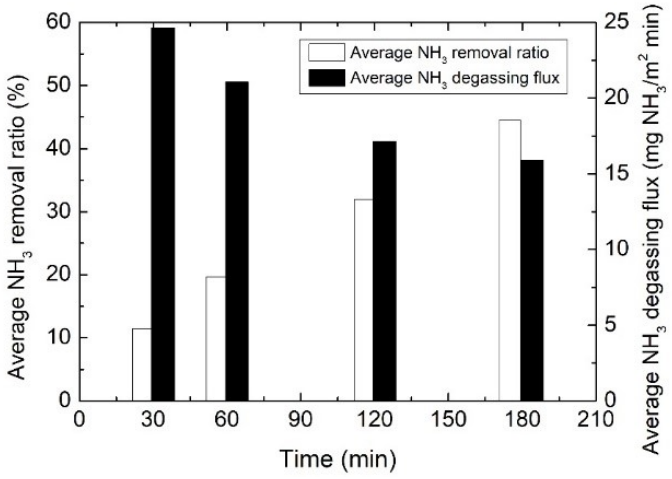

Fig. S2 Average NH_3 removal ratio and average NH_3 degassing flux treating synthetic ammonia wastewater with similar composition of an opto-electronic industrial wastewater (Initial ammonia concentration: 560 mg/L, Temperature: 50℃, Feed water flow rate: 2.5 L/min, Sweep gas & flow rate: N_2 & 4 L /min, Vacuum pressure: -0.7~0.8 bar, Initial pH: 9.3).

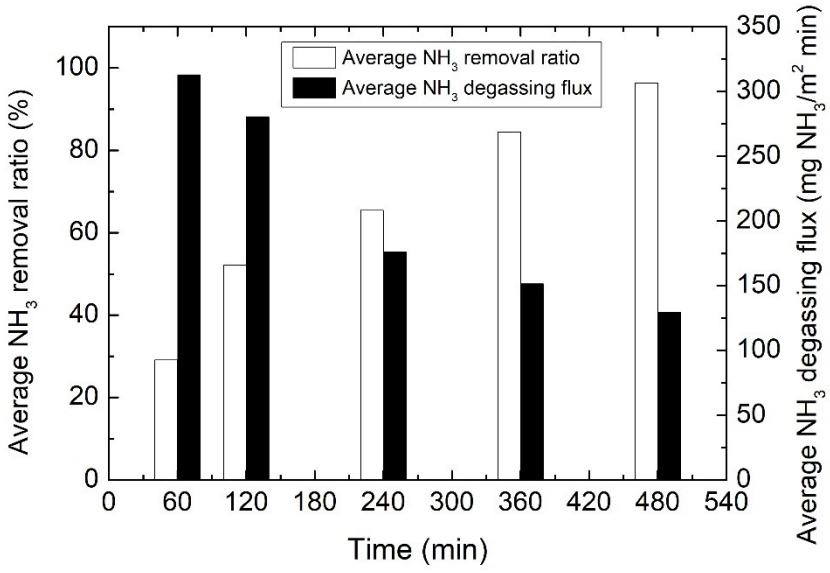

Fig. S3 Average NH_3 removal ratio and average NH_3 degassing flux treating high concentration of ammonia (Initial ammonia concentration: 6,000 mg/L, Temperature: 50℃, Feed water flow rate: 2.5 L/min, Sweep gas & flow rate: N_2 & 4 L /min, Vacuum pressure: -0.7~0.8 bar, Initial pH: 10)

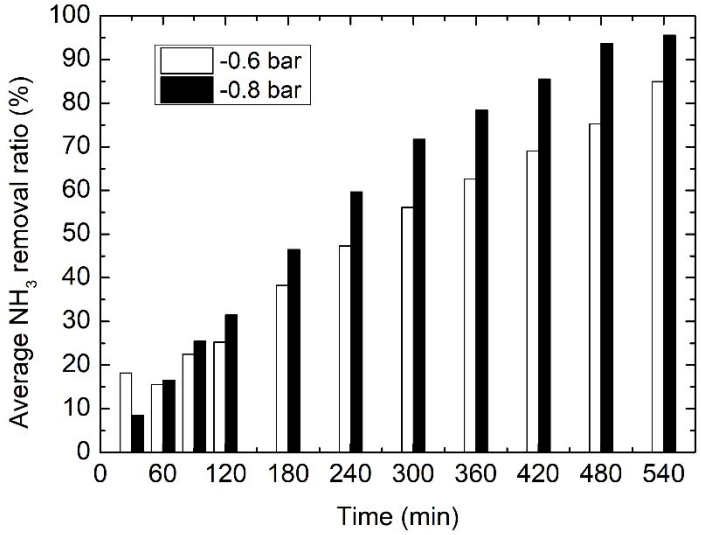

Fig. S4 Effect of vacuum pressure on average NH_3 removal ratio (Initial ammonia concentration: 530 mg/L, Temperature: 50℃, Feed water flow rate: 2.5 L/min, Sweep gas & flow rate: N_2 & 4 L /min , Vacuum pressure: -0.7~0.8 bar, Initial pH: 10)

References

1. A. C. Ni'am, Y. F. Wang, , Chen, S. W. G. M. Chang, S. J. You, Simultaneous recovery of rare earth elements from waste permanent magnets (WPMs) leach liquor by solvent extraction and hollow fiber supported liquid membrane. Chemical Engineering and Processing-Process Intensification, 2020, **148**, 107831.
2. A. Daverey, S. H. Su, Y. T. Huang, J. G. Lin, Nitrogen removal from opto-electronic wastewater using the simultaneous partial nitrification, anaerobic ammonium oxidation and denitrification (SNAD) process in sequencing batch reactor. Bioresource Technology, 2012, **113**, 225-231.