

Table S1 - Water quality and other important parameters of the MBR operated at room and low wastewater temperatures.

<b>Constituent</b>	<b>Room temperature operation (mean ± standard deviation)</b>	<b>Low temperature operation (mean ± standard deviation)</b>	<b><i>p</i>-value</b>
Effluent COD	(10 ± 5) mg/L	(25 ± 4) mg/L	<b><i>2.73</i>×10<sup>-8</sup></b>
Effluent nitrate	(34.5 ± 0.3) mg N/L	(32.8 ± 0.6) mg N/L	<b><i>1.92</i>×10<sup>-4</sup></b>
Effluent nitrite	(0.12 ± 0.03) mg N/L	(0.09 ± 0.04) mg N/L	0.19
Effluent ammonium	(0.05 ± 0.05) mg N/L	(0.04 ± 0.02) mg N/L	0.70
Biomass concentration	(9,967 ± 874) mg COD/L	(8,182 ± 606) mg COD/L	<b><i>5.38</i>×10<sup>-6</sup></b>
Heterotrophic SOUR	(1.50 ± 0.19) g O <sub>2</sub> /(g VSS·d)	(0.40 ± 0.03) g O <sub>2</sub> /(g VSS·d)	<b><i>1.51</i>×10<sup>-2</sup></b>
Autotrophic SOUR	(1.58 ± 0.07) g O <sub>2</sub> /(g VSS·d)	(0.24 ± 0.01) g O <sub>2</sub> /(g VSS·d)	<b><i>1.21</i>×10<sup>-3</sup></b>
TMP	(27.1 ± 7.1) kPa	(27.8 ± 7.0) kPa	0.58
EPS	(18.5 ± 1.3) mg/g VSS	(15.3 ± 1.3) mg/g VSS	<b><i>0.04</i></b>
Total protein	(0.6 ± 0.1) mg/g VSS	(0.4 ± 0.1) mg/g VSS	<b><i>0.02</i></b>
Polysaccharide	(17.9 ± 1.3) mg/g VSS	(14.9 ± 1.3) mg/g VSS	0.05
SVI	(102 ± 13) mL/g VSS	(146 ± 8) mL/g VSS	<b><i>6.41</i>×10<sup>-10</sup></b>

Table S2 - Activated sludge sampling scheme

<b>Date</b>	<b>Days before (-)/after (+) temperature change<sup>1</sup></b>
11-14-2012	- 14
11-25-2012	- 3
12-06-2012	+ 8
12-18-2012	+ 20
01-16-2013	+ 50
02-07-2013	+ 72
03-01-2013	+ 94

Note: Only two samples are discussed in Fig. 4: The sample collected on 11-25-2012 (3 d before the wastewater temperature change) and the sample collected on 02-07-2013 (72 d after the temperature change).

Table S3. Primers and PCR programs for target bacterial species.

Target bacterial group <sup>1</sup>	Primer <sup>2</sup>	Sequence (5'-3')	PCR program
β-Proteobacteria AOB	Eub338F	ACT, CCT, ACG, GGA, GGC, AGC <sup>3</sup>	5 min at 95 °C + 35 cycles of (1.5 min at 95 °C; 0.5 min at 65 °C; 1.5 min at 72°C) + 10 min at 72 °C
	Nso1225R	CGC, CAT, TGT, ATT, ACG, TGT, GA	
<i>Nitrobacter</i> spp.	Eub338F	ACT, CCT, ACG, GGA, GGC, AGC	5 min at 95 °C + 35 cycles of (1.5 min at 95 °C; 0.5 min at 65 °C; 1.5 min at 72°C) + 10 min at 72 °C
	NIT3R	CCT, GTG, CTC, CAT, GCT, CCG	
<i>Nitrospira</i> spp.	Eub338F	ACT, CCT, ACG, GGA, GGC, AGC	5 min at 95 °C + 35 cycles of (1.5 min at 95 °C; 0.5 min at 65 °C; 1.5 min at 72°C) + 10 min at 72 °C
	Ntspa685R	CGG, GAA, TTC, CGC, GCT, C	

Note: 1. AOB - Ammonia oxidizing bacteria. *Nitrobacter* spp. and *Nitrospira* spp. are subgroups of nitrite oxidizing bacteria (NOB). 2. F - Forward primer. R - Reverse primer. Primer EUB338F was labeled with fluorescent dye 6-carboxyfluorescein (6-FAM) at the 5' end. PCR was performed in a MJ Mini™ Personal Thermal Cycler (Bio-Rad Laboratories, Inc, Hercules, CA). More information is available elsewhere.<sup>1</sup>

## Reference

- 1 S. Siripong and B. E. Rittmann, *Water Research*, 2007, **41**, 1110-1120.