

Correction

Correction: Agostinho et al. Enhanced Oxygen Volumetric Mass Transfer in a Geometrically Constrained Vortex. *Water* 2022, 14, 771

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There was an omission in the original publication [1]. The authors showed SOTR values in a figure but did not mention how these values were calculated. As a consequence, the calculations based upon the SOTR also need to be more specific, which is why “the twisted regime of” has been added in front of “the hyperbolic funnel”.

An addition has been made to the paper as Supplementary Information where this information has been added, Section 3, Paragraph 5:

Figure 4 shows $K_L a$ and SOTR values (see Supplementary Information for details) dependent also as a function of flow rate. Average $K_L a$ values (for 20 °C) for air jet, impellers and paddle aerators [12] are shown for comparison. The plot shows that the $K_L a$ values obtained with the free surface vortex in a hyperbolically shaped funnel are considerably higher than those of the three commercial systems used for comparison, especially in the twisted regime. These high oxygen transfer rates are a consequence of the aforementioned combination of high area-to-volume ratios and possibly enhanced turbulence close to the interface. On the other hand, the SOTR values (up to 0.5 kg/h) [12] are comparable to air jet system and lower than those reported for impeller and paddle systems (between 1.0 and 2.5 kg/h) [12]. This is due to the short hydraulic retention times in the hyperbolic funnel (typically less than a minute). A possibility to increase the SOTR value is the application of a cascade of funnels which would multiply the HRT with a factor representing the number of funnels, whilst maintaining the desired flow regime and thus the $K_L a$ value. For practical applications the specific energy demand of such a cascade can be estimated as follows: The twisted regime of the hyperbolic funnel tested in this work has a specific energy demand of 0.01 kWh/kg O₂ (see Appendix A for calculation details). In comparison, the specific energy demands of mechanical aerators range from 0.42 to 0.83 kWh/kg O₂ [13] and the specific energy demands of air jets range from 0.74 to 1.0 kWh/kg O₂ [12]. However, the industrial applicability of this system depends on its scalability to higher flow rates in larger funnels on the one hand, and on the possibility to achieve the described regimes with

liquids of different viscosities as found in wastewater streams on the other. Thus, while the potential improvements in the energy efficiency of the aeration process seem promising, further work is required for confirmation and to exclude negative impacts on the sludge characteristics and WWTP performances.

The authors state that the scientific conclusions are unaffected. This correction was approved by the Academic Editor. The original publication has also been updated.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/w14050771/s1>, The calculation method of SOTR values.

Reference

1. Agostinho, L.L.F.; Pecnik, R.; Woisetschläger, J.; de Kroon, E.; Şişcanu, N.; van de Griend, M.V.; Loiskandl, W.; Fuchs, E.C. Enhanced Oxygen Volumetric Mass Transfer in a Geometrically Constrained Vortex. *Water* **2022**, *14*, 771. [[CrossRef](#)]

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