The pedotransfer function (PTF) of Weynants et al. (2009) allows the estimation of the hydraulic parameters of the closed-form expression of the van Genuchten model (van Genuchten, 1980) on the basis of easily measurable soil characteristics, such as soil texture, bulk density, and organic C content. For the development of the new PTF, Weynants et al. (2009) revisited the Vereecken database of Belgian soils. This database was originally used to develop widely used PTFs for the van Genuchten model for the moisture retention characteristics and the Gardner model for the hydraulic conductivity function (Vereecken et al., 1989, 1990).

Due to the simple application of the Weynants PTF as stand-alone regression functions and the proven validity of the Vereecken PTF, the paper of Weynants has been already cited 43 times in the ISI Web of Science (verified 17 Nov. 2016).

When applying the coefficients of the Weynants PTF listed in Table 6 of their paper into the regressions listed in Table 3 of their paper, the question of input units arises. Unfortunately, units for the required inputs—sand, silt, clay, bulk density, and organic C (OC) content—are neither provided directly in Table 3 of their paper, nor in the text. While the units of soil texture (% w/w) are obvious, units for bulk density and organic C content are less clear. The proper units for bulk density are megagrams per cubic meter or grams per cubic centimeter, which yield the same numbers. For soil C content, units should be %OC as in the original Vereecken PTF (Vereecken et al., 1989, 1990) and not grams per kilogram, as could wrongly be inferred from Table 1.

Looking at Table 3 (Weynants et al., 2009), we see that the use of wrong units for OC will affect estimates of the $\alpha$, $K_0$, and $\lambda$, whereby $\lambda$ will not be affected because the coefficient $e_6$ to scale OC was estimated to be zero (as can be seen from Table 6). Because we expect that other studies already have used the wrong units, we performed an error propagation exercise to assess the impact of using the wrong units on the $\alpha$ and $K_0$ for the 12 USDA textural classes.

It has to be noted that for each textural class, the sand, silt, and clay fractions were assumed to center in the class. Bulk density was chosen to be 1.4 g cm$^{-1}$, and OC was set to 1%. In general, the impact of the use of incorrect OC units is negligible for the determination of the $\alpha$ value, with calculated $\alpha$ values of 0.044 and 0.048 cm$^{-1}$ for a sand soil using OC in grams per kilogram and percent, and 0.008 and 0.009 cm$^{-1}$ for a clay soil, respectively. This means that also the entire retention and hydraulic conductivity curve will be only slightly changed. On the other hand, the impact of using a wrong unit becomes more dominant for the estimation of $K_0$, as shown in Fig. 1 for the 12 USDA textural classes. In our case, assuming an OC content of 1%, the relative difference in predicted OC is constant 15%, but the difference will increase for larger OC contents.