

Supporting Information

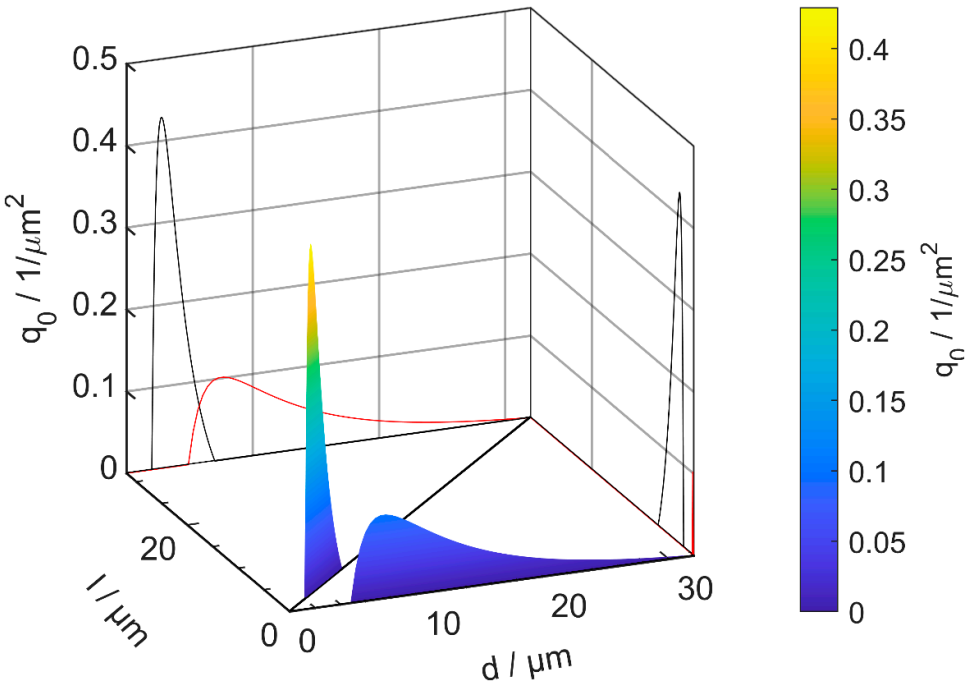


Figure S1: Number-weighted particle size distribution q_0 of the sphere ($l = d$) and the spheres deformed into cylinders with a thickness of $0.2 \mu\text{m}$ shown in a 3D diagram

Table S1: Geometry of Rietema hydrocyclones [1]

| Geometry | d_e/D_c | d_o/D_c | L/D_c | l/D_c | alpha |
|----------|-----------|-----------|---------|---------|-------|
| Rietema | 0.28 | 0.34 | 5.0 | 0.4 | 20 |

Table S2: Constants k and n for different hydrocyclone designs [2].

| Constant | Rietema |
|----------|---------|
| k1 | 0.0474 |
| k2 | 371.5 |
| k3 | 1218 |
| n1 | 0.74 |
| n2 | 9 |
| n3 | 0.12 |
| n4 | -2.12 |
| n5 | 4.75 |
| n6 | -0.3 |

Table S3: Material properties and geometrical data of the disc separator

| | |
|------------------------------|------|
| ρ_f / kg/m ³ | 997 |
| μ_f / mPas | 1.01 |
| n / 1/min | 2000 |
| r_a / mm | 40 |
| r_i / mm | 12 |
| \dot{V} / l/min | 200 |
| N / - | 25 |
| α / ° | 45 |

References

- [1] K. Rietema, „Performance and design of hydrocyclones—III“, *Chemical Engineering Science*, Jg. 15, 3-4, S. 310–319, 1961, doi: 10.1016/0009-2509(61)85035-5.
- [2] L. R. Castilho und R. A. Medronho, „A simple procedure for design and performance prediction of Bradley and Rietema hydrocyclones“, *Minerals Engineering*, Jg. 13, Nr. 2, S. 183–191, 2000, doi: 10.1016/S0892-6875(99)00164-8.