sustainability

Social Life Cycle Assessment of brine treatment in the process industry

A consequential approach case study

Supplementary Materials

The Supplementary Materials section concerns the data for calculating coefficients. The coefficients are based on the annual capacities of each involved stakeholder for the production of one functional unit.

Table S1. SLCA coefficients for Table 2 of manuscript.

	DW	Chlor-alkali [1]	Electricity [2]	Magnesium [3]	Russian mining [3]
Annual capacity		3,000,000[a]	5,600,000[b]	12,000[c]	60,000[a]
Operating hours		8,000	7,000	8,000	8,000
Consumption per FU		71.3	5,373	625.5	3,127.5
Coefficient	1	0.0002	0.007	0.15	0.53

[a] in terms of tons, [b] in terms of MWh, [c] in terms of tons of products in the Netherlands.

Table S2. Magnesium distributor imports in the Netherlands based on Russian mining company production and AkzoNobel's production.

Stakeholder	Amounts	Units
Russian mining company	60,000,000	kg products per year
	8,000	hours of operation/year
	7,500	kg products/hour
Magnesium distributor	1,500	kg products/hour that Europiren distributes
	625.5	kg Mg/FU
	0.15	hours/FU
Chlor-alkali 1	3,000,000	tons of salt/year
	8,000	hours of operation/year
	375,000	kg/hour of operation
	71.3	kg/FU
	0.00019	hours/FU

References

[1] 75. De Groot, M.T. (AkzoNobel N.V., Amsterdam, the Netherlands). Personal communication, 2018.

[2] 76. ENGIE. *2017 Management Report and Annual Consolidated Financial Statements*; ENGIE: La Défense, France, 2018; p. 186.

[3] 78. Degeratu, C. (Europiren B.V., Rotterdam, the Netherlands). Personal communication, 2018.