Life Cycle Assessment - StockachAlu 2022

Assumptions & Explanations

LCA analysis is based on environmental profile report from EAA from 2018.
We use the EAA indicators for primary metal, process scrap and post consumer scrap and apply this to our mix.
The data in the profile report is reference data for LCA analysis. It represents avereage values for the European aluminium industry.
We therefore (reasonably) assume that our production and input metals are in line with European average and we apply this base data to our input mix.

In Charge: LCA calculated by: Markus Wild
Date: Date: 23.08.2023
Update Cycle: Update cycle: LCA analysis will be revised on yearly basis

	Primary	Process Scrap	EoL & similar scrap	
Volumen (t) 2022 Metal input	4.518	68.163	18.946	91.627
in %	5%	74%	21%	100%
(Stockach Aluminium, 2022)				

Source:

EAA indicators (basis)	per ton of primary ingot used	per ton of wrought ingot from scrap	per ton of wrought ingot from scrap
Chapter profile report	*(4.5.1.)*	*(8.8.2)*	*(8.8.2)*
Abiotic Depletion (ADP elements) (kg Sb Equiv)	0,0042000000	0,0001200000	0,0001200000
Acidification Potential (AP) (kg SO2 Equiv)	43,0000000000	0,6800000000	0,6800000000
Eutrophication Potential (EP) (kg Phosphate Equiv)	2,8000000000	0,0930000000	0,0930000000
Global Warming Potential (GWP 100 years) (kg CO2 equiv)	8.600,0000000000	330,0000000000	330,0000000000
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)	2,3000000000	0,0000000035	0,0000000035
Primary energy demand from non-renewables (MJ)	110.000,0000000000	5.400,0000000000	5.400,0000000000
Primary energy demand from renewables (MJ)	47.000,0000000000	480,0000000000	480,0000000000
Total primary energy demand (MJ)	157.000,0000000000	5.880,0000000000	5.880,0000000000

Calculation:

Application of EAA values for Stockach Aluminium 2020

Abiotic Depletion (ADP elements) (kg Sb Equiv)	18,975600000	8,179560000	2,273520000
Acidification Potential (AP) (kg SO2 Equiv)	194.274,000000000	46.350,840000000	12.883,280000000
Eutrophication Potential (EP) (kg Phosphate Equiv)	12.650,400000000	6.339,159000000	1.761,978000000
Global Warming Potential (GWP 100 years) (kg CO2 equiv)	38.854.800,000000000	22.493.790,000000000	6.252.180,000000000
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)	10.391,400000000	0,000238571	0,000066311
Primary energy demand from non-renewables (MJ)	496.980.000,000000000	368.080.200,000000000	102.308.400,000000000
Primary energy demand from renewables (MJ)	212.346.000,000000000	32.718.240,000000000	9.094.080,000000000
Total primary energy demand (MJ)	709.326.000,000000000	400.798.440,000000000	111.402.480,000000000

2020 Total StockachAlu	Total	per t. scrap
Abiotic Depletion (ADP elements) (kg Sb Equiv)	29,428680	0,000321179
Acidification Potential (AP) (kg SO2 Equiv)	253.508,120000	2,766740371
Eutrophication Potential (EP) (kg Phosphate Equiv)	20.751,537000	0,226478407
Global Warming Potential (GWP 100 years) (kg CO2 equiv)	67.600.770,000000	737,782203936
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)	10.391,400305	0,113409806
Primary energy demand from non-renewables (MJ)	967.368.600,000000	10.557,680596331
Primary energy demand from renewables (MJ)	254.158.320,000000	2.773,836532900
Total primary energy demand (MJ)	1.221.526.920,000000	13.331,517129231

Result:

2020 Total StockachAlu - applied per t. of final product	per t.Endprodukt (net slab/Sow)	Net Production rolling slabs & Sows (t)	69.929
Abiotic Depletion (ADP elements) (kg Sb Equiv)	0,00	2022	
Acidification Potential (AP) (kg SO2 Equiv)	3,63		
Eutrophication Potential (EP) (kg Phosphate Equiv)	0,30		
Global Warming Potential (GWP 100 years) (kg CO2 equiv)	966,71		
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)	0,15		
Primary energy demand from non-renewables (MJ)	13.833,58		
Primary energy demand from renewables (MJ)	3.634,52		
Total primary energy demand (MJ)	17.468,10		