

Life Cycle Assessment - AS Oxidwerke 2021

Assumptions & Explanations

LCA analysis is based on environmental profile report from EAA from 2018.
 We use the EAA indicators for salt slag recycling including credits from the valorisation of the aluminium oxide.
 The data in the profile report is reference data for LCA analysis. It represents average 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 mix.
 If credits from recycling of aluminium oxide are taken into consideration, salt slag recycling has a net positive effect with regards to its LCA.
 Aluminium oxide from landfilled oxide which has been shipped to customers for processing into construction material is considered as well

In Charge:

LCA calculated by: Markus Wild

Date:

Date: 10.10.2022

Update Cycle:

Update cycle: LCA analysis will be revised on yearly basis

Salt Slag recycling	
Valuable Outputs (ASO)	58.700
Salt	26.100
Aluminium oxide	28.300
Aluminium granules (Sows @40% recovery)	4.300
Salt Slag recycled	44.500

Source:

EAA indicators (basis)	<i>per ton of valuable output incl. Al-oxide credits</i>	
<i>Chapter profile report</i>	<i>(Table 5-1)</i>	
Abiotic Depletion (ADP elements) (kg Sb Equiv)	-	0,0000800000
Acidification Potential (AP) (kg SO2 Equiv)	-	0,0500000000
Eutrophication Potential (EP) (kg Phosphate Equiv)	-	0,0520000000
Global Warming Potential (GWP 100 years) (kg CO2 equiv)	-	0,2600000000
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)	-	0,0000000000
Photochem. Ozone Creationn Potential (POCP) (kg Ethene-Equiv)	-	0,0290000000
Primary energy demand from non-renewables (MJ)		83,0000000000
Primary energy demand from renewables (MJ)	-	0,7400000000

Total primary energy demand (MJ)	82,260000000
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Calculation:

Application of EAA values for ASO 2021

(TOTAL)

Abiotic Depletion (ADP elements) (kg Sb Equiv)	-	4,696000000
Acidification Potential (AP) (kg SO2 Equiv)	-	2.935,000000000
Eutrophication Potential (EP) (kg Phosphate Equiv)	-	3.052,400000000
Global Warming Potential (GWP 100 years) (kg CO2 equiv)	-	15.262,000000000
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)	-	0,000000011
Photochem. Ozone Creationn Potential (POCP) (kg Ethene-Equiv)	-	1.702,300000000
Primary energy demand from non-renewables (MJ)		4.872.100,000000000
Primary energy demand from renewables (MJ)	-	43.438,000000000
Total primary energy demand (MJ)		4.828.662,000000000

Result:

2021 Total ASO - applied per t. of salt slag processed		
Abiotic Depletion (ADP elements) (kg Sb Equiv)		-0,000105528
Acidification Potential (AP) (kg SO2 Equiv)		-0,065955056
Eutrophication Potential (EP) (kg Phosphate Equiv)		-0,068593258
Global Warming Potential (GWP 100 years) (kg CO2 equiv)		-0,342966292
Ozone Layer Depletion Potential (ODP) (kg R11-Equiv)		-2,50629E-13
Photochem. Ozone Creationn Potential (POCP) (kg Ethene-Equiv)		-0,038253933
Primary energy demand from non-renewables (MJ)		109,4853933
Primary energy demand from renewables (MJ)		-0,976134831
Total primary energy demand (MJ)		108,5092584