

Parameter	Value			
Waste throughput	200,000 t/y			
Availability	8,000 h/y			
Specific flue gas amount	5.300 m ³ _{N, tr} /t waste			
Investment retrofit	Bicarbonate: €7.15 million			
Lime: €7.36 million	Georgia Public Service Commission certifies Units 3 & 4			
Calculation of annuity	Interest: 5%, depreciation: 20 years			
Sorbent costs	Lime hydrate (95% by mass) 90 €/t; Bicarbonate (98% by mass) 245 €/t			
Residue disposal	135 €/t residue			
Tipping fee	125 €/t waste			
Process water	0.50 €/m ³			
Hearth furnace coke	360 €/t			
NH ₄ OH (25%)	117 €/t			
Electricity	0.05 €/kWh			
Natural gas	60 €/MWh			
High-pressure steam	13.27 €/t (Steam parameter 40 bar, 250C)			
Low-pressure steam	7.15 €/t (Steam parameter 6 bar, 160C)			
Staff savings	No additional or reduced demand for bicarbonate compared to lime			
Maintenance	No additional or reduced demand for bicarbonate compared to lime			
Raw gas	HCl: 1,200 mg/m ³ _{N, dry} SO ₂ : 400 mg/m ³ _{N, dry} HF: 10 mg/m ³ _{N, dry} NO _x : 400 mg/m ³ _{N, dry} Hg: 500 µg/m ³ _{N, dry} Fly ash: 2,500 mg/m ³ _{N, dry}			
Clean gas	HCl: 10 g/m ³ _{N, tr} SO ₂ : 50 mg/m ³ _{N, tr} HF: 1 mg/m ³ _{N, tr} NO _x : 100 mg/m ³ _{N, tr} Hg: 30 µg/m ³ _{N, tr} Fly ash: 10 mg/m ³ _{N, dry}			
Reaction product		with HCl	with SO _x	
	Bicarbonate	100% NaCl	70% Na ₂ SO ₃ , 30% Na ₂ SO ₄	
	Lime	Conservative scenario:	50% CaSO ₃	
		70% CaCl ₂ , 30% Ca(OH)Cl	50% CaSO ₄	
	Practical scenario:			
	50% CaCl ₂ , 50% Ca(OH)Cl			
	Surplus: 61.4% CaCO ₃ , 38.6% Ca(OH) ₂			
Maintenance	€178,750 per year (2.5% per year of the investment)			
Disposal landfill leachate	Not considered			
	SCR		SNCR	
	Bicarbonate	Lime	Bicarbonate	Lime
Process	Dry sorption	Conditioned dry sorption	Dry sorption	Conditioned dry sorption
Stoichiometric factor, conservative scenario	1.21	1.91	1.21	1.91
Stoichiometric factor, practical scenario	1.15	2.2	1.15	2.2
Reaction temperature	Bicarbonate: 180C SCR: 180C	Lime: 130C SCR: 210C	Bicarbonate: 180C	Lime: 130C
Availability	Regeneration LT-CAT 6 h/y at 320C	No reduction	No reduction	No reduction

Notes: Eco = economizer, LT-CAT = low-temperature catalyst, SCR = selective catalytic reduction, SNCR = selective noncatalytic reduction, SF = stoichiometric factor.