

Substance	Reference unit	Digestate emissions		
		Point estimate	Uncertainties	Source
Digestate emissions – separation process				
Ammonia	g per t FM substrate input into the process	8.00	min 2.7; mode 8; max. 26.6	[1]
Dinitrogen monoxide	g per t FM substrate input into the process	17.00	min 12.7; mode 17; max. 38.1	[1]
Methane	g per t FM substrate input into the process	460.00	min 368; mode 460; max. 644	[1]
Digestate emissions – delivery and mechanical processing				
Ammonia	g per t FM substrate input into the process	5.50	min 4; mode 5.6; max. 10	[1]
Dinitrogen monoxide	g per t FM substrate input into the process	12.00	min 1.4; mode 12; max. 10	[1]
Methane	g per t FM substrate input into the process	100.00	min 20; mode 100; max. 230	[1]
Digestate emissions – land application liquid phase				
Ammonia	g per kg FM digestate	97.00	standard deviation 61	calculations based on [2]
Dinitrogen monoxide	g per kg FM digestate	0.02	min 0.0027; max 0.018	[3] and [4]
Methane	g per kg FM digestate	0.0033	standard deviation 0.00277	[2]
Digestate emissions – land application solid phase				
Ammonia	g per t FM substrate input into the process	27	min 14.6; mode 27; max. 39.4	[5]
Dinitrogen monoxide	g per t FM substrate input into the process	10	min 8.3; mode 10; max. 11.7	[5]
Methane	g per t FM substrate	0.3	none	[5]

	input into the process			
Solid manure loading and spreading				
Ammonia	g per t FM manure	247.10	min 244.44; max 249.80	based on [3] and [6]
Dinitrogen monoxide	g per t FM manure	12.00	min 5.74; max17.00	
Methane	kg per t FM manure	0.95	min 0.53; max 1.37	
Electricity mix Vorarlberg—production (green power mix); based on the following Ecoinvent processes:				
electricity from waste incineration	%	24		Own calculations based on [7,8]
electricity production from biogas	%	27		
electricity from digester sludge incineration	%	11		
electricity from local small-scale hydropower	%	20		
electricity production from PV plant	%	18		
Heat mix Vorarlberg—based on the following Ecoinvent processes:				
heat, hard coal briquette, at stove 5- 15kW	%	>1		Own calculations based on [7,8]
heat, light fuel oil, at boiler 10kW	%	20		
heat, natural gas, at boiler	%	46		
heat, softwood logs, at wood heater 6kW	%	20		
heat from electricity: Vorarlberg consumption mix is mainly based on hydro power (large-scale), electricity imports from Germany and on regional production (see green power mix above)	%	13		

References:

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