BIOFOS

ENVIRON-MENTAL DATA 2022

WASTEWATER TREATMENT

INCOMING FLOWS	UNIT	WWTP LYNETTEN	WWTP AVEDØRE	WWTP DAMHUSÅEN	TOTAL	DATA IS DETERMINED BY
Wastewater						
Volume of water	mill. m^3/year	56.0	22.4	26.6	104.99	M
Organic matter in wastewater						
COD	t/year	42,837	16,955	17,805	77,597	C
Nutrients in wastewater						
Phosphorus	t/year	417	176	189	782	C
Nitrogen	t/year	3,189	1,251	1,405	5,845	C
Suspended solids	t/year	20,593	8,385	9,992	38,970	C
OUTGOING FLOWS						
Organic matter in treated wastewater						
COD	t/year	2,102	626	817	3,545	C
Nutrients in treated wastewater						
Phosphorus	t/year	22	16	15	53	C
Nitrogen	t/year	356	109	152	617	C
Suspended solids	t/year	507	108	257	872	C
Bypassed mechanical treated wastewater						
Volume[1]	mill. m^3/year	0.91	0.47	1.61	2.99	M
Organic matter in mechanically treated wastewater						
COD	t/year	486	36	621	1,143	C
Nutrients in mechanically treated wastewater						
Phosphorus	t/year	5	1	10	16	C
Nitrogen	t/year	36	8	59	103	C
Suspended solids	t/year	232	18	354	604	C

[1] Without precipitation adjustment

SLUDGE TREATMENT

	UNIT	WWTP LYNETTEN	WWTP AVEDØRE	WWTP DAMHUSÅEN	TOTAL	DATA IS DETERMINED BY
Own production of sludge	t DM/year	10,630	5,270	4,616	20,516	C
Sludge transported to other WWTP	t DM/year	631	-	4,448	5,079	C
Sludge transported to agricultural land	t DM/year	2,021	-	121	2,142	C
Sludge from other WWTP						
From WWTP Lynetten	t DM/year	-	631	-	631	C
From WWTP Damhusåen	t DM/year	2,444	2,005	-	4,449	C
From other wastewater utilities	t DM/year	226	614	-	840	C
Total incinerated sludge	t DM/year	10,766	8,095	-	18,861	C

FLUE GAS FROM INCINERATOR

OUTGOING FLOWS	UNIT	WWTP LYNETTEN	WWTP AVEDØRE	WWTP DAMHUSÅEN	TOTAL	DATA IS DETERMINED BY
Quantity of flue gas	mill. Nm^3/year	104	58	-	162	C
Carbon monoxide	t/year	0.42	0.27	-	0.69	C
Carbon dioxide	t/year	10,761	7,886	-	18,647	C
Sulphur dioxide	kg/year	26	754	-	780	C
Particles	kg/year	13	34.9	-	47.9	C
Hydrochloric acid	kg/year	22	18	-	40	C
Ammonia	kg/year	117	124	-	241	C
Nitrogen oxides	kg/year	2,467	3,883	-	6,350	C
Dioxin	mg/year	0.50	0.26	-	0.76	C
TOC	kg/year	48.0	-	-	48.0	C

ENERGY

CONSUMPTION	UNIT	WWTP LYNETTEN	WWTP AVEDØRE	WWTP DAMHUSÅEN	TOTAL	DATA IS DETERMINED BY
Electricity	Mwh/year	28,055	11,191	9,611	48,857	M
Heat	Mwh/year	177	1.171	121	1,469	M
Fuel oil	m^3/year	4	15	-	19	M
PRODUCTION						
Heat[2]	Mwh/year	24,234	5,648	10,289	40,171	M
Hereof from flue gas	Mwh/year	4,456			4,456	M
Biogas – own production	Nm^3/year	8,470,541	4,017,951	3,095,030	15,583,522	M
Electricity from solar cells	Mwh/year	-	-	682	682	M
Electricity from biogas engine	Mwh/year	-	739	3,714	4,453	M
SALE AND OUTGOING FLOWS						
Sale of district heating	Mwh/year	26,096	1,493	3,714	31,303	M
Sale of electricity	Mwh/year	-	739	4,032	4,771	M
Sale of biogas	Nm^3/year	5,665,454	2,326,701	-	7,992,155	M
Emission of biogas	Nm^3/year	450	1,018	-	1,468	C
Biogas for torch	Nm^3/year	16,553	73,248	192,627	282,428	C

[2] WWTP Lynetten = heat water exchanger + boiler + exported heat to district heating system from incinerator
WWTP Avedøre = biogas motor + exported heat to district heating system from incinerator
WWTP Damhusåen = biogas motor + boiler

CONSUMPTION

	UNIT	WWTP LYNETTEN	WWTP AVEDØRE	WWTP DAMHUSÅEN	TOTAL	DATA IS DETERMINED BY
Precipitation chemicals	t/year	2,314	1,384	994	4,692	M
Lye/NaOH (50 %)	t/year	232	540	-	772	M
Ammonia solution (24 %)	t/year	2	-	-	2.4	M
Polymers	t/year	155	42	71	268	M
Activated carbon	t/year	7	8	-	15	M
Drinking water	m^3/year	31,297	33,082	2,973	67,352	M

WASTE AND RESIDUE

REUSE	UNIT	WWTP LYNETTEN	WWTP AVEDØRE	WWTP DAMHUSÅEN	TOTAL	DATA IS DETERMINED BY
Ash	t DM/year	1,254	-	-	1,254	M
Sand	t/year	293	-	358	651	M
INCINERATION						
Small combustibles	t/year	30	-	14	44	M
Screenings	t/year	551	813	286	1,650	M
LANDFILL						
Internal landfill site						
Ash	t DM/year	4,468[3]	60	-	4,528[3]	M
Sand	t/year	-	272	-	272	M
External landfill site						
Flue gas waste	t DM/year	411	38	-	449	M

[3] In 2022, 4,468 tonnes of ash were deposited at Lynetten's landfill, of which 2,544 tonnes came from Avedøre Treatment plant.

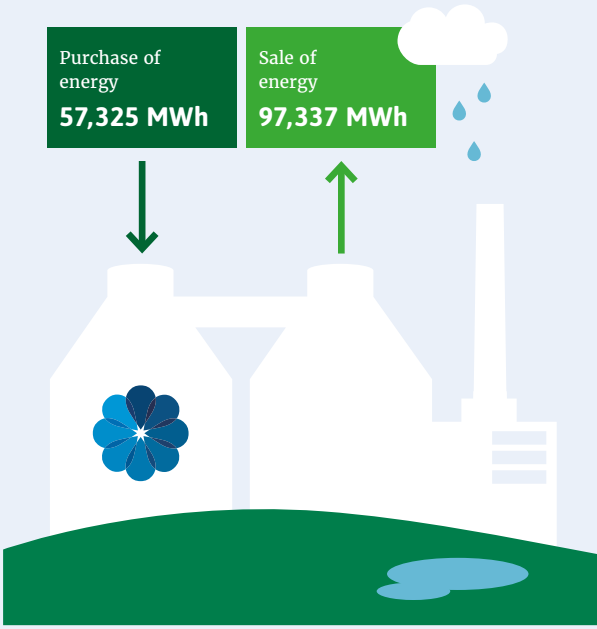
M = Measurement
C = Calculation
- = Parameter not relevant

EXAMPLES OF MEASUREMENTS: Online flow measurements, reading of meters, inventory and weighing

EXAMPLES OF CALCULATIONS: Flow-proportional day sampling, mix tests of random samples, calculated on the basis of operational hours, weighing and dry matter determination, AMS-continuous measurements.

Environment, climate and supply

BIOFOS energy balance 2022

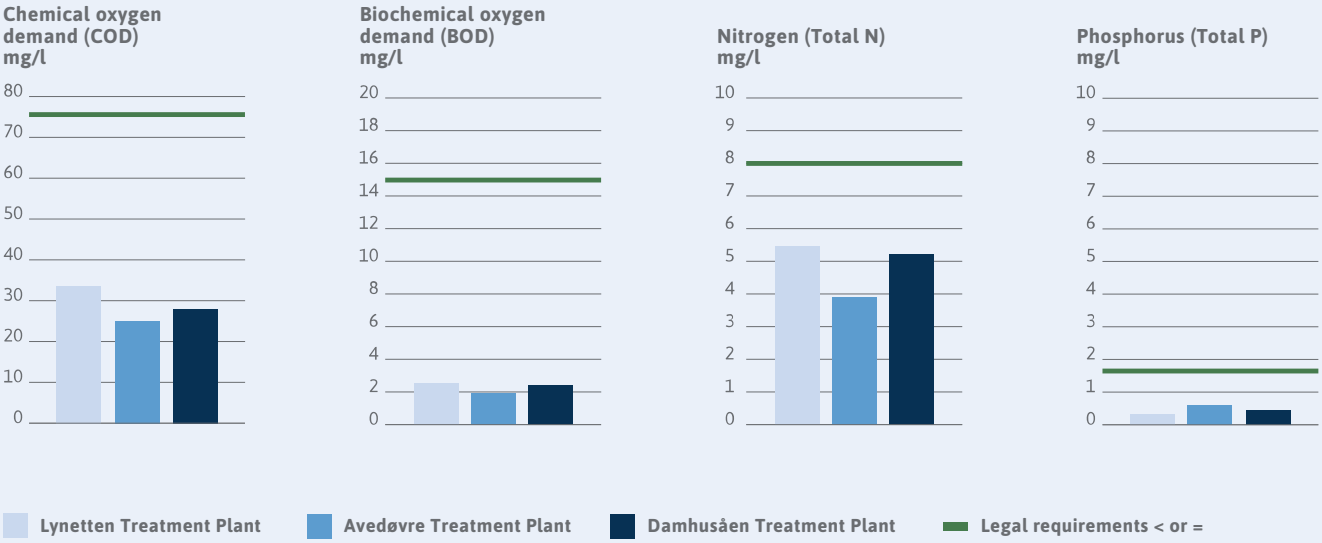


Biological capacity 2022

Average biological capacity over the year

Quality of treated wastewater

Result 2022 versus legal requirements



BIOFOS is the largest wastewater company in Denmark. We treat the wastewater of 1.2 million inhabitants in the Greater Copenhagen area at our three plants Lynetten, Avedøre and Damhusåen.

We use the resources in the wastewater to produce climate friendly energy in the form of electricity, biogas and district heating for the supply network.

BIOFOS also has an active school service, where school children recieves education in wastewater, environment and sustainable energy.

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