Dŵr Cymru Welsh Water

Sample Analysis Report

Sampling Point No:	363244	**Location:**	TALYBONT WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	**Time Taken:**	10:01
Laboratory:	ALS	**Sample ID:**	8443884
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Dŵr Cymru
Welsh Water

Sample Analysis Report

Dŵr Cymru Welsh Water

Sample Analysis Report

Code		Result	Units	Qualifier	Lower Limit
238	Magnesium	640	mg/kg		
288	Aluminium	70100	mg/kg		
357	Arsenic	18.8	mg/kg		
4620	pH	6.6	pH		
7774	Mercury	0.30	mg/kg	<	
8241	Volatile solids	50.6	%		
9233	Ammoniacal nitrogen	204	mg/kg		
9234	Sulphur	4730	mg/kg		
9271	Cadmium	0.43	mg/kg		
9272	Chromium	12.7	mg/kg	<	
9273	Copper	64.7	mg/kg		
9275	Nickel	20.5	mg/kg		
9276	Lead	18.3	mg/kg	<	
9277	Zinc	146	mg/kg		
9278	Iron	5090	mg/kg		
9281	% Dry solids	6.80	%		
9282	% Minerals	49.4	%		
9283	% K (dry weight)	0.0303	mg/kg		
9284	% P (dry weight)	0.172	%	<	
9285	% N (dry weight)	0.852	%		

Comments:

Signed: _____

Approved by:

Position:

Upper Limit

Dŵr Cymru Welsh Water

Sample Analysis Report

Sampling Point No:	340282	**Location:**	ELAN WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	**Time Taken:**	10:09
Laboratory:	ALS	**Sample ID:**	8443903
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Dŵr Cymru
Welsh Water

Sample Analysis Report

Dŵr Cymru Welsh Water

Sample Analysis Report

Code		Result	Units	Qualifier	Lower Limit
238	Magnesium	719	mg/kg		
288	Aluminium	4790	mg/kg		
357	Arsenic	45.6	mg/kg		
4620	pH	7.0	pH		
7774	Mercury	0.45	mg/kg	<	
8241	Volatile solids	34.0	%		
9233	Ammoniacal nitrogen	442	mg/kg		
9234	Sulphur	3860	mg/kg		
9271	Cadmium	0.49	mg/kg	<	
9272	Chromium	33.4	mg/kg		
9273	Copper	35.0	mg/kg	<	
9275	Nickel	22.9	mg/kg	<	
9276	Lead	62.9	mg/kg		
9277	Zinc	320	mg/kg		
9278	Iron	404000	mg/kg		
9281	% Dry solids	4.50	%		
9282	% Minerals	66.0	%		
9283	% K (dry weight)	0.0390	mg/kg	<	
9284	% P (dry weight)	0.364	%		
9285	% N (dry weight)	0.867	%		

Comments:

Signed: _____

Approved by:

Position:

Upper Limit

Sample Analysis Report

LLYSWEN V CL SLUDGE TANK

Sampling Point No:	360173	**Location:**	LLYSWEN WTW SLUDGE TANKERING POINT
Date Sampled:	20/06/2025	**Time Taken:**	12:55
Laboratory:	ALS	**Sample ID:**	8420716
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Dŵr Cymru
Welsh Water

Sample Analysis Report

Dŵr Cymru Welsh Water

Sample Analysis Report

Code		Result	Units	Qualifier	Lower Limit
238	Magnesium	2990	mg/kg		
288	Aluminium	124000	mg/kg		
357	Arsenic	16.9	mg/kg		
4620	pH	7.3	pH		
7774	Mercury	0.98	mg/kg	<	
8241	Volatile solids	31.7	%		
9233	Ammoniacal nitrogen	6	mg/kg	<	
9234	Sulphur	4660	mg/kg		
9271	Cadmium	0.23	mg/kg	<	
9272	Chromium	11.7	mg/kg		
9273	Copper	38.4	mg/kg		
9275	Nickel	16.9	mg/kg		
9276	Lead	9.5	mg/kg		
9277	Zinc	154	mg/kg		
9278	Iron	22900	mg/kg		
9281	% Dry solids	4.11	%		
9282	% Minerals	68.3	%		
9283	% K (dry weight)	0.0926	mg/kg		
9284	% P (dry weight)	0.0974	%		
9285	% N (dry weight)	0.903	%		

Comments:

Signed: _____

Approved by:

Position:

Upper Limit

REAL BCS Approved Testing Laboratory

PAS110 2014 Certificate of Analysis

Client: BIOGEN BRYN PICA
(N488) WASTE DISPOSAL SITE
MERTHYR ROAD
LLWYDCOED
MID GLAMORGAN
CF44 0BX

Originator: BIOGEN BRYN PICA
WHOLE DIGESTATE

Lab ID:	13835 - 170382	**Certification Code:**	BIo-BRY-WD	**Date Received:**	13/08/2025
Sample ID:	BP ST 12/08/25	**BCS Number:**	BCS0316C78	**Date Reported:**	20/08/2025
Sample Type:	Whole Digestate	**Plant / Site Name:**	Biogen Uk Ltd	**Date Sampled:**	12/08/2025

Potentially Toxic Elements in WD / SL / SF, on a fresh weight basis

Parameter	Units	Result	Upper Limit	Pass	Method of Test
Cadmium (Cd)	mg/kg	0.03	1.20 mg / kg	Y	BS EN 15587 (soluble in aqua regia)
Chromium (Cr)	mg/kg	0.94	80 mg / kg	Y	BS EN 15587 (soluble in aqua regia)
Copper (Cu)	mg/kg	2.91	160 mg / kg	Y	BS EN 15587 (soluble in aqua regia)
Lead (Pb)	mg/kg	<0.5	160 mg / kg	Y	BS EN 15587 (soluble in aqua regia)
Mercury (Hg)	mg/kg	<0.05	0.80 mg / kg	Y	BS EN 15587 (soluble in aqua regia)
Nickel (Ni)	mg/kg	2.50	40 mg / kg	Y	BS EN 15587 (soluble in aqua regia)
Zinc	mg/kg	14.4	320 mg / kg	Y	BS EN 15587 (soluble in aqua regia)

Physical contaminants in WD / SL / SF on a fresh weight basis

Parameter	Units	Result	Upper Limit	Pass	Method of Test
Plastics > 2mm	kg / t	0.008			NRM-SOP-JAS-497
Glass > 2mm	kg / t	Zero			NRM-SOP-JAS-497
Metals > 2mm	kg / t	Zero			NRM-SOP-JAS-497
Other > 2mm	kg / t	Zero			NRM-SOP-JAS-497
Total > 2mm	kg / t	0.008	0.36 kg / t	Y	NRM-SOP-JAS-497
of which Sharps:	kg / t	Zero	Zero in sample tested	Y	NRM-SOP-JAS-497
Stones > 5mm	kg / t	Zero	32.0 kg / t		NRM-SOP-JAS-497

Zero - No visible contaminants were found in the sample as submitted

The sample was dispatched within one day of sampling
The sample was received within 24 hours of dispatch (48 for extreme geographical locations)
The sample was received within 72 hours of dispatch.
The sample was received in a cool box with ice packs

Released by: *Teresa Clyne* **Date: 20/08/2025**

t: +44(0)1344 886338 **w:** www.cawood.co.uk/nrm
NRM, Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

REAL BCS Approved Testing Laboratory

PAS110 2014 Certificate of Analysis (Continued)

Client: BIOGEN BRYN PICA
(N488) WASTE DISPOSAL SITE
MERTHYR ROAD
LLWYDCOED
MID GLAMORGAN
CF44 0BX

Originator: BIOGEN BRYN PICA
WHOLE DIGESTATE

Lab ID:	13835 - 170382	**Certification Code:**	BIo-BRY-WD	**Date Received:**	13/08/2025
Sample ID:	BP ST 12/08/25	**BCS Number:**	BCS0316C78	**Date Reported:**	20/08/2025
Sample Type:	Whole Digestate	**Plant / Site Name:**	Biogen Uk Ltd	**Date Sampled:**	12/08/2025

Characteristics of WD / SL / SF for declaration, without limit values, that influence application rates
(Results on an 'as received' basis)

Parameter	Units	Result	M *	Amount per fresh tonne or m^3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH		8.8	1			
Oven Dry Matter	% m/m	6.55	2	65.50	1530	Kg DM
Loss On Ignition	% m/m	3.54	3	35.40	827	Kg OM
Total Kjeldahl Nitrogen (N)	% m/m	1.07	4	10.70	250	Kg N
Ammoniacal Nitrogen (NH4-N)	mg/kg	8077	5	8.08	188.68	Kg NH4-N
Total Phosphorus (P)	mg/kg	724	6	1.66	38.73	Kg P2O5
Total Potassium (K)	mg/kg	3911	6	4.69	109.63	Kg K2O
Total Magnesium (Mg)	mg/kg	38.4	6	0.06	1.49	Kg MgO
Total Sulphur (S)	mg/kg	612	6	1.53	35.74	Kg SO3
Equivalent field application rate		——		1.00	23.36	tonnes or m^3 / ha

*** Method of Test**

1 BS EN 13037
2 BS EN 14346
3 BS EN 15169
4 BS EN 13654-1 (Kjeldahl)
5 Sciantec SOP S1162 (Kjeldahl)
6 BS EN 15587 (soluble in aqua regia)

t: +44(0)1344 886338 **w:** www.cawood.co.uk/nrm
NRM, Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

REAL BCS Approved Testing Laboratory

PAS110 2014 Certificate of Analysis (Continued)

Client: BIOGEN BRYN PICA
(N488) WASTE DISPOSAL SITE
MERTHYR ROAD
LLWYDCOED
MID GLAMORGAN
CF44 0BX

Originator: BIOGEN BRYN PICA
WHOLE DIGESTATE

Lab ID:	13835 - 170382	**Certification Code:**	BIo-BRY-WD	**Date Received:**	13/08/2025
Sample ID:	BP ST 12/08/25	**BCS Number:**	BCS0316C78	**Date Reported:**	20/08/2025
Sample Type:	Whole Digestate	**Plant / Site Name:**	Biogen Uk Ltd	**Date Sampled:**	12/08/2025

Pathogens (human and animal indicator species) **in WD / SL / SF**

Parameter	Units	Result Rep 1	Result Rep 2	Result Rep 3	Result Rep 4	Result Rep 5	Pass	Method of Test
Salmonella		Absent	Absent	Absent	Absent	Absent	Y	Part II schedule of ABP regulations 2005
E. coli	CFU/g	<100	<100	<100	<100	<100	Y	Part III schedule of ABP regulations 2005

For Salmonella spp 5 out of 5 sub-sample results must be ABSENT in the quantity tested.

For Escherichia coli 4 out of 5 sub-sample results must be less than or equal to 1000 CFU/g but none may be greater than 5000 CFU/g.

Salmonella & E Coli testing is sub-contracted to a UKAS accredited testing laboratory which also meets the requirements for DEFRA ABPR testing.

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P2O5/t)	Total Potash (Kg K2O/t)	Total Sulphur (Kg SO3/t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P2O5/t)	Total Potash (Kg K2O/t)	Total Sulphur (Kg SO3/t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m3)	Total Phosphate (Kg P2O5/m3)	Total Potash (Kg K2O/m3)	Total Sulphur (Kg SO3/m3)	Total Magnesium (Kg MgO/m3)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P2O5/t)	Total Potash (Kg K2O/t)	Total Sulphur (Kg SO3/t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stablised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter	Total Nitrogen	Total Phosphate	Total Potash	Total Sulphur	Total Magnesium
Composts	(% DM)	(Kg N/t)	(Kg P2O5/t)	(Kg K2O/t)	(Kg SO3/t)	(Kg MgO/t)
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'	(% DM)	(Kg N/m3)	(Kg P2O5/m3)	(Kg K2O/m3)	(Kg SO3/m3)	(Kg MgO/m3)
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.