



**2022 Annual performance activity review of Environmental Permit
EPR/BB3790FX v1**

January 2023

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1. Terms of reference

Condition 4.2.2 of Environmental Permit EPR/BB3790FX requires AluK (GB) Ltd to provide a report on the performance of the activities over the previous year. This report shall include a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data.

The reporting periods for the annual parameters set out in Tables S4.1, S4.2 and S4.3 are from 01/01/2022 to 31/12/2022 and shall use the reporting forms as described in Table S4.4.

The reporting period for the quarterly parameters set out in Table S4.1 will be from 01/10/2022 to 31/12/2022 and shall use the reporting forms as described in Table S4.4.

2. Reporting of emissions to air for the period 01/01/2022 to 31/12/2022

On the 4th & 5th October 2022 Environmental Compliance Ltd (ECL) attended site to undertake an emission monitoring survey of Emission points A1 & A2 at our Chepstow Plant.

The graphs below represent the emissions to air parameters monitored during the period between 2020 and 2022. It is noted that the values of the parameters monitored continue to be below the set Emission Limit Values.

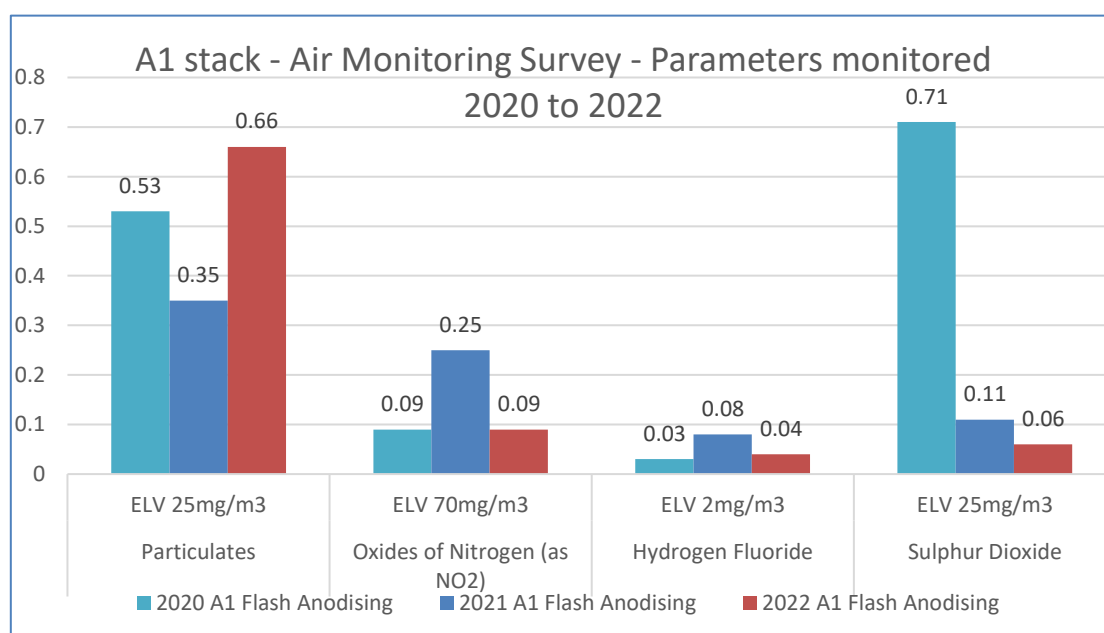


Figure 1 Bar chart representing the parameters monitored for stack A1

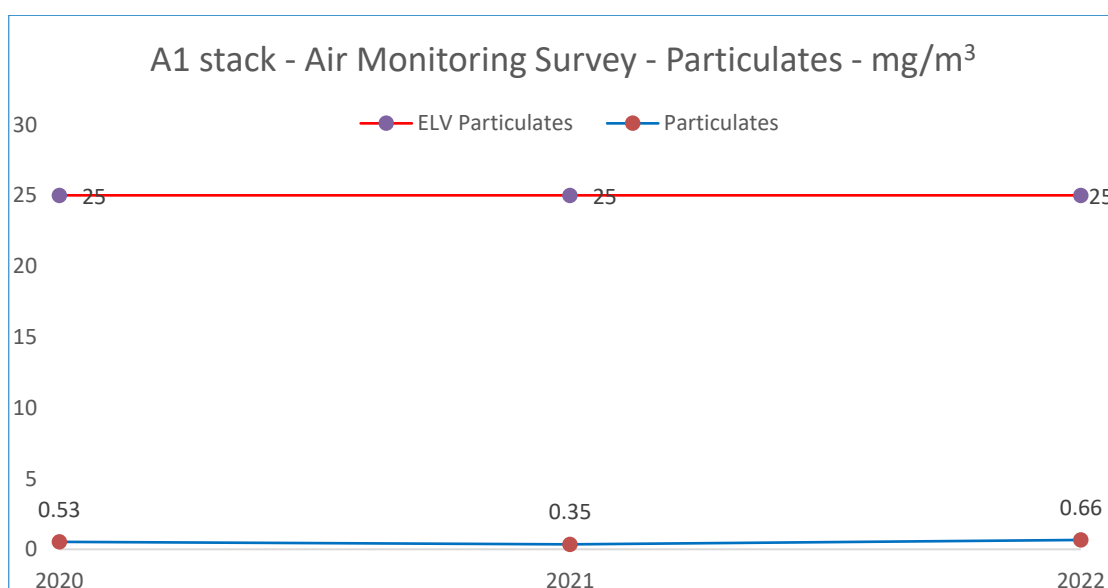


Figure 2 Graph representing Particulates monitored for stack A1

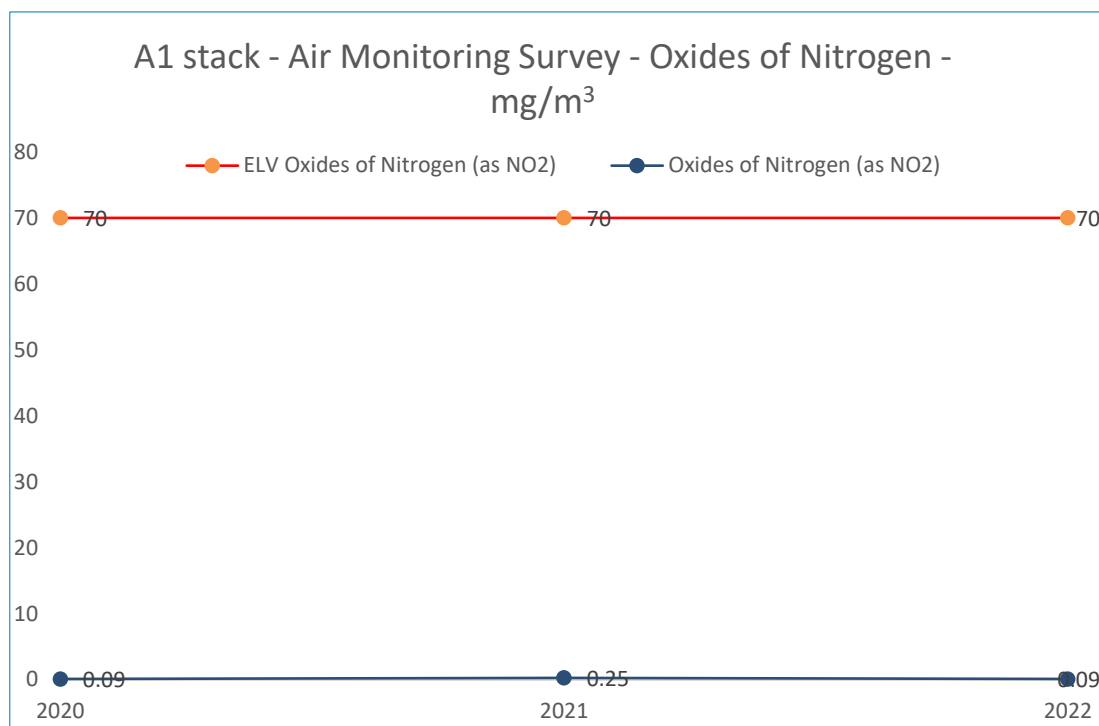


Figure 3 Graph representing Oxides of Nitrogen (as NO₂) monitored for stack A1

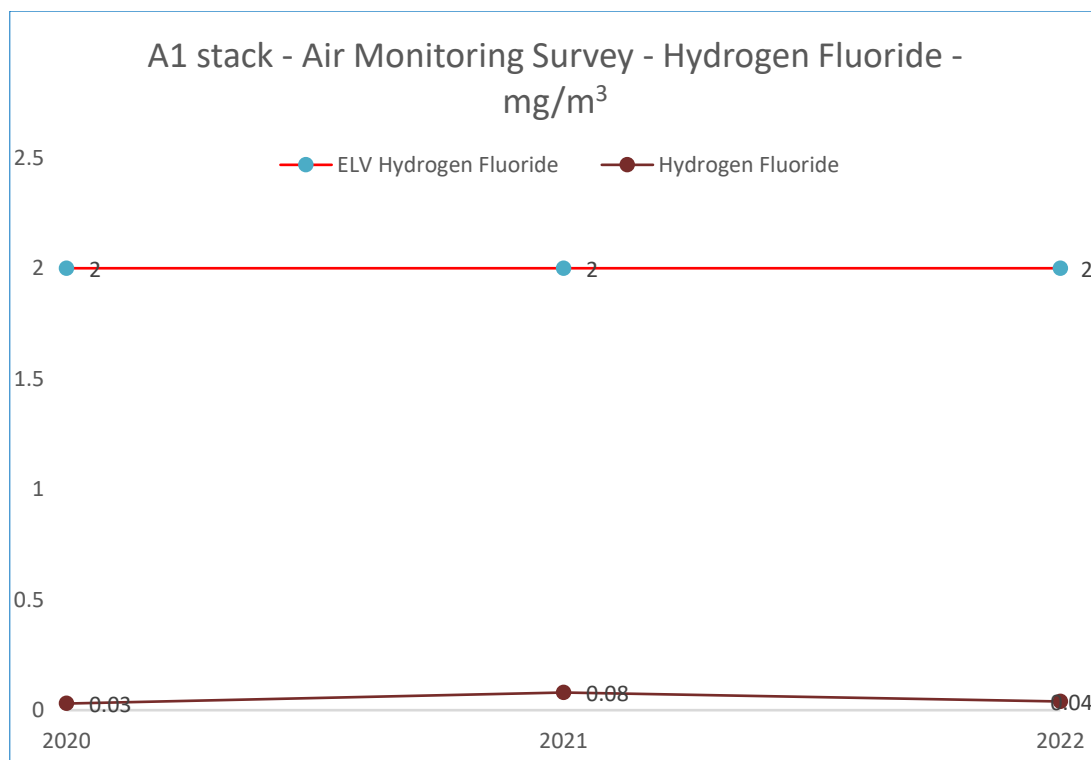


Figure 4 Graph representing Hydrogen Fluoride monitored for stack A1

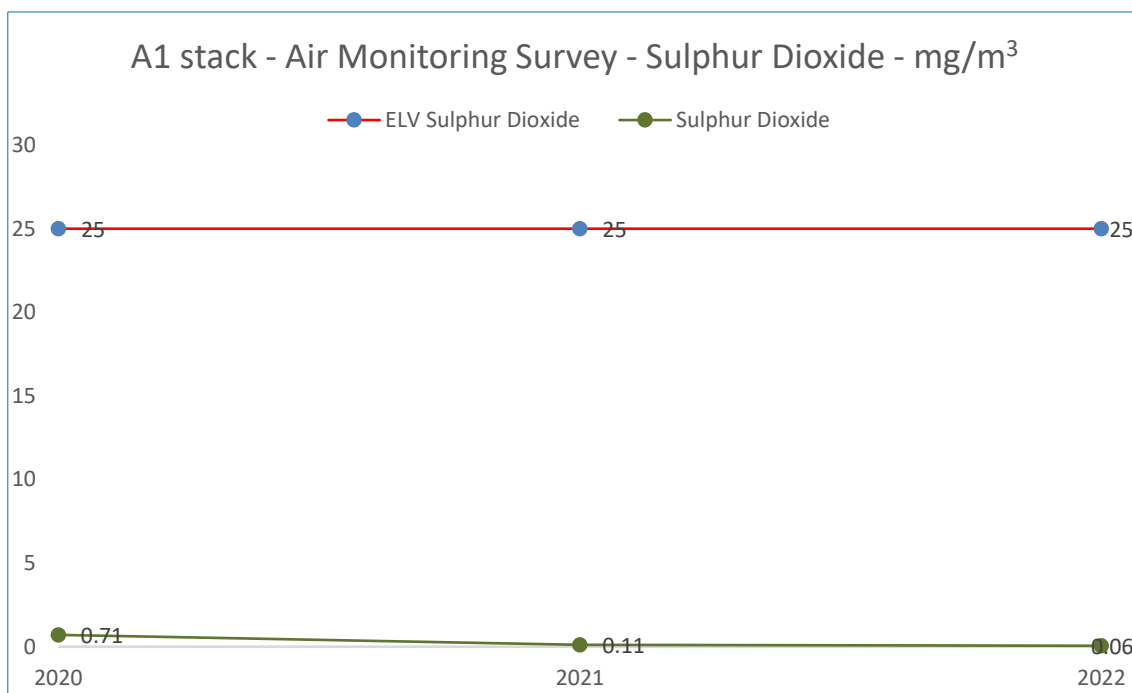


Figure 5 Graph representing Sulphur Dioxide monitored for stack A1

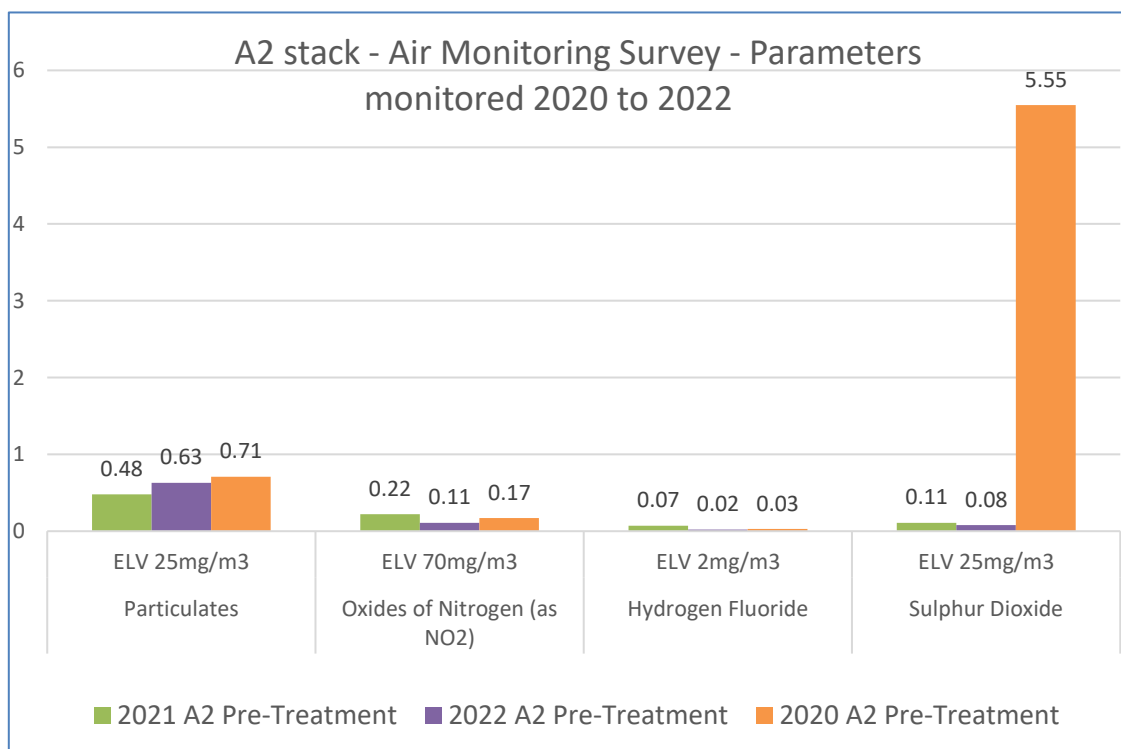


Figure 6 Graph representing the parameters monitored for stack A2

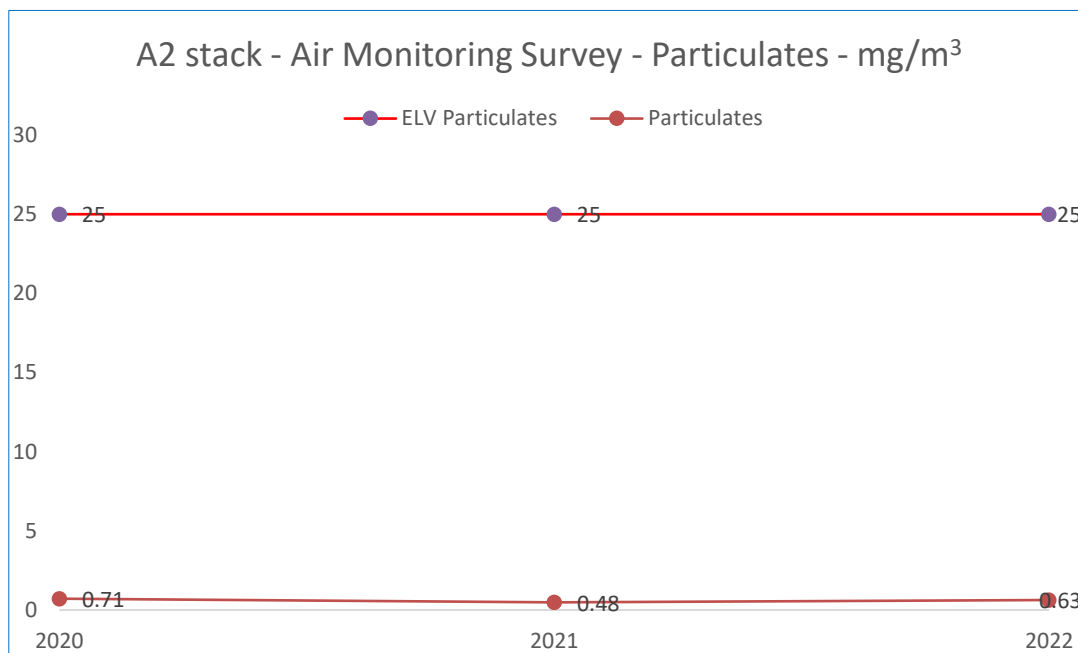


Figure 7 Graph representing Particulates monitored for stack A2

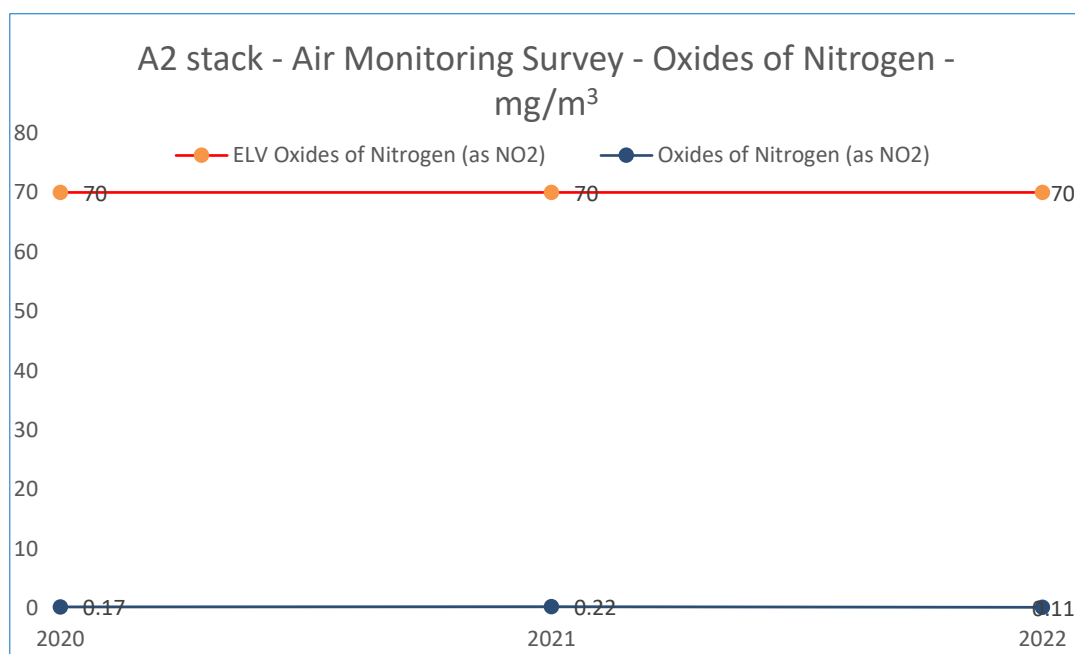


Figure 8 Graph representing Oxides of Nitrogen (as NO₂) monitored for stack A2

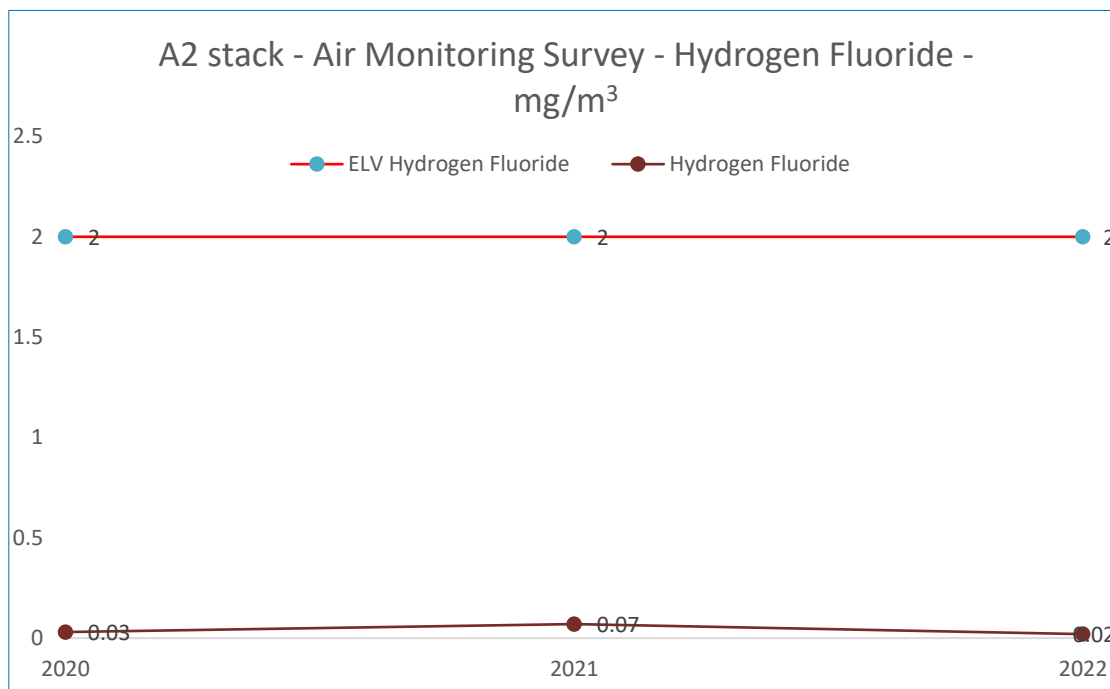


Figure 9 Graph representing Hydrogen Fluoride monitored for stack A2

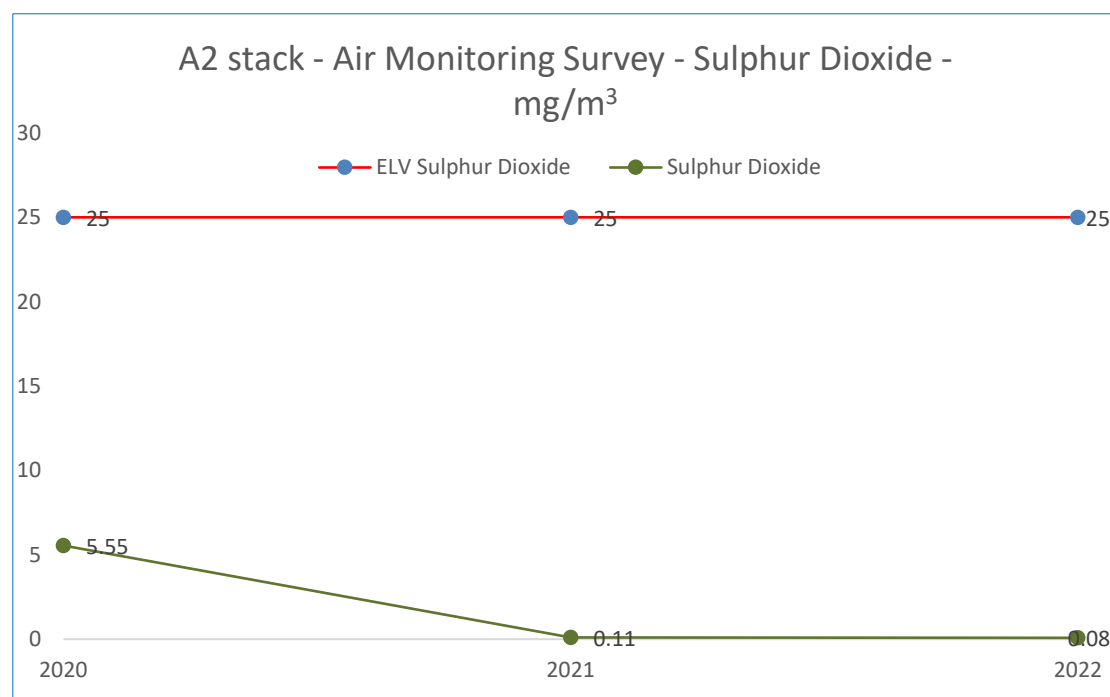


Figure 10 Graph representing Sulphur Dioxide monitored for stack A2

Table 1 below presents the findings of the 2022 survey and demonstrates compliance to the Emission Limit Values as described in Schedule 3 – Emissions and monitoring of Environmental Permit EPR/BB3790FX. A full copy of ECL Emissions Monitoring Survey P5323 is available upon request.

Table 1 Emissions to air Emission Points - A1& A2

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
A1	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	70 mg/m ³	Periodic (average over hour)	0.09mg/m ³	BS EN 14792: 2017	05/10/2022 10:30 – 11:30	2%
A1	Sulphur dioxide	25 mg/m ³	Periodic (average over hour)	0.06mg/m ³	BS EN 14791:2 017	05/10/2022 10:30 – 11:34	13%
A1	Particulate matter	25 mg/m ³	Periodic (average over hour)	.66mg/m ³	BS EN 13284-1:2017 & MID	05/10/2022 10:30 – 11:34	85%
A1	Hydrogen fluoride	2.0 mg/m ³	Periodic (average over hour)	0.04mg/m ³	BS ISO 15713:20 06 & MID / PD C EN/TS 17340:20 20	05/10/2022 13.20 – 14:20	13%
A2	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	70 mg/m ³	Periodic (average over hour)	0.11mg/m ³	BS EN 14792: 2017	04/10/2022 12:50 – 13:50	2%

Table 1 Emissions to air Emission Points - A1& A2

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
A2	Sulphur dioxide	25 mg/m ³	Periodic (average over hour)	0.08mg/m ³	BS EN 14791:2017	04/10/2022 11:45 – 12:49	13%
A2	Particulate matter	25 mg/m ³	Periodic (average over hour)	0.63mg/m ³	BS EN 13284-1:2017 & MID	04/10/2022 11:45 – 12:49	85%
A2	Hydrogen fluoride	2.0 mg/m ³	Periodic (average over hour)	0.02mg/m ³	BS ISO 15713:2006 & MID / PD C EN/TS 17340:2020	04/10/2022 13:15 – 14:15	13%

3. Reporting of emissions to sewer for the period 01/10/2022 to 31/12/2022

3.1 Emission Points W1 & W2

Emission points W1 & W2 relate to the source emissions to water of uncontaminated surface water drainage via interceptors into two unlined balancing lagoons.

Weekly spot monitoring of emission points W1 & W2 continued during 2022. The emission limit value parameters of both oil and grease (none visible) have continued to remain compliant throughout the reporting periods for 2022.

The spot sampling of the pH (min 6 max 9) parameters for W1 emission point were within their respective emission limit values throughout the reporting periods for 2022. One exceedance of the pH (min 6) parameter for W2 occurred on the 15th November 2022. Investigations were unable to determine a root cause. Subsequently Natural Resources Wales deemed that no further action was necessary. Subsequent weekly spot sampling of W2 continues to remain within their respective emission limit values.

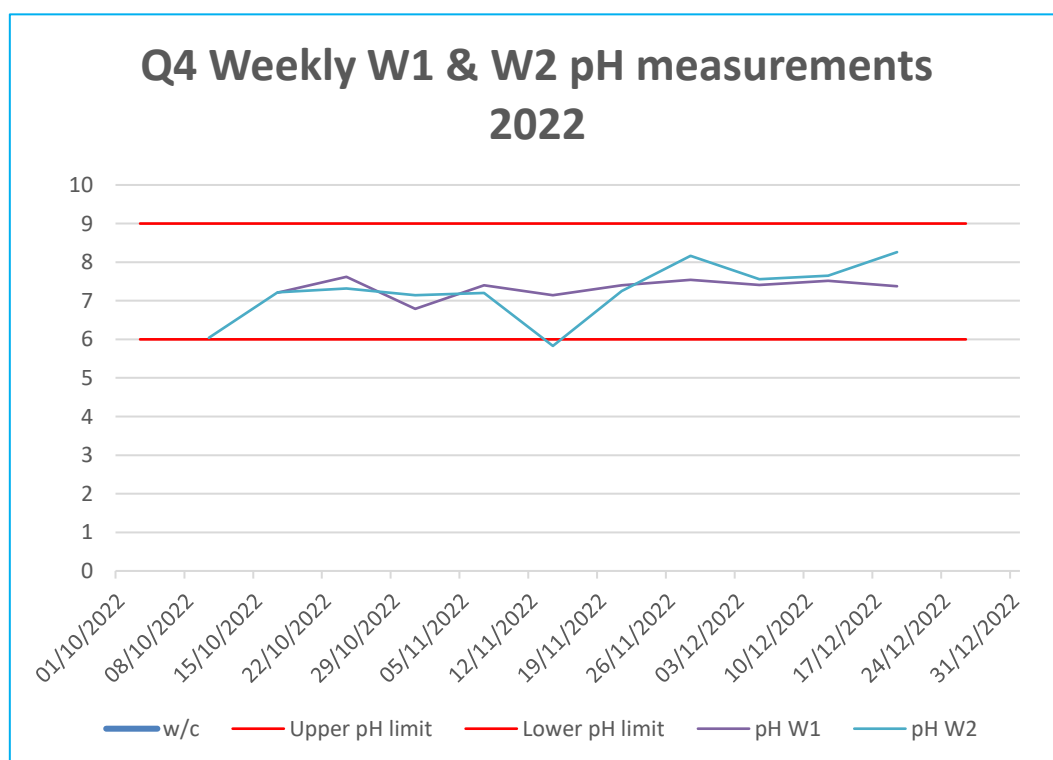


Figure 11 Q4 Weekly W1 & W2 pH measurements 2022 showing ELV pH (min 6) breach ON 15TH November 2022

3.2 Emission Point S1

Emission point S1 relates to the source emission from the Effluent Treatment Plant.

The emission limit value parameters of pH (min 6 max 9) have not been exceeded during this reporting period of 01/10/2022 to 31/12/2022 and that of 01/01/2022 to 31/12/2022.

The daily flow limit of 144m³/day (emission point M1) continues to be within the respective emission limit values during the reporting period of 01/10/2022 to 31/12/2022 and 01/01/2022 to 31/12/2022. The MCERTS flow meter continues to remain operational. An additional MCERTS flow meter has been purchased and delivered.

Breaches of the emission limit value for the parameter Total Aluminium (ELV 2.0mg/L) that occurred during 2022 have been reported to Natural Resources Wales (NRW) via the formal Schedule 5 notice procedure. These Schedule 5 notifications are available upon request.

Actions relating to these ELV exceedances are as follows:

1. Replacement of the HCl lance responsible for the dosing of the HCl acid to the coagulation reactor
2. The current cleaning regime of the drainage channels of every 3 months has been revised during the summer months of May to August and now takes the form of a risk-based approach taking into account temperature, visual sediment and when the filter press and cloths are cleaned using the cleaning bays
3. The routine maintenance inspection of the Sitrans F MAG 5100W flow meter serial no. N1M0270186 has been increased to 1 month for a period of 3 months starting from December 2022

3.2.1 Q4 monitoring period 01/10/2022 to 31/12/2022

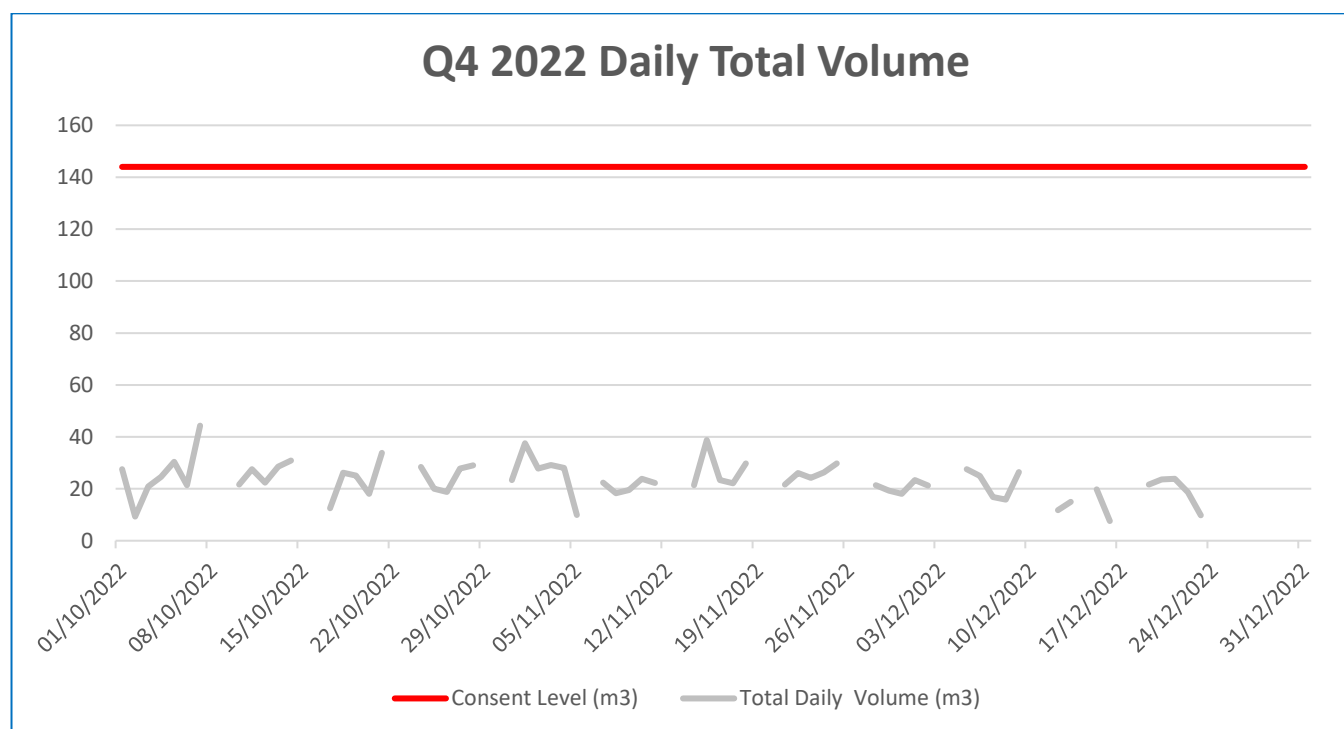


Figure 12 Q4 2022 Daily Total Volume (gaps in values represent non production days)

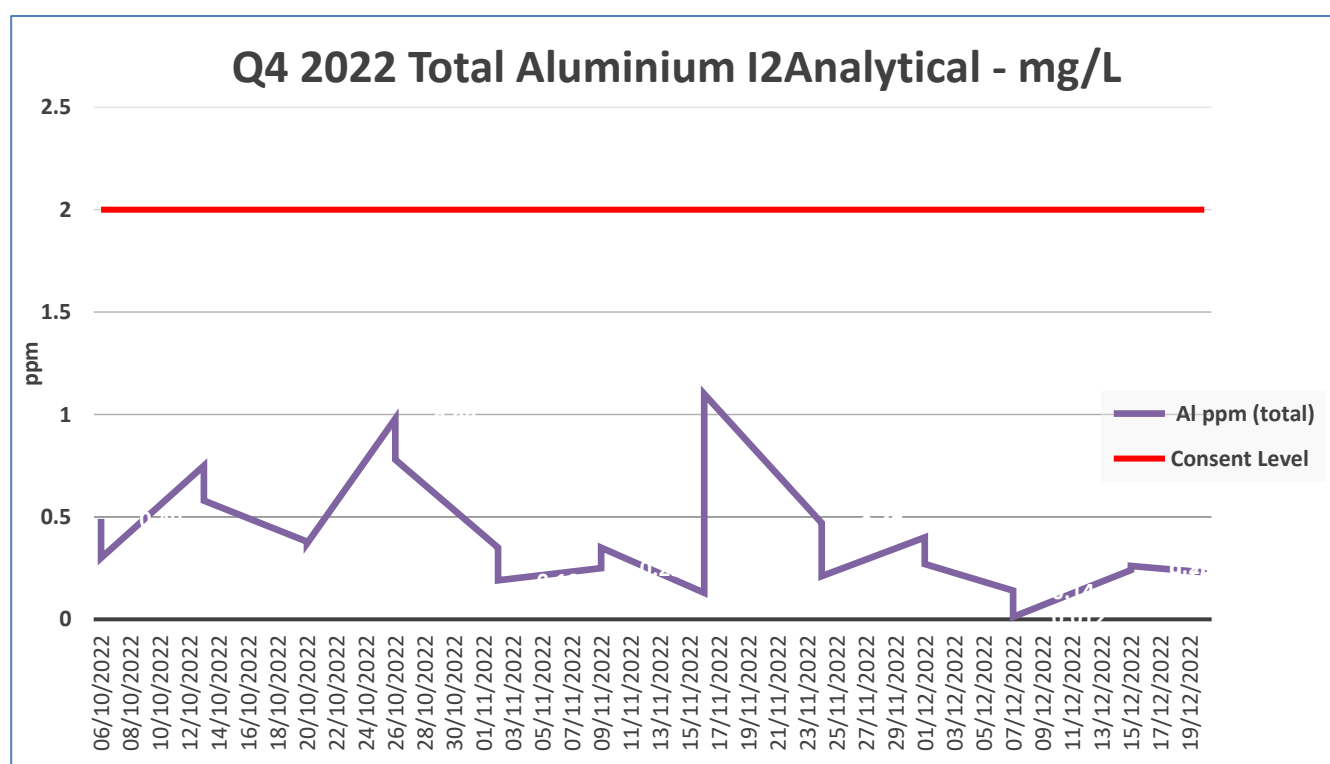


Figure 13 Q4 2022 Total Aluminium i2Analytical

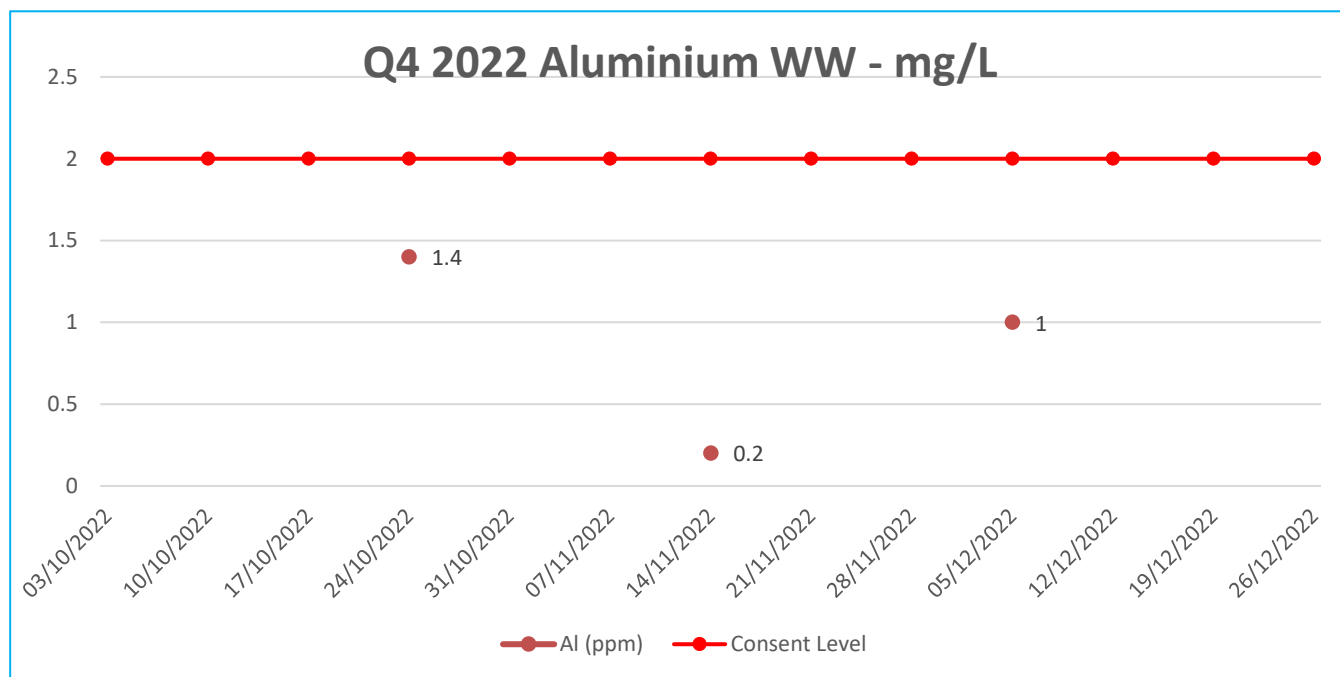


Figure 14 Q4 2022 Aluminium Total Welsh Water

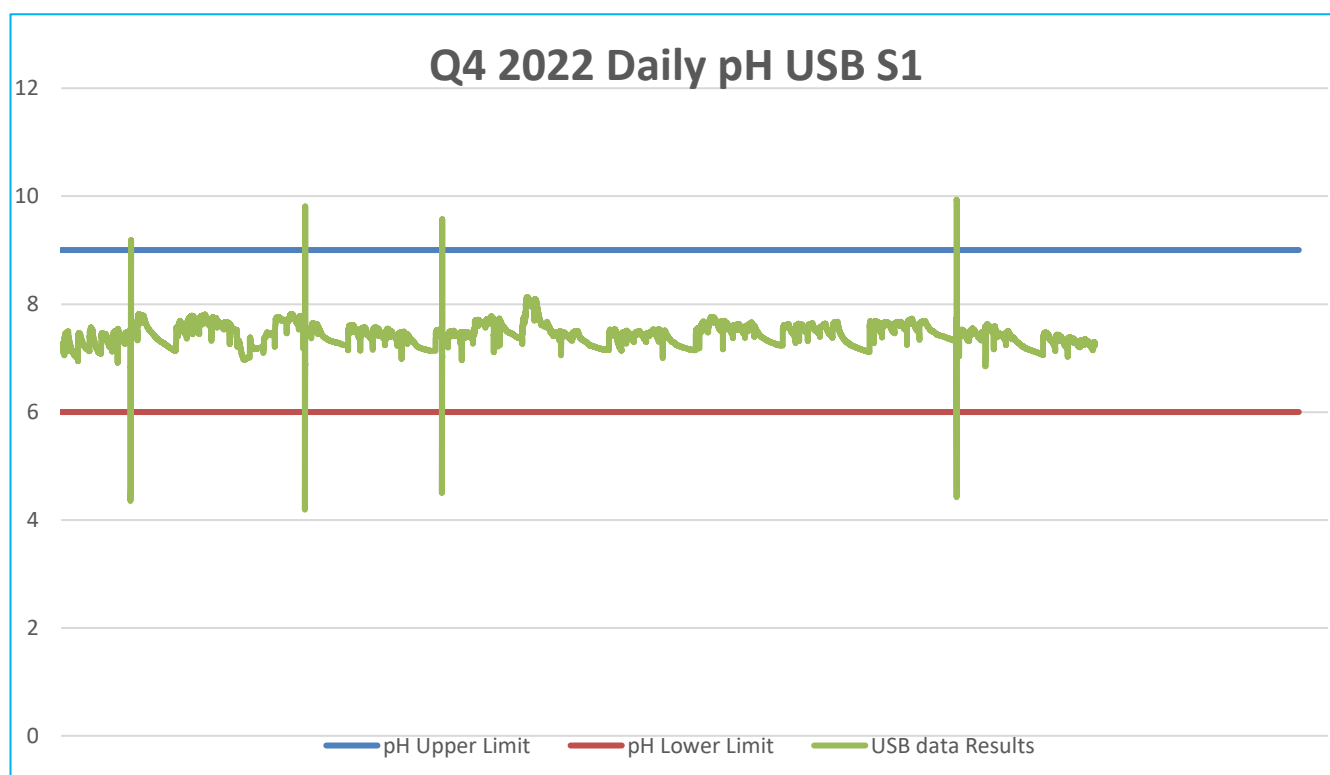


Figure 15 Q4 2022 Daily pH USB S1 showing invalid and valid data – the exceedances refer to invalid data relating to 3 point pH probe calibration

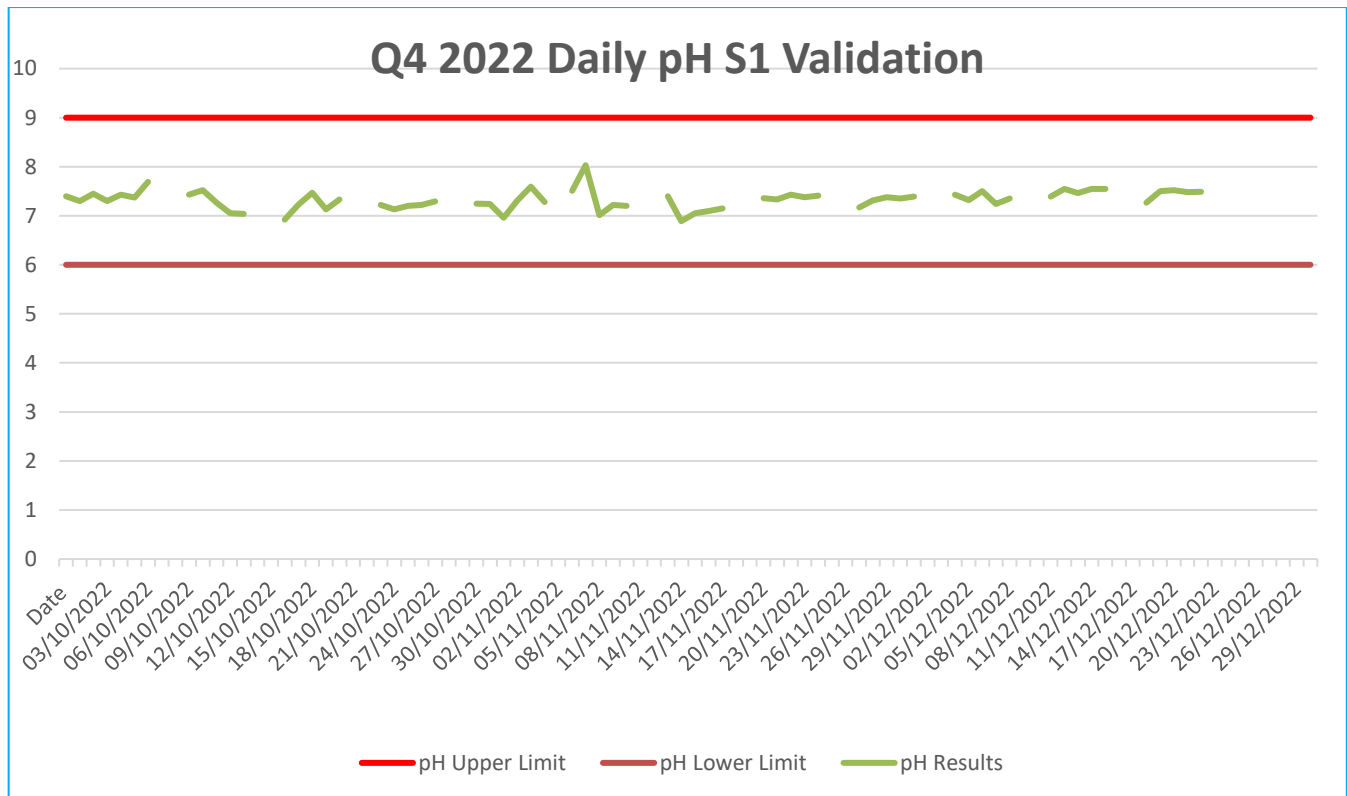


Figure 16 Q4 2022 Daily pH S1 validation (gaps in values represent non production days)

4. Reporting of Water Usage for the period 01/01/2022 to 31/12/2022

4.1 Water consumption

Water consumption recorded during 2022 was 12,232m³. This was 2,701m³ or 8.68% less than 2021. From August, there was a reduction of overnight flows into the building which was sustained through to years end. The spike in water consumption for the first quarter of 2022 can be attributed to an internal water leak of a cistern located on floor 1 Ladies washroom. Figure 18 overleaf displays a continued downward trend in water usage.

Water consumption

	2022 m ³	2021 m ³	Variance m ³	Variance %
Total	12,232	13,396	-1,164	-8.68

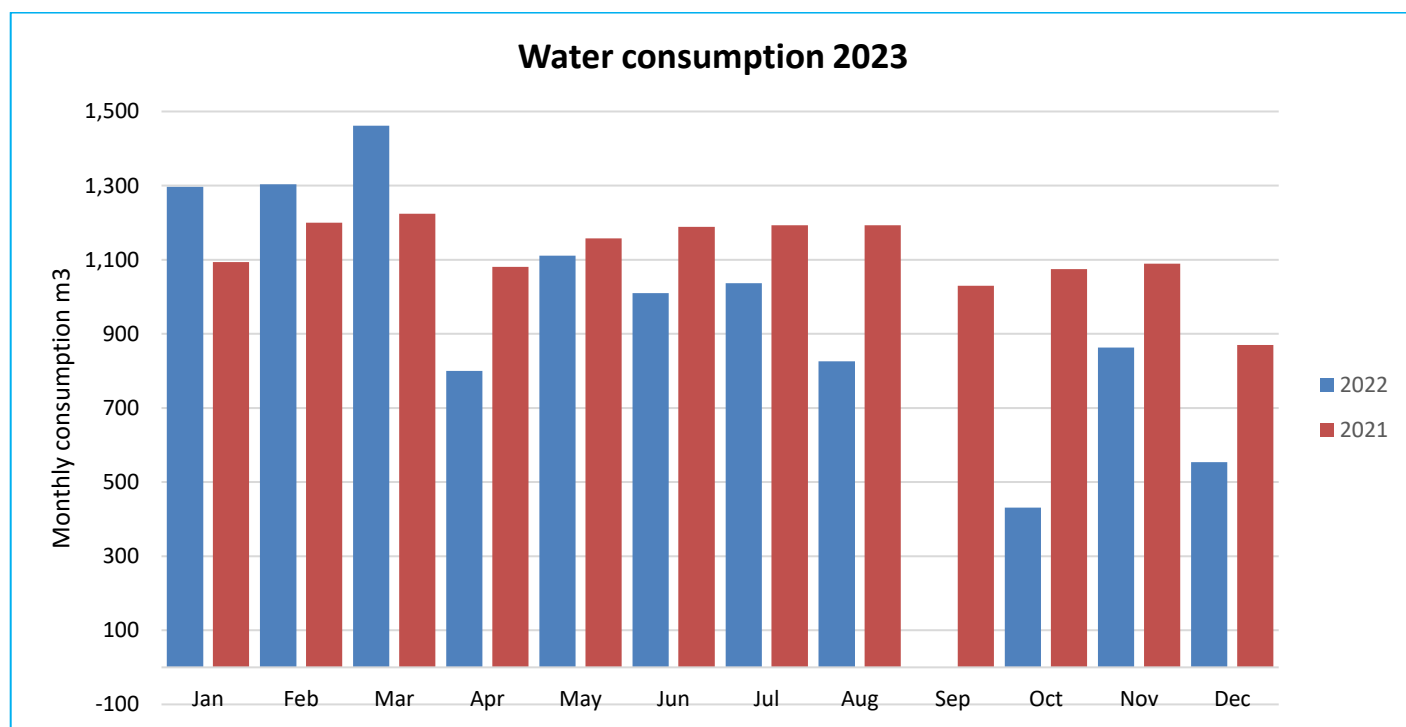


Figure 17 Water consumption 2023

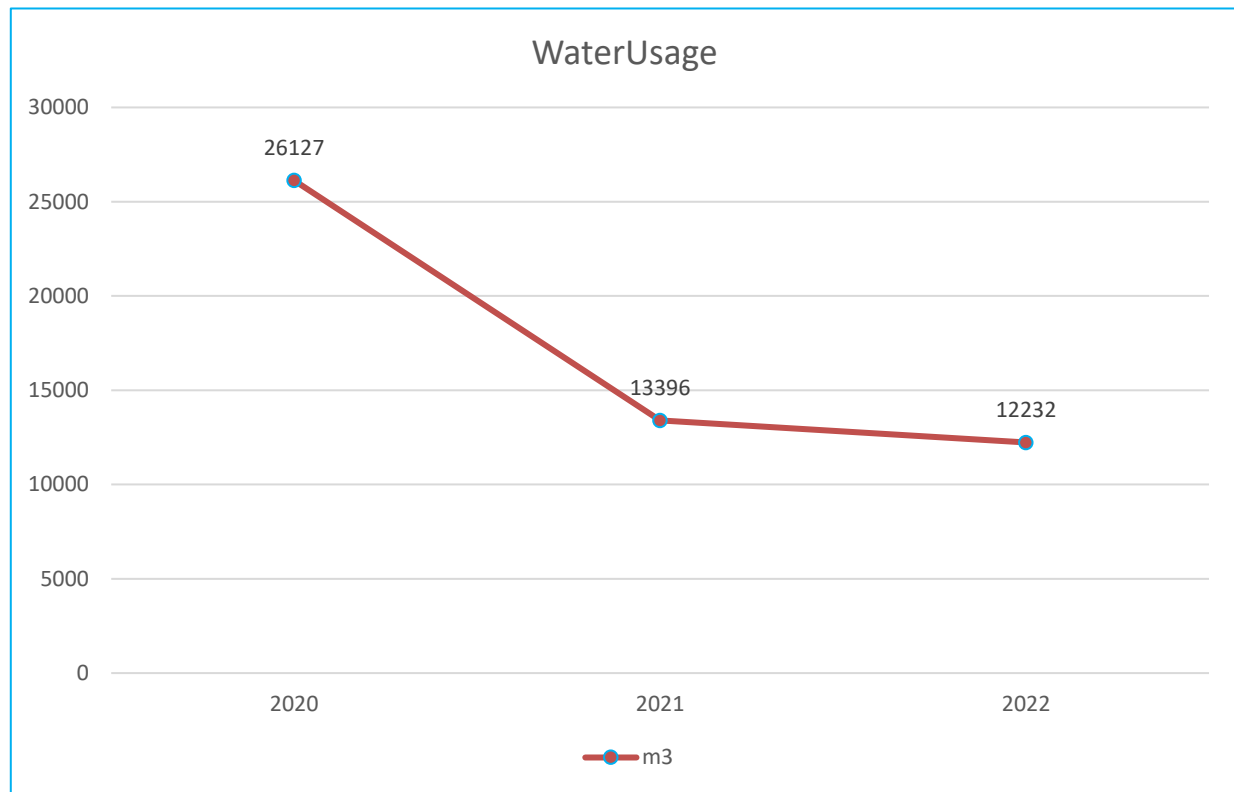


Figure 18 Graph showing Water usage 2020 to 2022

5. Reporting of Energy Usage for the period 01/01/2022 to 31/12/2022

5.1 Electricity

Electricity consumption during 2022 was 2,120,731 kWh. This was 347,260 kWh or 14.1 % less than 2021. The direct impacts of COVID related shutdowns were not seen during 2022. The main difference in electricity consumption was the partial switching off of the main warehousing lighting on weekends and (to a small extent) overnight on weekdays. Full switching off was not possible due to the Polyamide Rolling Line (PRL) night shift operating throughout 2022.

Carbon emissions fell by a larger 28.7% due partly to the lower consumption but also as the emissions factors for grid electricity dropped due to higher volumes of renewable generation.

Delivered electricity consumption

	2022 kWh	2021 kWh	Variance kWh	Variance %
Total	2,120,731	2,467,991	-347,260	-14.1

Carbon footprint

	2022 Tonnes/CO2	2021 Tonnes/CO2	Variance Tonnes/CO2	Variance %
Total	410	575	-165	-28.7

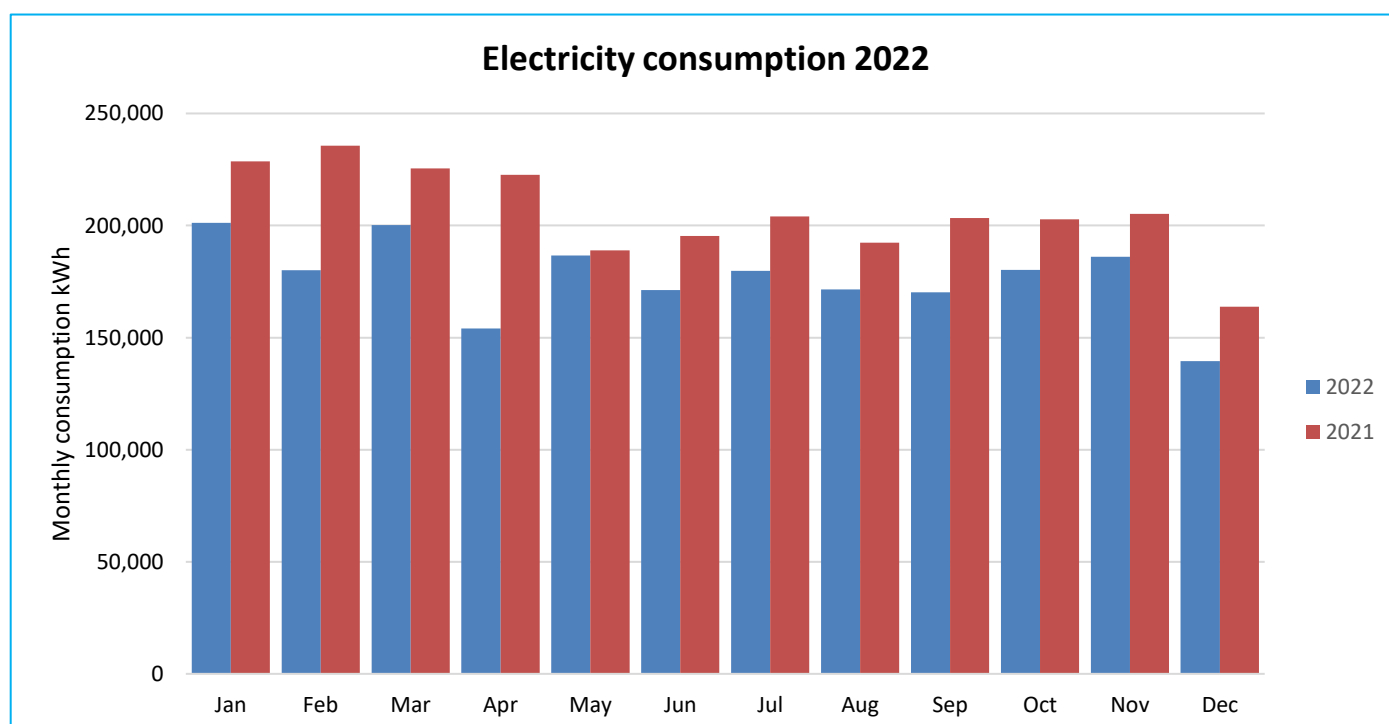


Figure 19 Electricity consumption 2022

5.2 Gas

Gas consumption during 2022 was 2,613,950 kWh. This was 438,848 kWh or 14.4 % less than 2021. The main difference was due to lower production volumes in 2022.

Carbon emissions also fell by 16.2% reflecting lower consumption but also a small fall in the emissions factors for natural gas.

Gas consumption

	2022 kWh	2021 kWh	Variance kWh	Variance %
Total	2,613,950	3,052,798	-438,848	-14.4

Carbon footprint

	2022 Tonnes/CO2	2021 Tonnes/CO2	Variance Tonnes/CO2	Variance %
Total	471	561	-91	-16.2

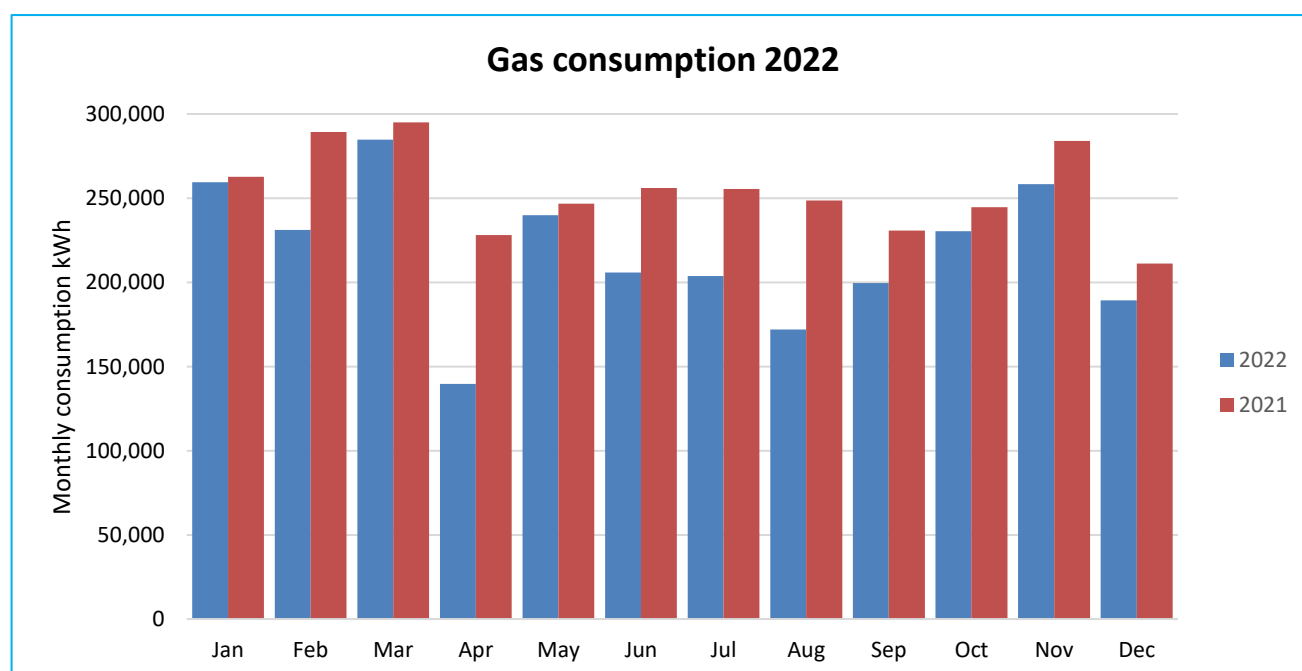


Figure 20 Gas consumption 2022

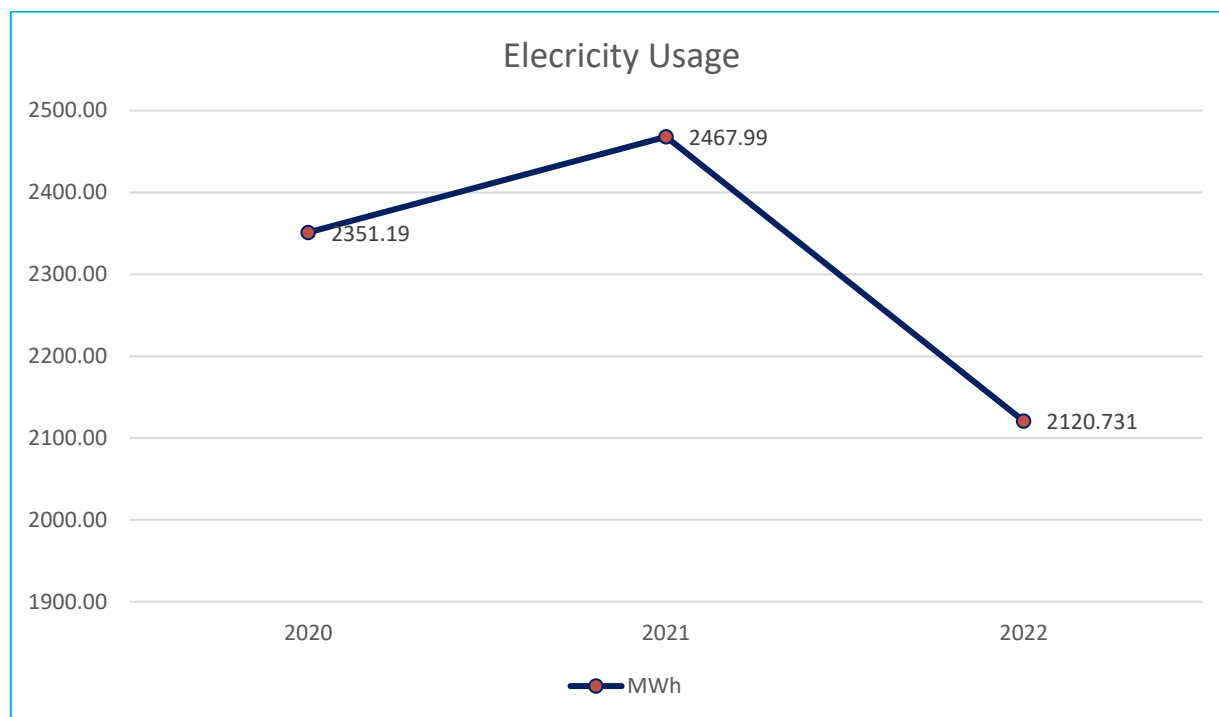


Figure 21 Graph showing Electricity usage 2020 to 2022

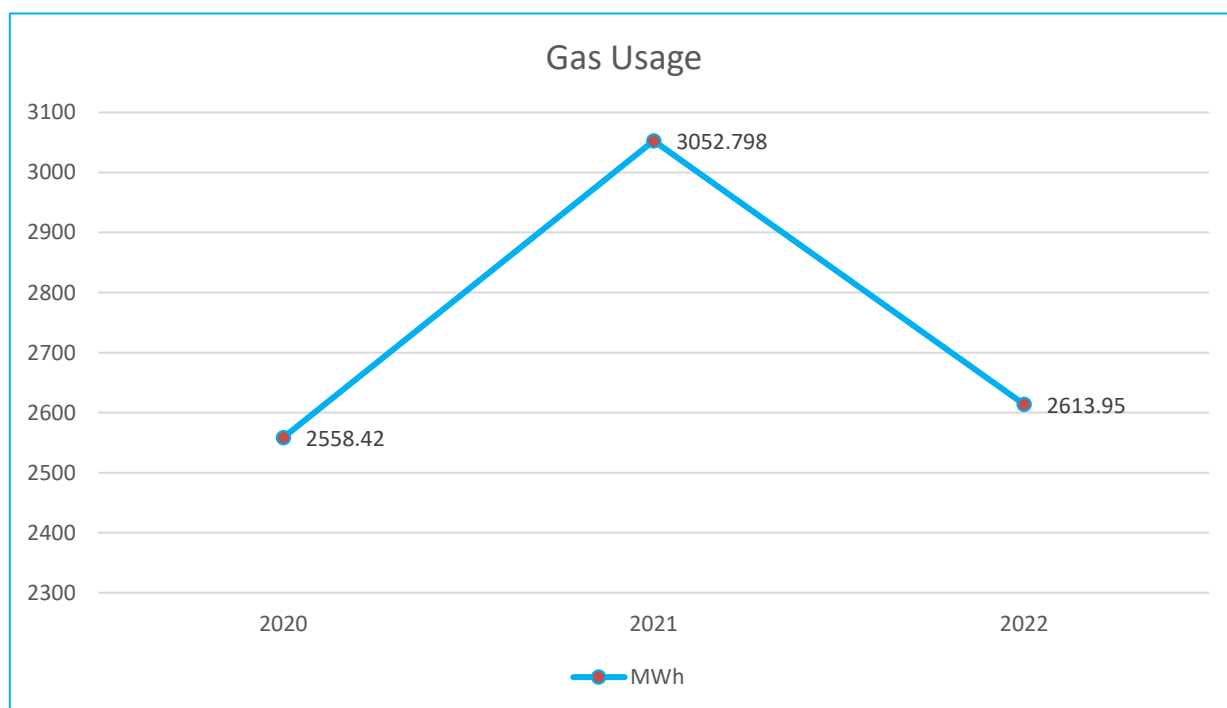


Figure 22 Graph showing Gas usage 2020 to 2022

6. Reporting of other performance indicators for the period 01/01/2022 to 31/12/2022

6.1 Finished Product

The finished product tonnage and unit data for the period 01/01/2022 to 31/12/2022 reflects current market conditions. The Ukrainian situation, high inflation and cost of living crisis have impacted our market and business with orders and sales affecting our budget. Sales growth continues to be the main focus and priority of our sales teams across the country.

The supply chain material shortages that impacted AluK at the end of 2021 and in early 2022 are now largely resolved.

The two graphs (Figures 23 & 24) overleaf reflect the Finished Product in Tonnes and Units for the periods 2020 to 2022.

Finished Product 2022				
Year	2022	2021	2020	2019
Finished Product (Tonnes)	3,537.81	4,302.26	3755.15	3892.046
Finished Product (Unit)	865,405	1,098,872	939,736	962,900

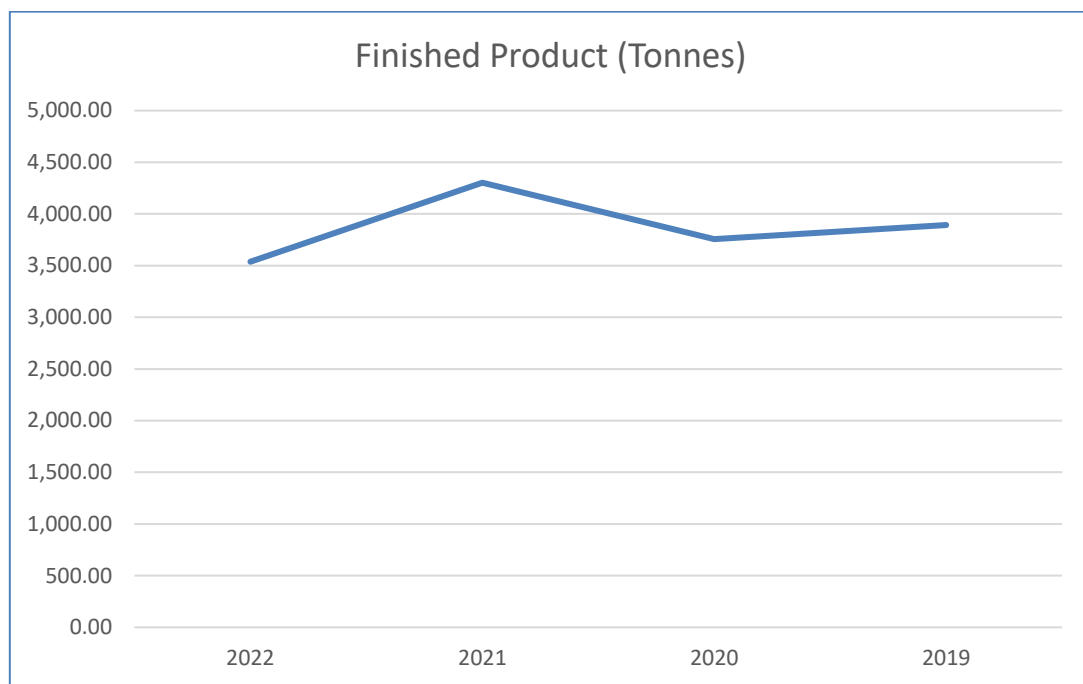


Figure 23 Finished Product (Tonnes) 2019 to 2022

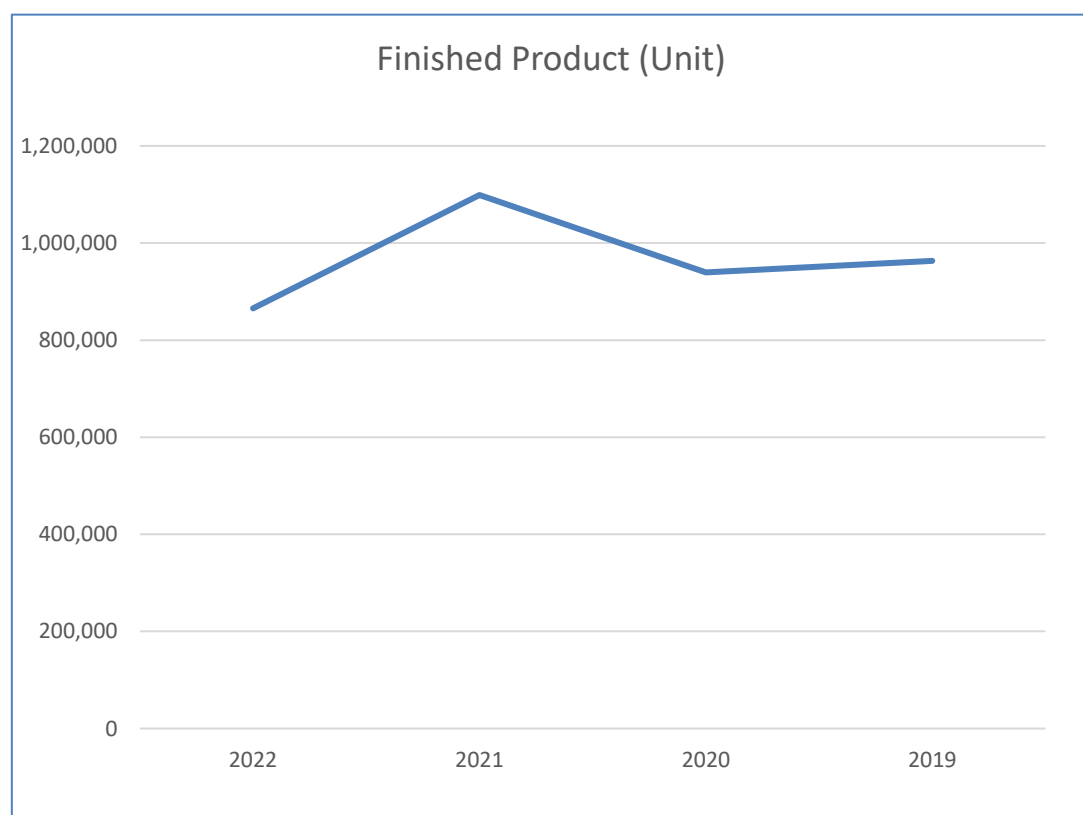


Figure 24 Finished Product (Units) 2019 to 2022

6.2 Waste Product

For the reporting period of 1st January 2022 to 31st January 2022 Veolia collected 298 tonnes of waste. 100t went to landfill, 45t was diverted and 153t was recycled.

Veolia collected 79.89t of cardboard, 100t of filters, 3136kg of food waste, 45t of Non-Hazardous Industrial (NHI), 1,784kg of recyclate and 68t of wood.

AluK generated 22t of Hazardous waste and 86.12t of metal waste.

Year	2022	2021	2020	2019
Waste Produced (Tonnes)	462.72	488.66	428.4	494.49

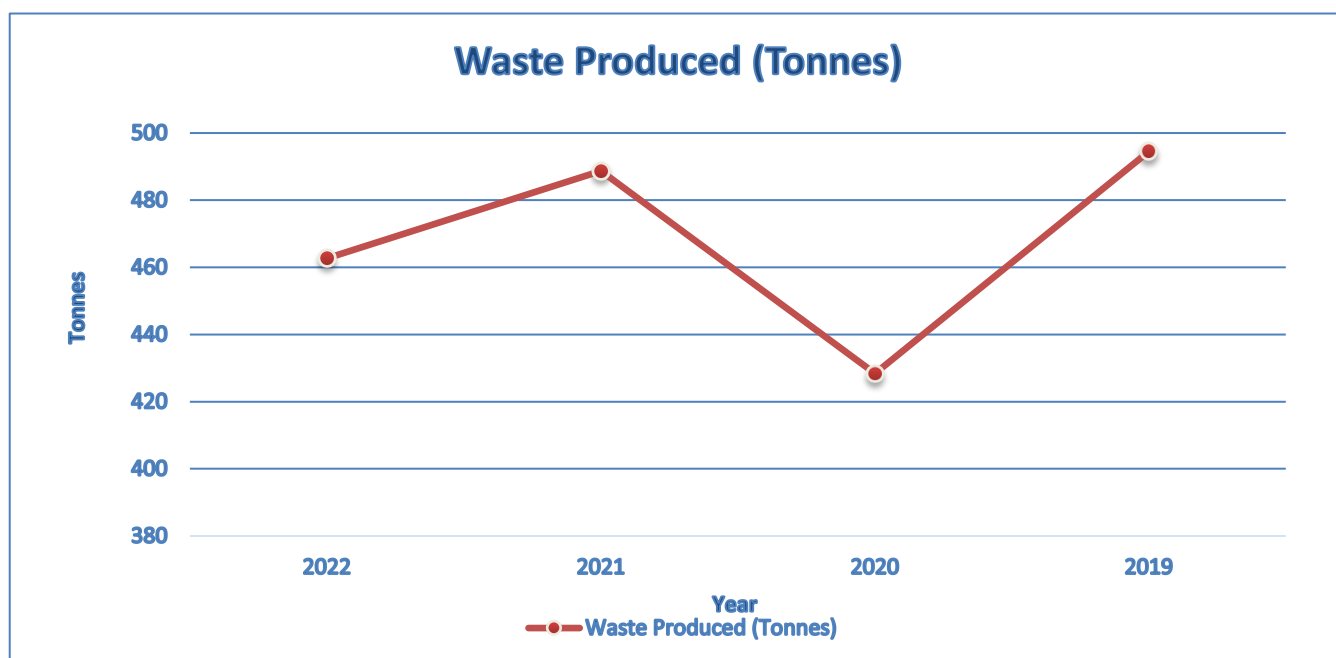


Figure 25 Waste Produced 2019 to 2022 (Tonnes)



7. Environmental Initiatives

7.1 Environmental objectives

7.1.1 Carbon Reduction Plan

Progress continues with our Carbon Reduction Plan however this objective was paused during Q4 of 2022 due to realignment with the different subsidiaries within AluK Group. Work has already started on this within AluK France and AluK GB are next. The initial meeting for AluK GB will take place on Monday 30th January 2023. It is anticipated that the creation of an annual carbon management cycle that includes calculating carbon footprint for the year and creating an annual action plan by setting long term reduction targets in line with the best scientific evidence will continue.

7.1.2 Packaging Project

AluK has investigated the automation of the taping and wrapping lines in particular the Polyamide Rolling Lines to reduce volumes of tape and wrapping, unfortunately this has proved too cost prohibitive. In addition there is also a customer requirement to continue to provide the necessary protection of the finished product using the current tape and wrap materials.

7.1.3 Power paint re-purpose/recycle

AluK continue to investigate a waste stream that isn't straight to landfill and will continue to investigate during 2023.

7.1.4 Operator Monitoring Assessment (OMA)

There were two initiatives that reflected both the improvement and commitment of AluK and its Chemical Plant team with regards to their environmental obligations and commitments. These were; the successful MCERTS audit in September (point 7.2) and the Operator Monitoring Assessment (OMA) conducted on the 2nd August 2022.

The OMA overall scores for are reflected in figure 26 below.

Category	Overall Score
Emissions to air	76%
Discharge to Water Aluk sampling	66%
Discharge to Water – Welsh Water	77%

Figure 26 OMA scores

7.2 MCERTS

The MCERTS Inspection Certificate (no. Sira ME2022 639 rev) was issued to AluK on the 21st October 2022 with a renewal date of 8th December 2026. The certificate certifies that the effluent flow monitoring arrangements at our Chepstow site have been inspected and found to comply with the Environment Agency's MCERTS standard: Guidance - Minimum requirements for self-monitoring of flow: MCERTS performance standard - Published 3 February 2022 clause 3.1. - Performance requirements for effluent flow monitoring (volume). In addition AluK's management system has been audited and found to comply with MCERTS requirements.

The flow measurement is located at the S1 effluent discharge to sewer and consists of a magnetic flow meter - Siemens Mag 5000 and is supported by regular maintenance activities. AluK collect and retain evidence of continuous flow monitoring.

7.3 Filtration

The sand filtration system installed during 2021 continues to remain effective. This system comprises of two sand filters each housed in sealed units and cleaned by a backwashing system. These washings are then sent to the ETP for treatment. Hydraulic valves control where the effluent discharges to and also its diversion back to the ETP if the Al concentration is at or above the ELV. The sand filtration system had been serviced on Monday 25th April 2022 and Monday 19th January 2023.

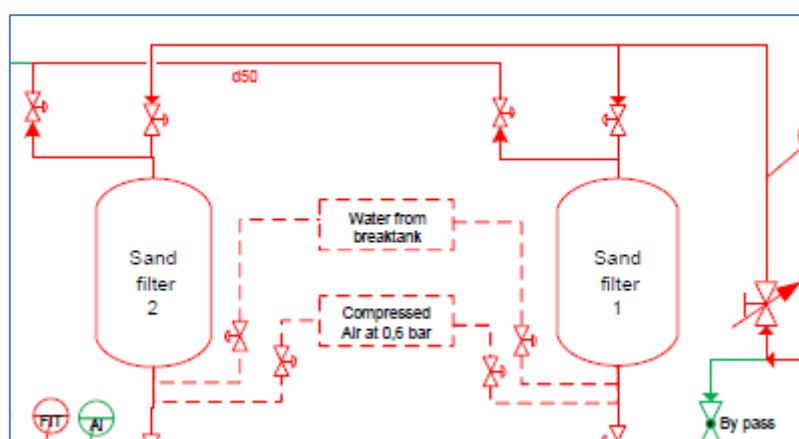


Figure 27 Effluent Treatment Plant sand filtration diagram

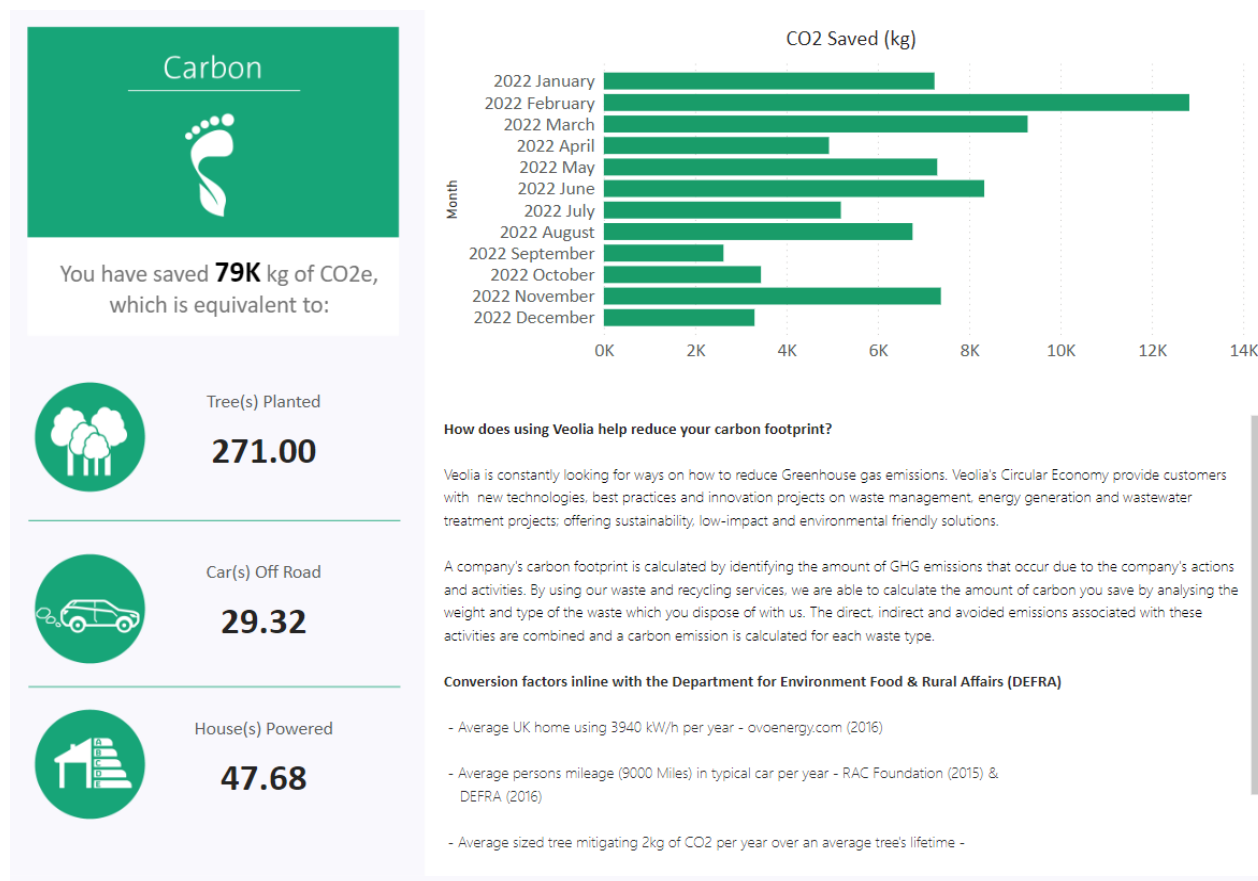
7.4 Environment Permit Review meeting

Monthly Environmental Permit Review meetings started in August 2022. The agenda covers Emissions to air, Discharges to Water, Operator Monitoring Assessment (OMA), Monitoring Certificate Scheme (MCERTS), NRW compliance project, Compliance Assessment Report (CAR), Permit Review, Process changes, Staffing changes, Equipment changes, Material changes and AOB. In addition a review of our EPR/BB3790FX Parameter Emission Limit Values (ELV) and data is also undertaken.

Minutes to this meeting are communicated to the attendees and Top Management. Minutes to these meeting are available on request.

7.5 Carbon Footprint

During 2022 AluK saved 79t of CO₂e which is the equivalent to 271 trees planted, 29.32 cars off the road and 47.68 houses powered. Aluk will continue to investigate recycling initiatives during 2023.



7.6 Environmental Change Request

August 2022 saw the introduction of an Environmental Change Request form. The purpose is to record processes / tasks that evolve and may need to be changed. The Environmental Change Request form was introduced to officially document details about those aspects that need to be altered. The purpose is to request a modification and to control this change. There are the four key types of change requests:

Normal Change: A normal change request addresses a significant alteration to operations, existing systems & infrastructure.

Standard Change: A standard change request proposes a low-risk change that occurs often.

Major Change: A major change request proposes a significant change that will require substantial financing.

Emergency Change: An emergency change request is a high-priority proposal for immediate change.

The form also takes into consideration the following:

- What is the proposed change; Normal, Standard, Major or Emergency change?
- What is the reason for the change?
- What is the environmental impact?
- Will the change affect the upstream process?
- Will the change effect the downstream process?
- Will there be fugitive emissions?
- Will the changes effect peripheral components?
- Will there be visible plume emissions?
- Will there be noise and vibration emissions?
- Will there be odour emissions?
- Is the change budgeted for?
- Will the change exceed EPR EPR Permit EPRBB3790FX Emission Limit Values?
- Will the change exceed Welsh Water Trade Consent conditions?
- Will the change breach any of the regulations referred to in the Environmental legal register?

7.7 Monthly EHS meetings

Monthly top management meetings continue and now include an Environmental update and review of our EPR/BB3790FX Parameter values.



7.8 14001:2015

Recertification of our 14001:2015 certification will be taking place during April 2023. It is encouraging to see the resources made available to sustain this certification. During January 2023 7 members of staff attended the internal auditor course delivered by Training South Wales (TSW).

During Q4 of 2022 it was decided to review how AluK determine and create their objectives not only for the environment but quality. Currently these objectives are being aligned to our business strategy.

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