

Permit Condition 2.4.1.2 – Waste & Water Audits

IPPC Permit Number: DP3430LX

Operator: ZF Automotive UK Ltd.

Installation: ZF Automotive UK Ltd., Pontypool

Water use

A significant amount of water use at ZF is for rinsing purposes on the surface plating processes. Adequate rinsing between process stages is essential to achieving a high quality surface finish required for the product. However, water is also used for making-up new process fluids, topping-up tanks as a result of evaporative losses, and balancing drag-in/drag-out volumes.

Types and quantities of water used

All water used at ZF is sourced from the town's mains supply. Mains water has a water conductivity of about 300 micro Siemens.

Water use and treated effluent discharge is monitored and reviewed continuously. Average annual water consumption for the whole site is given in Table 1.

Table 1 - Average annual and daily water use.

| | Annual water use 2022 | Annual water use 2023 | Annual water use 2024 |
|--|------------------------------|------------------------------|------------------------------|
| Mains water (M ³) | 32968 | 36954 | 34169 |
| Treated effluent discharge (M ³) | 18055 | 13770 | 14830 |
| | 54.8% | 37.3% | 43.4% |
| Processed Parts | 4950739 | 5745786 | 3836178 |
| Water Use (M ³ / 1000 parts) | 6.66 | 6.43 | 8.91 |
| Treated Effluent Discharge (M ³ / 1000 parts) | 3.63 | 2.40 | 3.872 |

A 'V' notch tank and digital flow meter is used to measure the volume of treated water discharged to sewer each day.

The increase in m³/1000 parts is due to the lower volumes being plated and the inability to flex the process to reflect the parts being plated. Although, the process now only utilises 4 tanks instead of six to reflect the volume reduction the swill tank flow rates are unaffected and therefore has had a minimal effect on the water being used by the process

Water minimisation programme

ZF minimise the use of water through the application of ISO14001 objectives and targets. The consumption of water is monitored and targeted as part of this programme. Water use has been minimised in a number of ways at site primarily through the application of best practice in the design phase of the plant. Further improvements have been identified through a recent study carried out on the plant and these are detailed below.

In general, ZF's EMS programme includes:

- The ongoing identification and implementation of water minimisation opportunities.
- The active participation and commitment of staff at all levels; and
- The setting of appropriate Key Performance Indicators for the site.

- Monitoring of water usage and reporting, as described in Table 1 above.

Water Minimisation Improvements Update

ZF has previously identified water minimisation improvements which it has been pursuing to reduce the site water usage.

Process Actions

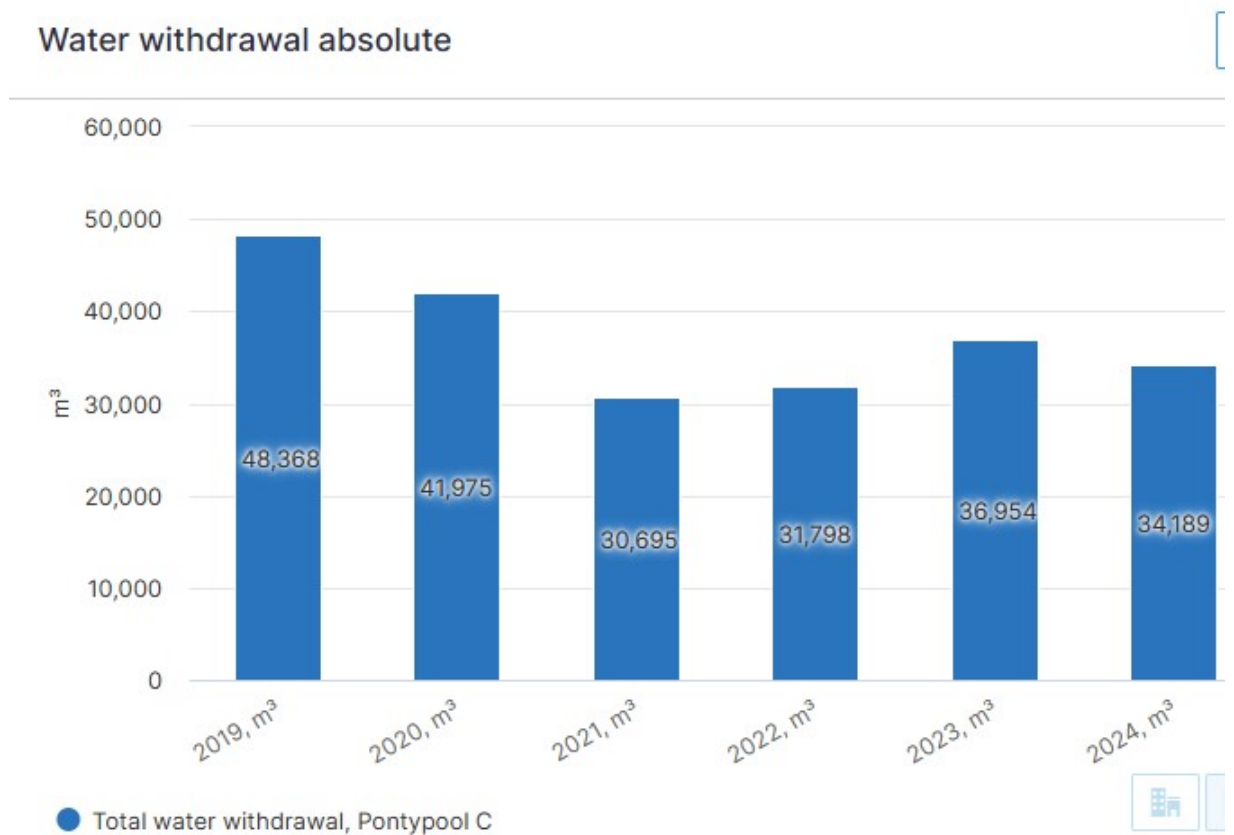
The process dwell and withdrawal times are regularly reviewed to optimise the process and reduce process solution drag out. Also, to help reduce process solution drag out the component hanging positions on the jigs are reviewed and where necessary the jig design has been altered to reduce the ability of solution to collect and remain within the components being plated. Presently, all viable actions have been completed to optimize the swill and dwell times of the processes required to maintain the plating quality of the product and there are no further actions currently being undertaken.

New jigs have been introduced to increase the number of parts that can be held per flight bar and therefore minimize the number of flights required to be put through the plant. This has assisted in minimizing the level of drag out from the process tanks.

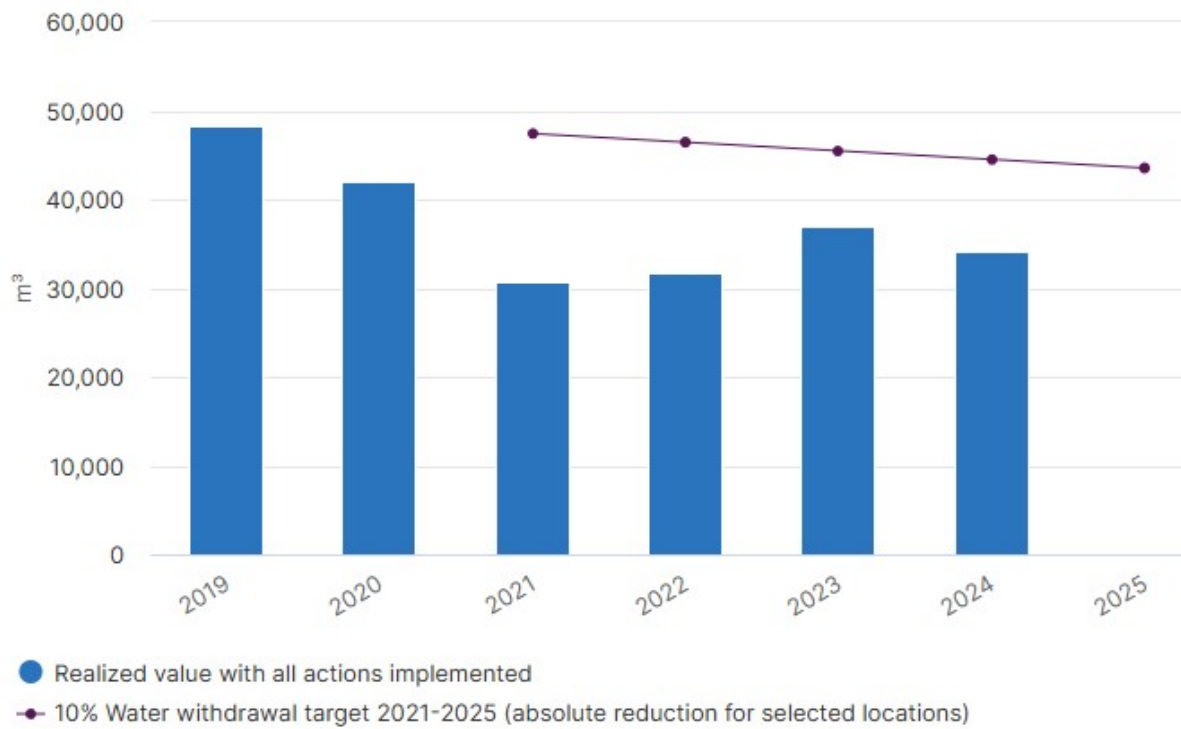
Zinc Nickel process rinse flow rates were optimized in 2023 and will be reviewed in 2025.

Flow rates have been reviewed on the Anodise plant rinses and have been reduced back down from 300 l/hr to 250 l/hr.

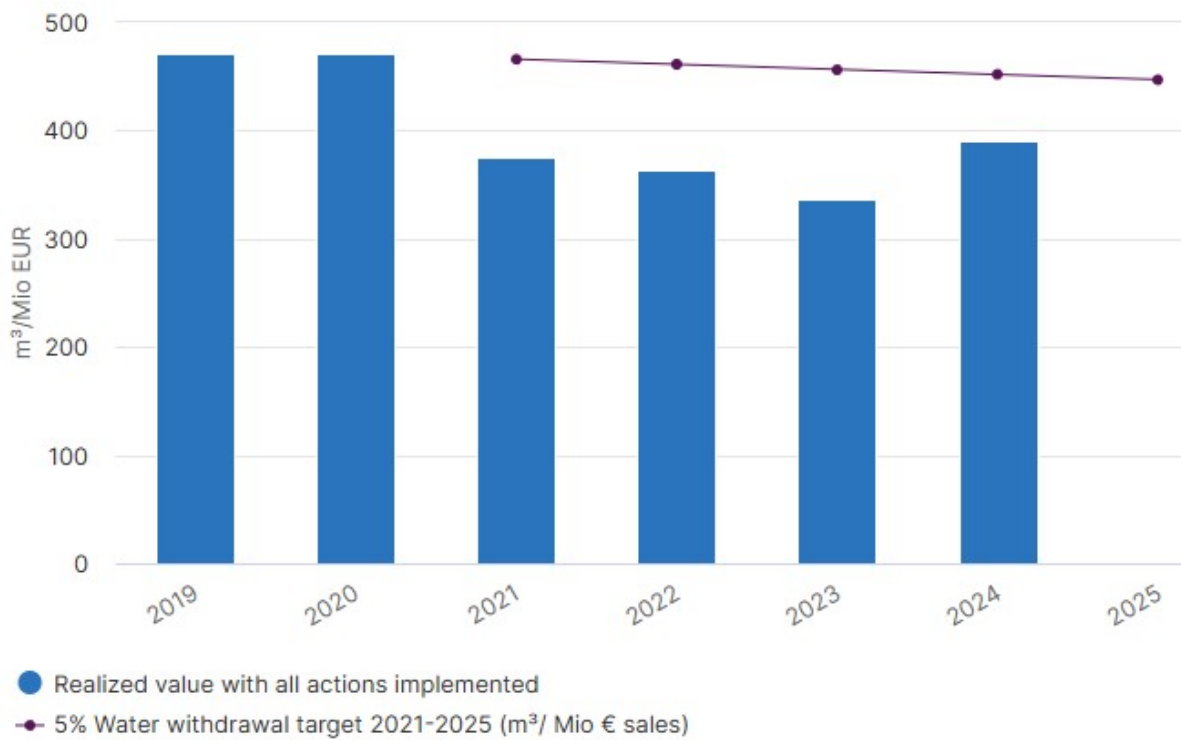
Performance Indicators



Water target achievement 2025 (absolute reduction for selected locatio...



Water target achievement 2025 sales based



Waste

The processes at ZF produce a significant quantity of waste for disposal. This is a mixture of:

Non-Hazardous solid waste – General waste, wood, packaging, recyclable materials, etc

Hazardous solid waste – chemical containers, packaging, filter cakes, contaminated filters etc.

Hazardous liquid waste – mixed acid and caustic solutions, plating solution, hydroxide sludge, etc.

Waste Minimisation Programme

ZF minimise the quantity of waste produced/disposed of through the application of ISO14001 objectives and targets. The quantity of each waste stream is monitored and targeted as part of this programme.

In general, ZF's EMS programme includes:

- The ongoing identification and implementation of waste recycling opportunities.
- The ongoing identification and implementation of waste minimisation opportunities.
- The active participation and commitment of staff at all levels; and
- The setting of appropriate Key Performance Indicators for the site.
- Monitoring of waste disposal and reporting where necessary.
- ZF Pontypool complies with the sustainability requirements of the ZF Group.

Waste Minimisation Update

The site uses filter presses to squeeze the water out of the hydroxide sludge produced to reduce the quantity of waste disposed of. The site is pressing as much hydroxide sludge as the current filter presses allow and this has resulted in a reduction from 1248 tonnes being disposed of in 2022 to 588 tonnes in 2024.

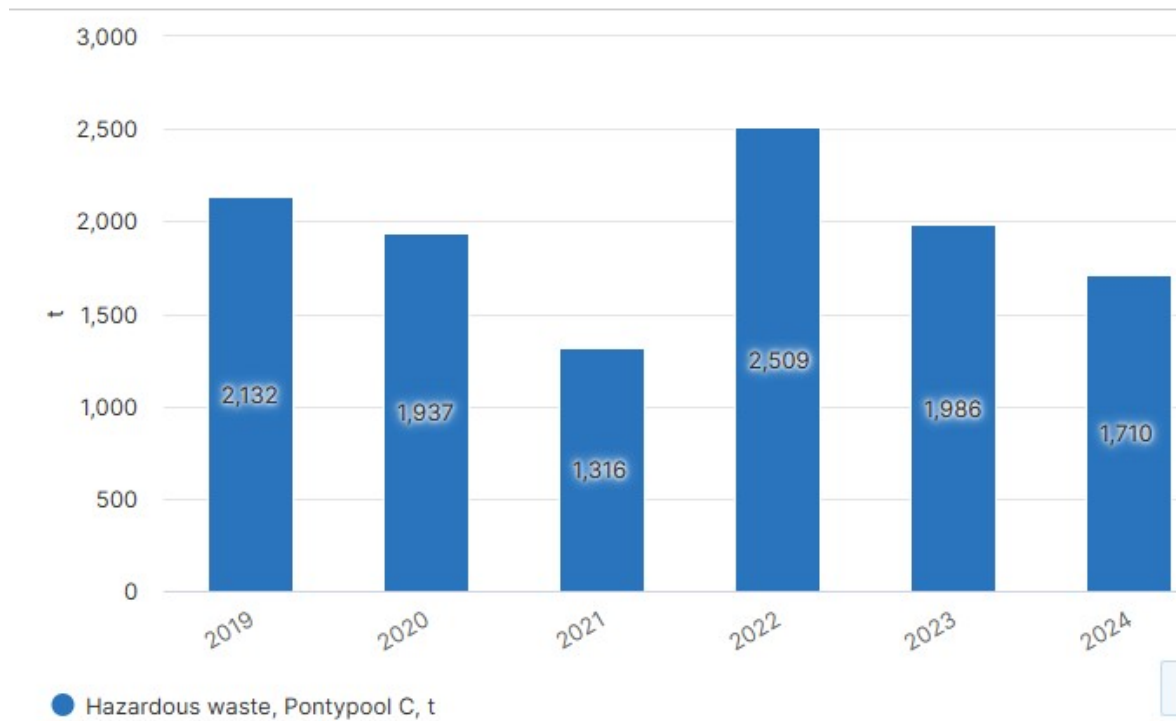
The reduced volumes through the zinc process, combined with optimising the number of plating tanks used from 6 to 4, has resulted in a reduction of plating solution waste from 159 tonnes in 2023 to 72 tonnes in 2024.

General waste has been reduced from 109 tonnes in 2023 to 137 tonnes in 2024.

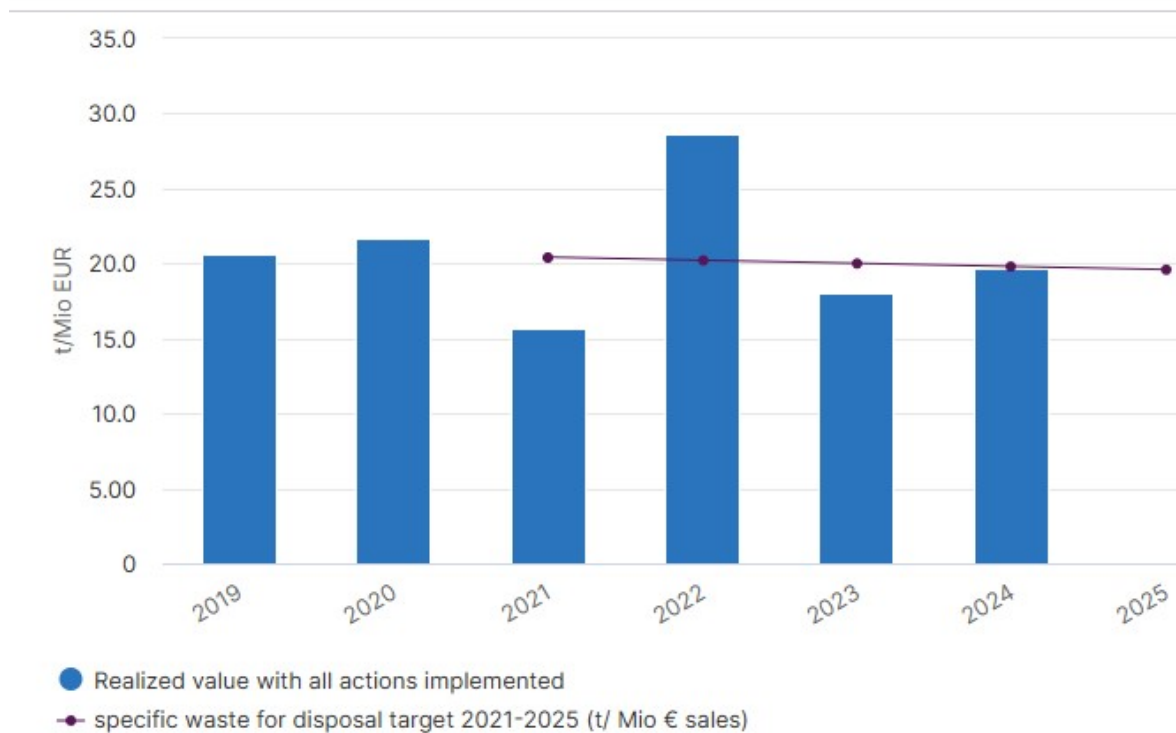
General waste produced goes to a sorting centre to extract any recyclable content and redirect the waste away from landfill.

Performance Indicators

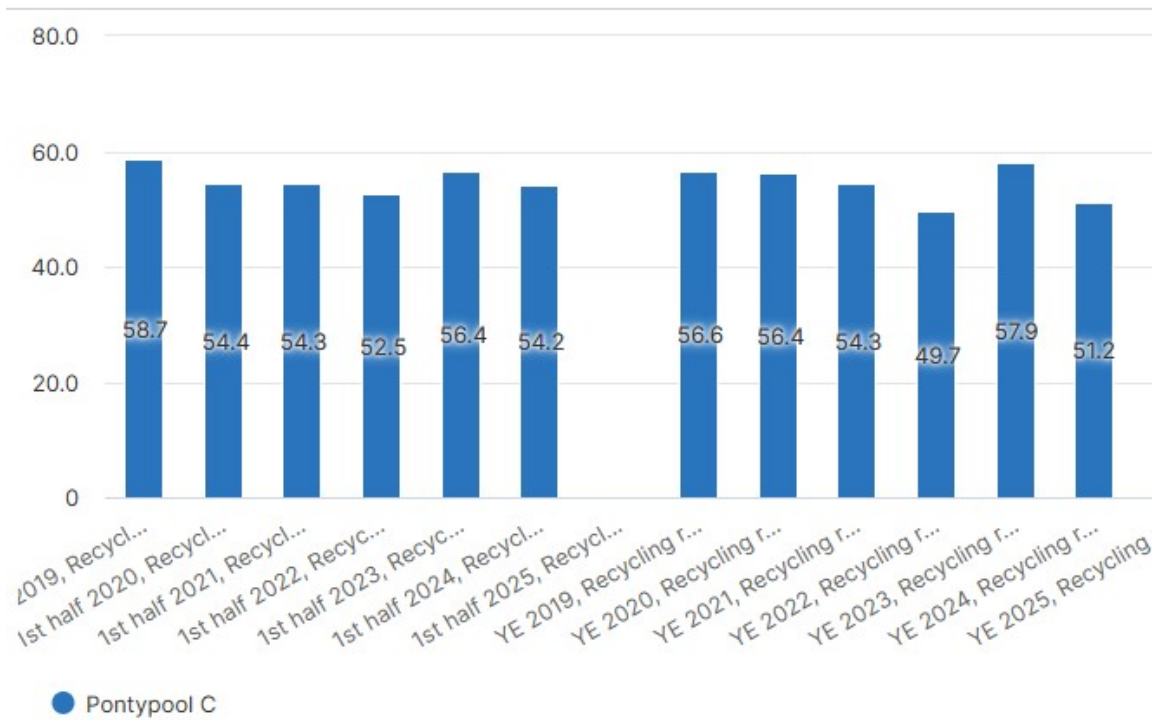
Absolute hazardous waste (yearly)




specific waste for disposal target -1% pa 2021-2025 (base-year 2019) - ...



(Old - valid until 2023) recycling rate in % (yearly & 1st half)



Over the past few years, the total quantity of waste being produced by the site has been reducing. The total waste produced and disposed of by the site was 4974 tonnes compared to 2688 tonnes in 2024.


 HS&E Manager
 14/12/24