ABS – Utilising bacteria for cleaning solutions

Solutions by nature, for nature

June 2023

About ABS

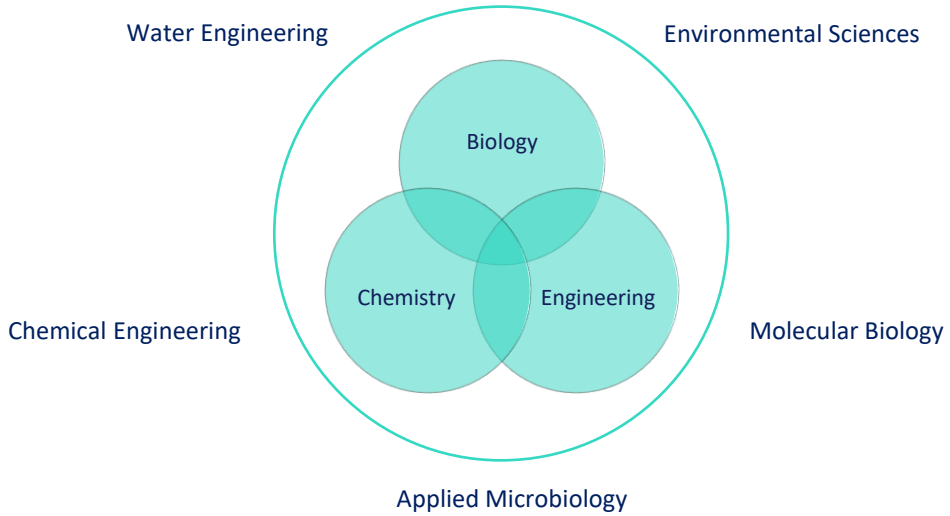
Who are we?

We design innovative environmentally friendly Biotechnological Solutions that don't cost the earth and are good for planetary and human health

Started in 2019

>30 employees

OUR SCIENTIFIC APPROACH



HQ in UK

100+ clients in UK, EU and Middle East

OUR DNA

- Scientific talent
- Complex, **proprietary** bacterial solutions
- Focus on research, to achieve **continuous improvement**

Intelligent Design

We create a healthy ecosystem where beneficial microorganisms thrive and accelerate natural processes

OUR VALUES

We believe in

- Being **progressive** and **collaborative**
- Being scientifically **rigorous**
- Acting with environmental **integrity**
- Being inspired by **responsible** entrepreneurship
- Creating **lasting** value

Our Current Biotechnological Solutions

URIZAP

Uric Acid Digestor Granules incorporates limescale eradicating bactophiles. Harnessing the power of bacteria, URIZAP contains **naturally occurring ingredients to eradicate odour and blockages in Urinals and connected waste pipes**

FOGZAP

Fats, Oil, Grease and Organic Waste Degrading Powder for use in grease traps and sinks. FOGZAP **harnesses the power of bacteria to eliminate odour, reduce the need for maintenance and keep effluent within discharge limits**

CARBONZAP

Uses **naturally occurring bacteria to breakdown oils, petrol and other hydrocarbons particularly in Oil & Water Interceptors** eliminating the need for costly and caustic chemicals and protecting the environment

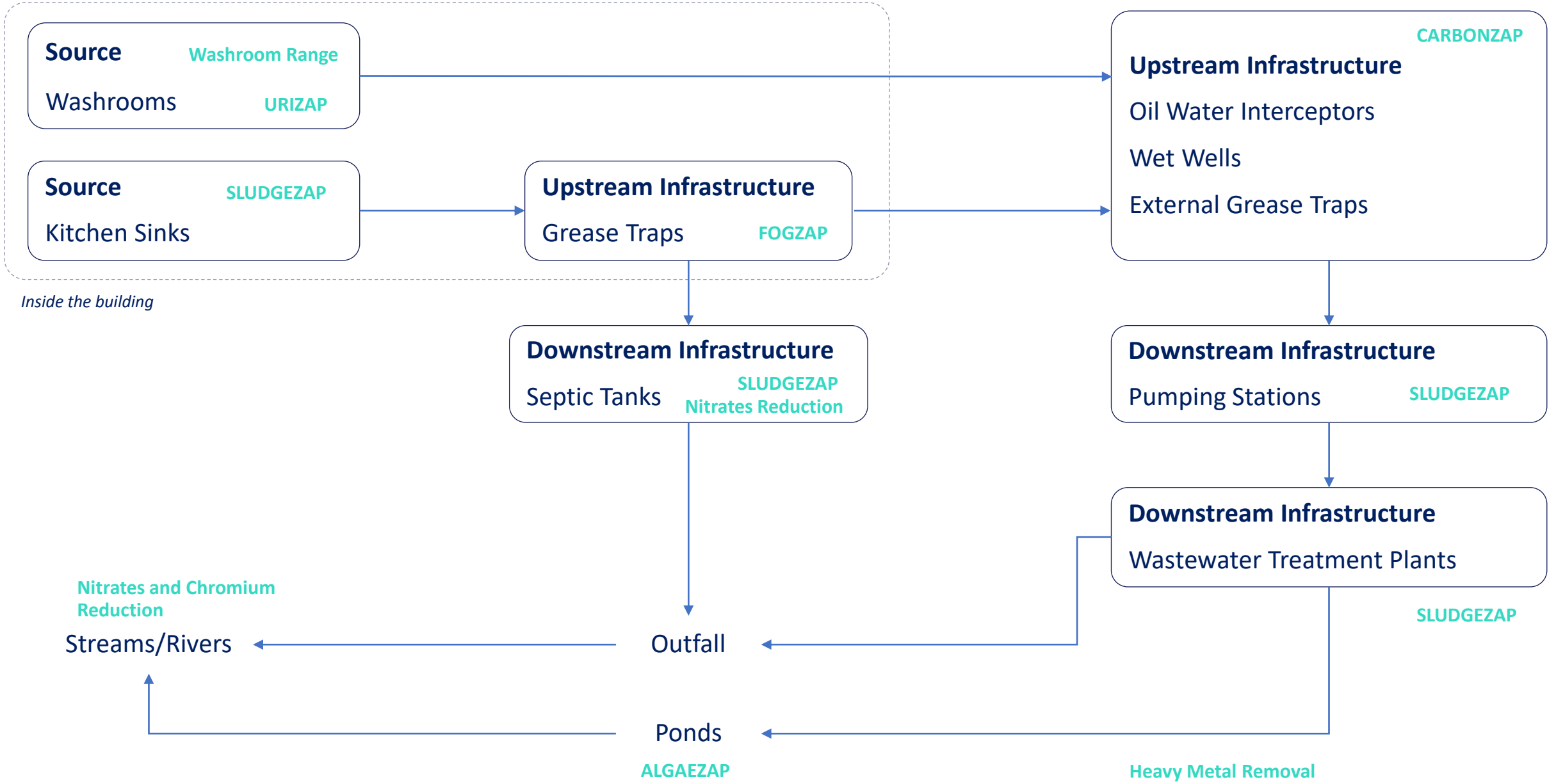
SLUDGEZAP

Sludge Digestor for soil stacks, septic tanks and other pipework. A natural blockage remover eliminating odours caused by FOGS and Human Effluent and optimising the bacterial operation of waste systems

ALGAEZAP

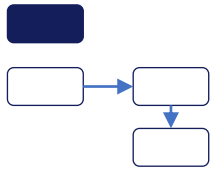
Organic Sludge Digestor for application in ponds, tanks and other surface water, reduces build up of cyonabacteria, duckweed, scum/silt. Reduces pump blockages, restores the beauty of aquatic scenery.

ABS Water Map – integrated system-based approach



Focus on urinals - URIZAP

Solving the Uric Acid problem in Waterless/Low Flush Urinals



The Context

Sustainability = Flushing Urinals → Waterless Urinals

The Problem

Uric Acid crystals build up + Salts hardening + Inorganic limescale = Odours, High Costs, Blockages

Existing Solutions

- Enzymatic Solutions (Insufficient Scale)
- Chemical Intervention (bad for environment and human health)
- Pipework Replacement (significant cost and disruption)

ABS Solution

URIZAP by ABS

ABS proprietary granules contain non-pathogenic strains of bacteria that actively seek out the by-products of urine

Results

Scale Digestion
No Blockages

Reduced Costs and Environmental Impact

- Minimise water
- Eliminate chemicals
- Reduce single use plastic
- Reduce direct and indirect emissions

Focus on urinals - URIZAP cont.

University

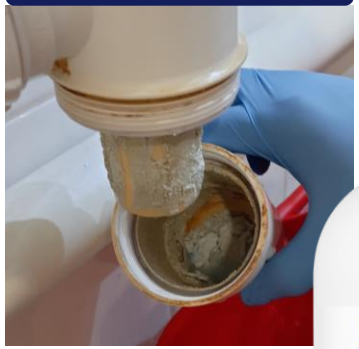
Before

After

Data Centre

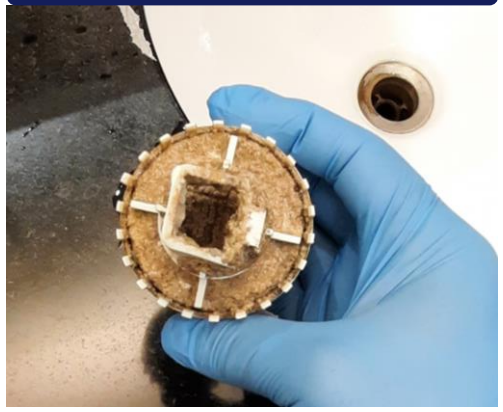
Before

After



Car Manufacturer

Before

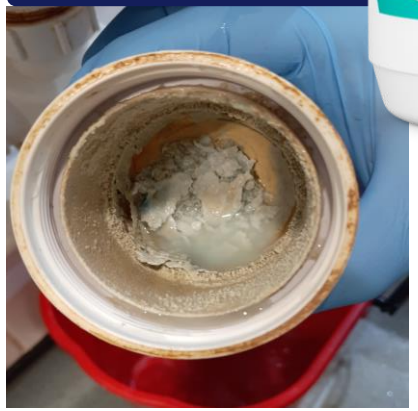


After

Tourist Attraction

Before

After



Focus on sinks and septic tanks - SLUDGEZAP

Total Cost	Mechanical Intervention	Damage to Environment	Health Impact	Odour Reduction	Carbon Reduction
Existing Solutions	High	High	Highly Negative	Not effective	None
ABS	Not needed	None	Highly Positive	Highly effective	High

Before

After 6 weeks

Focus on grease traps - FOGZAP

Total Cost	Blockages Clearance	Pipes Replacement	Road Closures	Odour Reduction	Carbon Reduction
Existing Solutions	High	High	Up to £ 100k / hour	Not effective	None
ABS	Not needed	Not needed	Not needed	Highly effective	High

Before

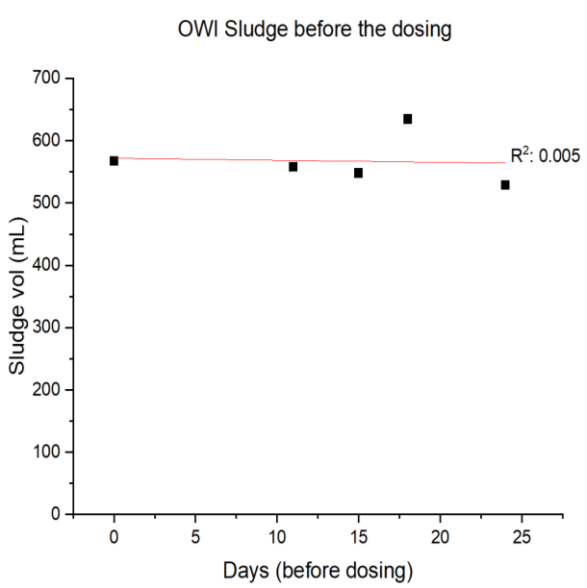
After 6 weeks

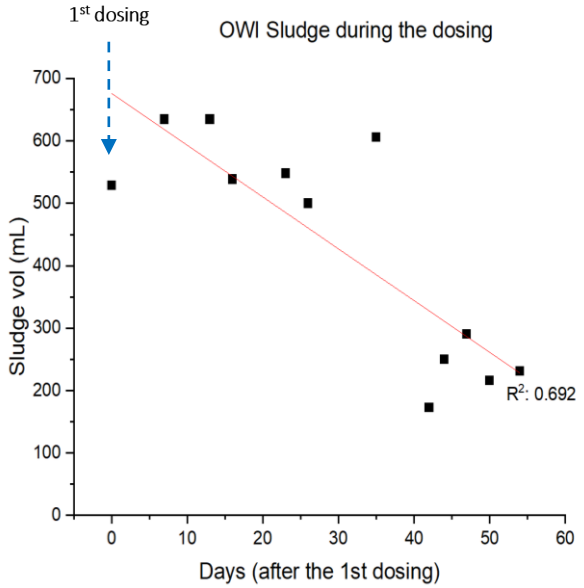
Proof of Concept - Hydrocarbons (CARBONZAP)

Total Cost	Leaks/Spills Clearance	Damage to Environment	Health Impact	Damage to Wildfile	Carbon Reduction
Existing Solutions	High	High	Highly Negative	High	None
ABS	Low	None	Highly Positive	None	High

Before

After





Figures on the left:

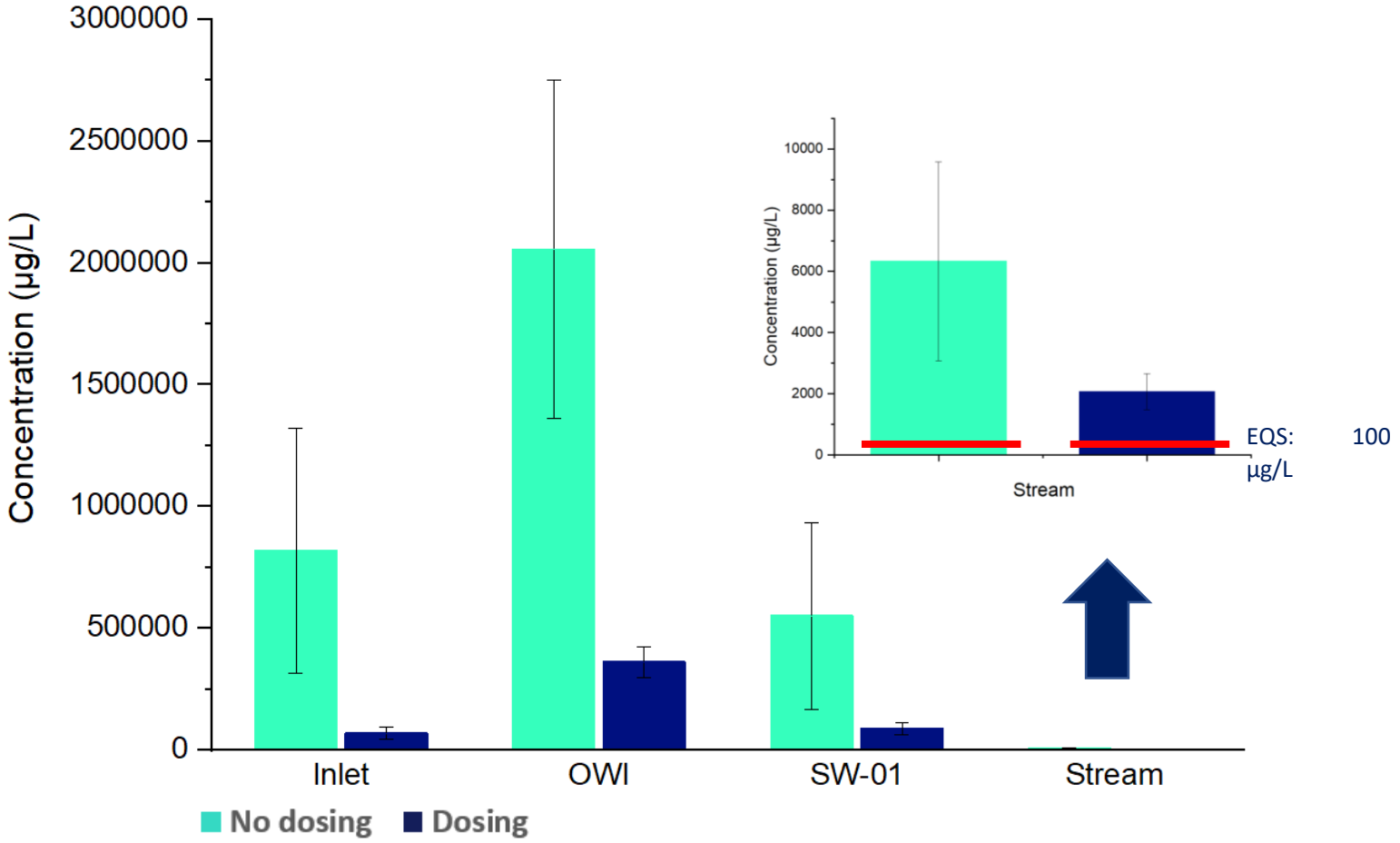
Visual observation of liquid collected from the OWI using a sludge judge. The hydrocarbon sludge is shown as a dark thick liquid at the bottom.

The left picture indicated a reduction in sludge volume within the OWI 54 days after the first dosing (28th June compared to the sludge level before the bacteria dosing (4th May).

The graph (above) shows unchanging levels of sludge in the 25 days before dosing, then a reduction in sludge levels especially 30 days after dosing commenced.

Area 10 - OWI feasibility trial

Total Petroleum Hydrocarbons (TPHs)



Sample points	Mean TPH Conc. (µg/L)		TPH reduction (dosing/no dosing)
	No Dosing	Dosing	
Inlet	818,800	67,266	**91.78%**
OWI	2,056,000	361,046	**82.43%**
SW-01	550,000	88,100	**83.90%**
Stream	6,329	2,066	**67.35%**

Figure 3: Changes in TPH concentration in the samples collected from the Inlet, OWI, SW-01, and stream.

The data were grouped as TPH without dosing (teal) and with dosing (blue) from each sampling point.

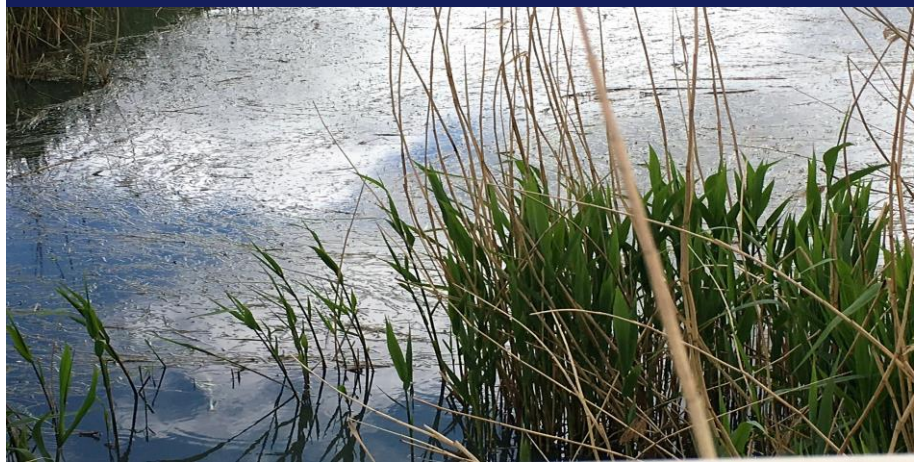
Values are mean with standard error. The table (top right) summarises the TPH reduction (from no dosing to dosing) in each sampling point

Proof of Concept - Algal Blooms (ALGAEZAP)

Total Cost	Mechanical Intervention	Damage to Wildlife	Health Impact	Odour Reduction	Carbon Reduction
Existing Solutions	High	High	Highly Negative	Not effective	None
ABS	Not needed	None	Highly Positive	Highly effective	High

Before

After 6 weeks



Objectives

How can ABS help you cost effectively achieve your sustainability objective?

URIZAP Sustainability Metrics

Headline savings over three years

Figures based on 1,000 urinals*

117,000,000
Litres of water

125,000
kWh

24
tCO2e

£2,000,000

Corresponding to…

47
Olympic size swimming pools

44
Homes powered for a year

15
Flights from London to NY

27
Meter-high £10 notes stack

**Figures depend on number of flushes per urinal, as well as on number of historic blockages. Calculations available on request.*
https://link.springer.com/article/10.1007/s13201-012-0040-7 ; https://www.mdpi.com/2073-4441/12/4/1204/pdf
https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022;
https://www.ofgem.gov.uk/check-if-energy-price-cap-affects-you; https://www.businesselectricityprices.org.uk/water-prices/

Let's hear it from the Clients

University

*"…This product has worked better in **6 weeks** than a competitor product did in **8 years**"*

Military Base

*"…this product is a **miracle worker**!"*

Tourist Attraction

*"…I've had comments from students about the nice aroma in the gents toilets. **Blockages and odours are a thing of the past**."*

Car Manufacturer

*"…**I have been very impressed with the product**. Although very optimistic to begin with, it is clear to see the **improvement in smell and condition of the pipework** after use."*

And some of the Companies using our products

amazon

MARS

Birmingham Airport

Royal Botanic Garden Edinburgh

NORTHUMBRIAN WATER *living water*

TOYOTA

Heineken®

Southampton Airport

white rose shopping centre

HAWKSMOOR

Case Study: HMNB Portsmouth

Overview

- One of 3 operating bases in the UK for the Royal Navy
- Employs 17,000 people
- Has **more than 1,000 urinals** and troughs

The Challenge

- This base was experiencing **recurring urinal blockages and strong odours** across all men's washrooms
- Efforts to resolve this included strong chemicals and frequent manual intervention, which were **costly and ineffective**

The Solution

- After 6 weeks of using URIZAP, **odours and legacy build-up were significantly reduced, improving the experience** for all washroom users.

The Benefits*

- Maintains **infrastructure integrity**
- **Significant odours reduction**
- Saves c.**£730,000** a year
- Saves c.**14 tonnes of CO2** per year
- Saves c.**68.5mn litres** of water a year
- **A safe and sustainable alternative**

** Based on data collected on site, and from industry-average assumptions when direct data not available. Detailed calculations are available on request*

Case Study: Southampton International Airport

Overview

- Southampton Airport has a capacity for up to **4 million passengers per year**
- The landside men's washroom urinal plumbing was about to ripped out at a cost of **£8,000**

The Challenge

- This airport was experiencing **recurring urinal blockages and strong odours** across all men's washrooms
- Efforts to resolve this included strong chemicals and frequent manual intervention, which were **costly, environmentally unfriendly and ineffective**

The Solution

- After 6 weeks of using URIZAP, **the legacy build-up was removed, and odours were significantly reduced**
- URIZAP was so **effective at solving the problem**, the airport did not need to proceed with expensive works to replace infrastructure

The Benefits*

- Maintains **infrastructure integrity**
- **Eliminates odours**
- Saves c.**£45,000** per year
- Saves c.**500kg of CO2** per year
- Saves c.**2.4mn litres** of water a year
- **A safe and sustainable alternative**

** Based on data provided by the Company using historic actuals*

Case Study: Hawksmoor

Overview

- 10 UK locations
- Award-winning, global steak restaurant
- Founding member of the Sustainable Restaurants Association (SRA), leaders in the global movement for an inclusive, equitable, and regenerative economy

The Challenge

Constant **urinal blockages** and **odour complaints**. Concerns around hygiene reputation prompted Hawksmoor to find an environmentally friendly solution to trial at their Air Street location before rolling out nationally.

The Solution

In under **two weeks**, URIZAP was proving more effective than harsh chemicals at reducing blockages and smells. Before the six-week trial ended, Hawksmoor had purchased URIZAP for their other 10 UK locations.

The Benefits*

"Our obsession with quality and ethics has always driven us to work with individuals and companies who share our beliefs. URIZAP reduces the need for harsh chemicals, is easy to administer, removes odours and costly repair services. We look forward to working with ABS in the future." - Patrick Urey, Hawksmoor Head of Operations.

- Maintains **infrastructure integrity**
- **Eliminates odours**
- Saves c **£95,000** per year
- Saves **850kg of CO2** per year
- Saves c **4,000,000 litres** of water per year

*Based on data collected on-site, and using industry average assumptions from > 200 trials.

Appendix

Bacteria vs Enzymes vs Chemicals

Did you know that…

Bacteria	ARE	
Enzymes	ARE NOT	…alive
Chemicals	ARE NOT	

- **Bacteria** produce Enzymes
- Enzymes break down complex waste into simple compounds
- Enzymes do not consume / digest waste
- **Bacteria** do consume / digest waste

ABS' bacterial solutions are 100% natural, non-hazardous and non-pathogenic

Washroom Range - Overview

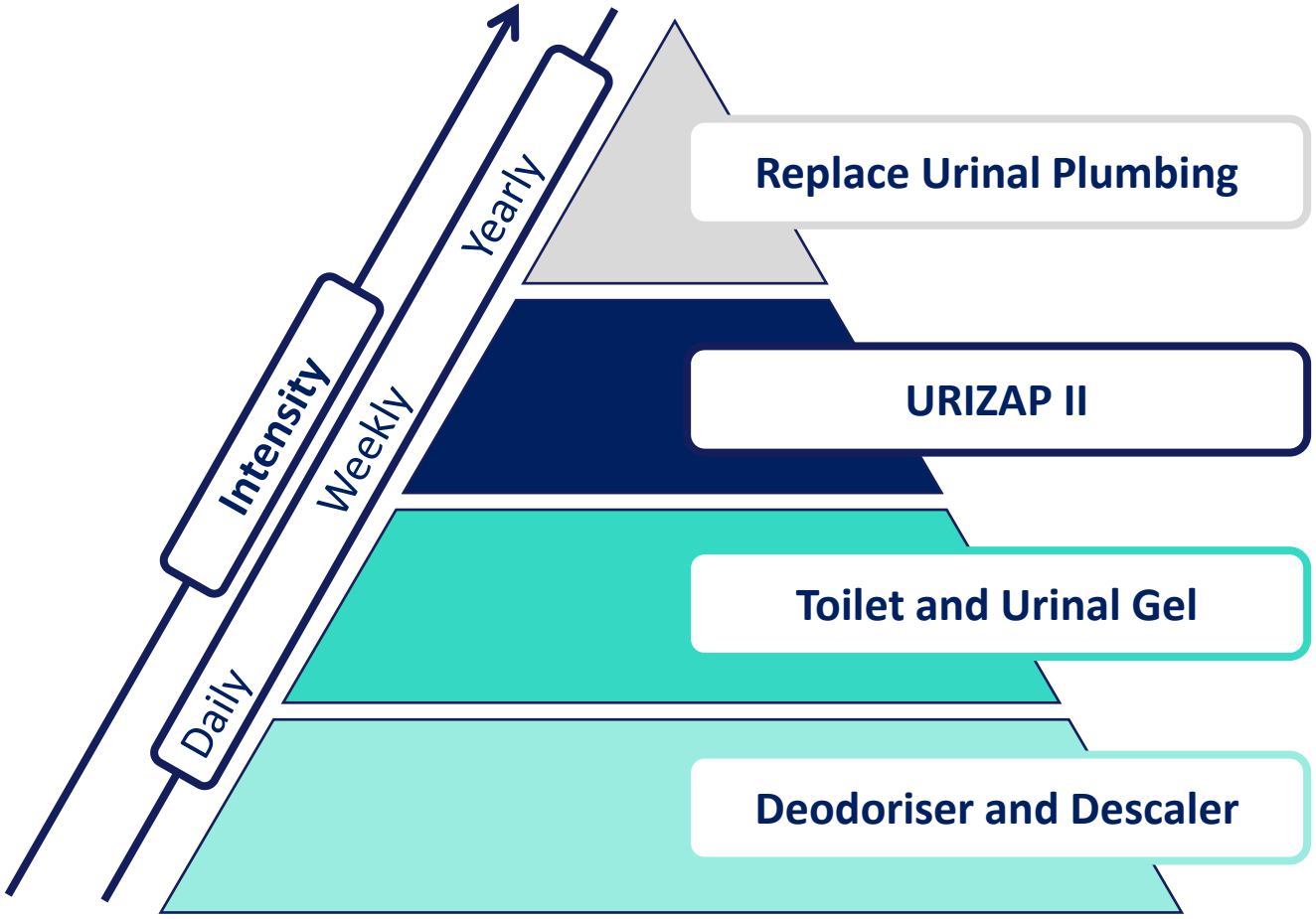
Available in Q4 2023

		Format	Application Area	Target	Main Feature
1	**Surface Cleaner**	Granular formulation in sachet, to be dissolved into a spray bottle	All hard surfaces	Soap scum, limescale, grease, organic soils	All ingredients **bioderived**, **biocompatible** and **biodegradable**
2	**URIZAP II**	Granulated powder	Urinal plumbing	Deep uric scale, limescale, odour	**Improved** digestion/deodorizing power **Simplified** formulation
3	**Toilet and Urinal Gel**	Granular formulation in sachet, to be dissolved in L angle-neck bottle	Toilets and urinal appliances (no floors nor bathtubs nor glass)	Surface uric scale, limescale, odour	Bacteria encapsulated **in situ**, with long lasting effect, even post flushing/rinsing
4	**Urinal Deodoriser and Descaler Spray**	Granular formulation in sachet, to be dissolved into a spray bottle	Toilets, urinals and surfaces (pipes, sinks, tiled areas, and floors)	Odour and scale	**100% food grade components**, environmentally benign, bio-derived

Washroom Range - Overview cont.

2 3 4

Hierarchy of urinal intervention



The intensity of urinal remediation spans from the most extreme interventions such as plumbing replacement that may be required every 10 years…

…To weekly application of concentrated descaling products…

…Through to daily cleaning…

…And to even more frequent preventative maintenance.

Contact Us

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