



INTRODUCTION TO AIRDRI



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THE AIRDRI STORY



THE AIRDRI GROUP WAS FOUNDED IN OXFORDSHIRE IN 1974 BY BUSINESS PARTNERS PETER PHILIPPS AND PETER ALLEN; BOTH EXPERIENCED AND ENTREPRENEURIAL ENGINEERS.

Over time, the Airdri Group has evolved. Although hand dryers will always be our core business, our in-house engineering expertise has led us to explore new areas of growth.

Since the 1980s, under the brand Formula Systems, we have been at the forefront of the elevator technology industry with the creation of our patented elevator door safety systems and speech units.

In early 2020, Airdri launched SteraSpace – a range of best-in-class air & surface sanitisers that are proven to effectively eliminate up to 98% of harmful bacteria and viruses.

THE AIRDRI STORY



GREAT BRITISH DESIGN

A UK based team of engineers design and develop world leading hand dryers, elevator safety systems and sanitiser units.



GLOBAL REACH

We own offices in Chicago and a manufacturing plant in Guangzhou, China, where our products are shipped to customers all over the world.



RELIABILITY

Our unique technology means our hand dryers have a life-span up to five times that of our competitors.



ENERGY EFFICIENCY

Intent on delivering sustainability, our eco range of dryers run from just 200 watts, meaning an annual running cost from just £6 per year.



LEADING WARRANTY

All products come with a market leading warranty. 7 years for hand dryers and 1 year for sanitisers.

STERASPACE AIR & SURFACE SANITISERS



THE MOST ADVANCED
VIRUS AND BACTERIA
CONTROL TECHNOLOGY
OF ITS KIND.

AIRFLOW | TECHNOLOGY | EXPERTISE

STERASPACE TRANSPORT & ULTRA



SteraSpace transport is specifically designed to vehicles, it runs of ether 12 or 24v and can be used in the likes of trains, busses & medical waste



- SteraSpace Ultra can cover areas up to 350m² per unit. Specifically designed for the likes of arena halls, exhibition centres and shopping malls.



STERASPACE ELEVATOR



SteraSpace Elevator is specifically designed for lifts and elevators, designed in collaboration with our sister company, Formular Systems.

The unit will sit on top of the elevator and duct into the carriage via two hoses, this will continuously draw contaminated air out of the carriage, replacing it with photocatalytic plasma, which will kill of bacteria and viruses in the air, as well as on the surfaces within the lift.



WHAT DO AIR SANITISERS DO?



Controls infections by killing bacteria and viruses, mould and fungi.

As an added advantage the unit also removes pollen, pollution, smoke and odours.

Eliminates particles down to 0.0001 microns in size.



Cleans deep into fabrics, prolongs life of carpets and soft furnishings.

Eliminates need for masking agents.

Can help to reduce staff absenteeism and agency costs.

Improves environment for residents, staff and visitors.



The unit provides 24-hour protection by creating an environment that is hostile to micro-organisms.

The air and all exposed surfaces are continuously sanitised every hour of every day.

HOW SANITISERS WORK



HOW AIR IS SANITISED



GERMICIDAL UV

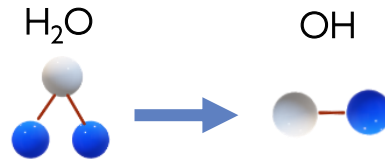
As air flows through the plasma chamber and over the UV lamp all micro-organisms in the air are killed/inactivated

The plasma chamber comprises of dual waveband UV lamps at 254nm and 185nm surrounded by nano coated catalytic plates.



HYDROXYL RADICALS

As air flows through the chamber the UV light reacts with the titanium dioxide catalysts causing water vapor to be converted to highly reactive hydroxyl radicals (OH).



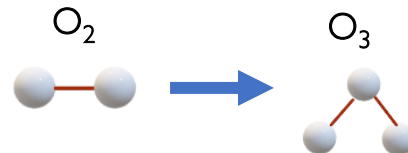
SUPEROXIDE IONS

As air flows through the chamber the UV light reacts with the titanium dioxide catalysts causing a release of free electrons, they bond with oxygen to form Superoxide ions.



OZONE

As air flows through the chamber the 185nm UV light reacts with oxygen and forms monatomic oxygen, this then bonds with oxygen to form ozone.



AIRFLOW | TECHNOLOGY | EXPERTISE

ALTERNATIVE SOLUTION COMPARISON



- Does the solution sanitise both air and surfaces?
- Does it provide continuous coverage? If not, bacterial colonization will recommence immediately.
- Does it require the area to be unoccupied? This is due to harmful levels of chemicals used to temporarily treat the area.
- Does it kill virus, bacteria, mould, fungi and VOC's – not simply capture them? For HEPA filters to trap micro-organisms, all air in the area must pass through the filter to be purified. Viruses are very small and HEPA filters cannot trap all viruses that flow through them.

	STERASPACE	FOGGING	AIR PURIFIERS (HEPA FILTERS)
Sanitises the air	●	●	●
Sanitises surfaces	●	●	●
Continuous coverage	●	●	●
Kill, not capture	●	●	●
Downtime	●	●	●
Wide elimination capability	●	●	●
Value for money	●	●	●

ALTERNATIVE SOLUTION COMPARISON



ULTRAVIOLET LIGHT

Very effective, the germicidal waveband UV will kill most micro-organisms however direct contact with this waveband of UV is harmful to humans and so must be shielded. This then significantly reduces the contact with any micro-organisms.



BLEACH AND LIQUID DISINFECTANTS

These are very effective for surfaces however colonisation can start very quickly once cleaning has finished. Also, the ambient air is not sterilised.

EFFICACY TESTING

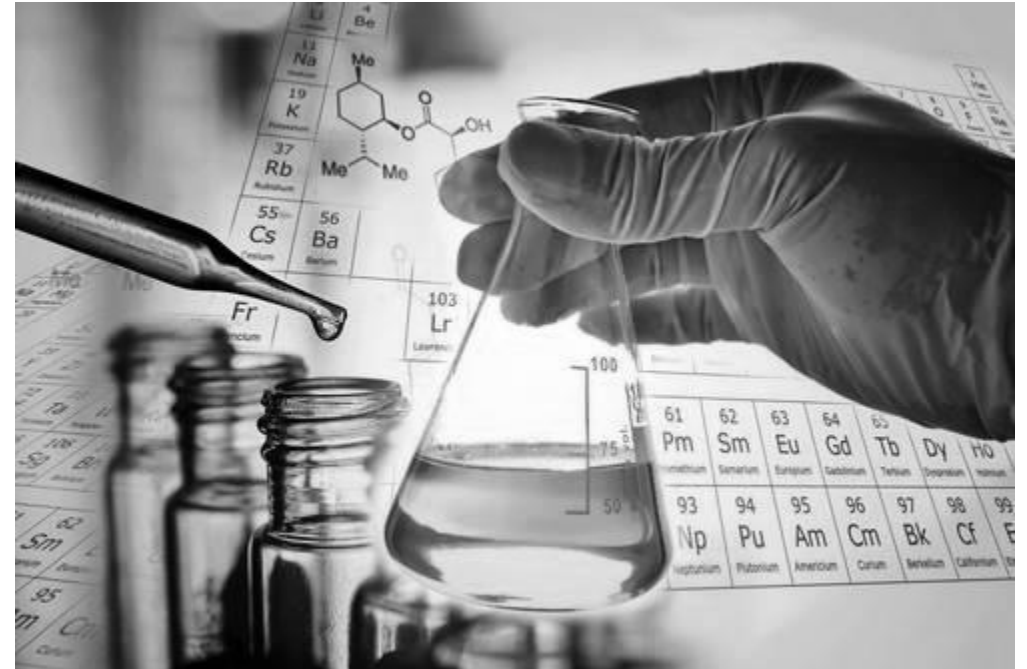


STERASPACE TECHNOLOGY HAS BEEN TESTED BY MULTIPLE, HIGHLY REGARDED LABORATORIES, INCLUDING:

- Public Health England (formally HPA)
- ALS Global
- Leeds University
- SGS

Airdri conducted a live test with Moto at their Cherwell Valley Motorway service station. Cherwell Valley is one of the largest and higher footfall service stations in the UK.

We used the independent laboratory ALS Global to oversee this test – the test took place in November 2020.



ALS GLOBAL – WASHROOM TEST



4.1 Practical results

Position	Pre exposure			Post exposure		
	TVC	Mould	Yeast	TVC	Mould	Yeast
1 – Circular main basin	227	155	5	168	14	0
2 – Right bottom urinals	115	3	1	96	18	4
3 – Toilets mid right	222	14	2	112	6	4
4 – Far side mid cabinet	145	11	2	85	10	2
5 – Urinals bottom left	145	9	5	68	4	1
6 – Left mid cabinet	153	9	5	62	18	2
7 – Urinals mid left	190	10	3	70	6	1
8 – Urinals ent left	60	13	3	119	11	0
9 – Urinals ent left	118	6	1	68	4	1

4.2.1 Percentage Reduction

Position	Cfu/plate Total pre-exposure	Cfu/plate Total post-exposure	Cfu/plate Total reduction	Percentage reduction
1 – circular main basin	387	182	205	53%
2 – Right bottom urinals	119	118	1	1%
3 – toilets mid right	238	122	116	49%
4 – far side mid cabinet	158	97	61	39%
5 – urinals bottom left	159	73	86	54%
6 – left mid cabinet	167	82	85	51%
7 – urinals mid left	203	77	126	62%
8 – urinals ent left	76	130	-54	-71%
9 – urinals ent left	125	73	52	42%

Table 1 – Calculated results for the portion of the trial with the SteraSpace unit based on the raw data for the total of all microorganisms with percentage reduction of colony forming units.

OVERALL A MEDIAN 53% REDUCTION IN COLONY FORMING UNITS WAS OBSERVED OVER MOULDS, YEASTS AND TVC COUNTS WITH A CALCULATED LOG REDUCTION OF 0.30.

ALS GLOBAL – OFFICE TEST

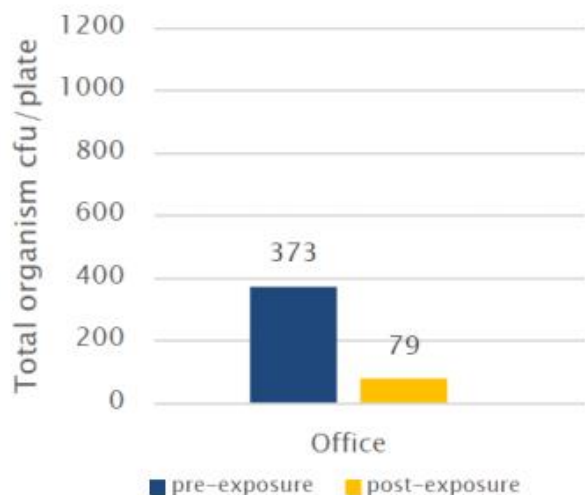


4.2.2 Office

Area	Pre-exposure cfu/plate	Post exposure cfu/plate	Reduction cfu/plate	LOG10 reduction	Percentage reduction
1	44	9	35	0.689210167	79.58%
2	124	17	107	0.862972764	86.20%
3	76	21	55	0.558594298	72.46%
4	60	13	47	0.664207898	78.12%
5	69	19	50	0.56009549	72.46%

Table 7 – Calculated results assessing the effect of the Steraspace unit in the office based on the raw data for the total of all microorganisms with LOG and percentage reduction of colony forming units.

OVERALL A MEDIAN 78.81% REDUCTION IN COLONY FORMING UNITS WAS OBSERVED OVER MOULDS, YEASTS AND TVC COUNTS WITH A CALCULATED LOG REDUCTION OF 0.674.



Total median cfu/plate in pre-exposure and post-exposure conditions per location

ALS GLOBAL – COVID TESTING CENTRE



Area	Pre-exposure cfu/plate	Post exposure cfu/plate	Reduction cfu/plate	LOG10 reduction	Percentage reduction
1	182	18	164	1.004798883	90.11%
2	193	22	171	0.943134628	88.60%
3	189	33	156	0.757947864	82.54%
4	238	14	224	1.230448921	94.12%
5	153	20	133	0.883661435	86.93%
6	233	21	212	1.045136626	90.99%
Total	1188	128	1060	0.967606471	89.23%

OVERALL A MEDIAN 89.23% REDUCTION IN COLONY FORMING UNITS WAS OBSERVED OVER MOULDS, YEASTS AND TVC COUNTS

DAM HEALTH IS ONE OF THE LEADING PROVIDERS IN THE UK FOR COVID-19 TESTING SOLUTIONS.

A SteraSpace PSA20 unit was tested in their Rodney Street practice waiting room and achieved an average reduction of 89.23%.

ALS Report Reference: NRW000331

THE HPA TEST RESULTS



AIRBORNE TEST RESULTS

5 MINUTES EXPOSURE

MS2 coliphage NCIB 10108
(an enveloped single stranded RNA coliphage)

Staphylococcus epidermidis NCIMB 12721
(a gram positive cocci)

SURFACE TEST RESULTS

1 HOUR EXPOSURE

MS2 coliphage NCIB 10108
(an enveloped single stranded RNA coliphage)

MRSA (Methicillin Resistant Staphylococcus aureus, a gram
positive cocci)

Micro-organism	Percentage Efficiency
MS-2 coliphage	92.17%
Staph. epidermidis	98.11%

Results show a significant reduction of surface bacteria within 1 hour of exposure