

Solutions for Managing COVID-19 Microbial Invisible Risks in the Workplace – Creating Safer Indoor Space™

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Presentation to Topsides UK – 11.11.2020

Overview

- **Quick Background - Who we are, What we Do and Our Clients**
- **What is an Invisible Risk?**
- **Managing these Lifecycle Risks**
- **Applying the model to COVID-19 risk management - Developing Solutions**



Managing COVID-19 Risk – Walking An Invisible Tightrope of Fear!

Who we are

Leaders in the Provision of Safety Critical Risk Management Solutions - Globally



Sunny Aberdeenshire!

- ✓ Based in Scotland
- ✓ Clients in over 25+ Countries
- ✓ 35+ Years' Industrial Automation Experience
- ✓ 'Invisible Risk' Management
e.g. Breathing Air Systems /
Commercial Diving Vessels/
ATEX machinery / Functional
Safety

Sectors we operate in



SAFEWELL WORKING WITH BAE SYSTEMS

To Ensure a safe, clean and reliable air source is provided when testing the On-Board Oxygen Generation Systems (OBOGS) within the Hawk fighter jet.

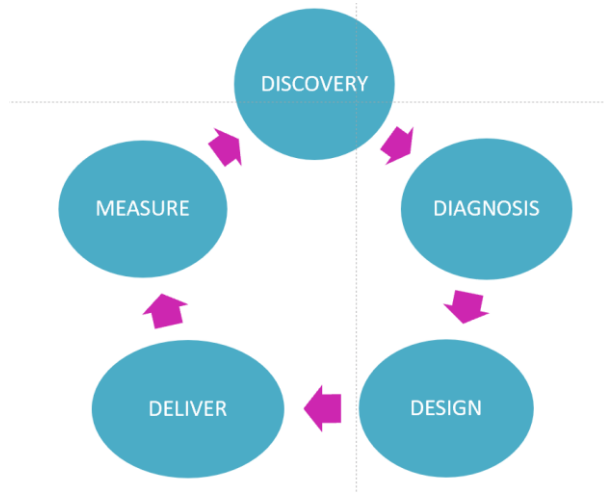


Our longstanding Clients

Examples of our clients who **TRUST** our solutions.



Journey to Best Practice



Examples of how Safewell helps people manage breathing risks



COMPRESSED & AMBIENT AIR TESTING



TRAINING & COMPETENCE



LIFECYCLE SERVICE & MAINTENANCE



BREATHING AIR PURIFICATION

Safety of Ambient & Compressed Air – Our Laser Focus is on Mitigating Health Effects

Air pollution

Tiny air pollution rise linked to 11% more Covid-19 deaths – study

Evidence is now strong enough that preventive action should be taken, scientists say

- [Coronavirus – latest updates](#)
- [See all our coronavirus coverage](#)

Damian Carrington
Environment editor

Twitter: @dpcarrington

Wed 4 Nov 2020 18.00 GMT



386



▲ Air pollution in Beijing. The researchers estimate that 27% of coronavirus deaths in China are attributable to dirty air. Photograph: Wu Hong/EPA

A small rise in people's long-term exposure to air pollution is associated with an 11% increase in deaths from Covid-19, research has found. Another recent study suggests that 15% of all Covid-19 deaths around the world are attributable to dirty air.

Other diseases

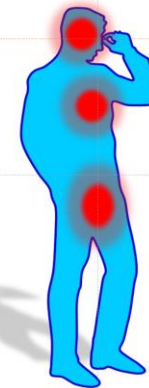
Breathing in hazardous substances can also cause diseases elsewhere in the body

Nervous system disorders

Heart disease

Bladder cancer

Damage to reproductive system

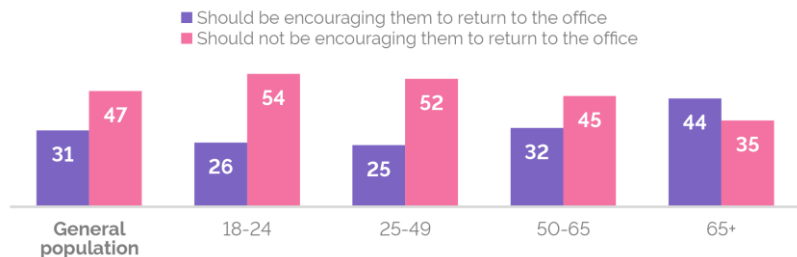


Don't risk your long term health!

COMPLACENCY IS A MAJOR INVISIBLE RISK!

Working age Britons don't think the time is right to return to the office

Do you think businesses where staff have been working from home during the coronavirus pandemic should or should not be encouraging staff to return to the office? %



YouGov

27 August 2020

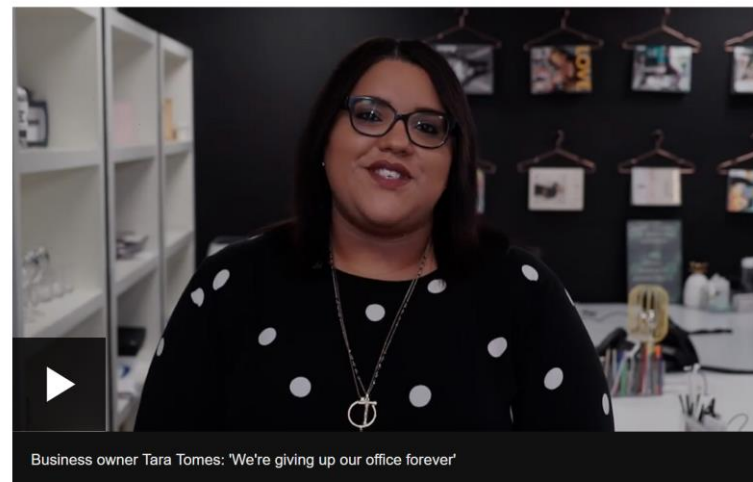
No plan for a return to the office for millions of staff

By Simon Jack
Business editor

🕒 26 August 2020 📄 437

f 🗨️ 🐦 ✉️ ➦ Share

Coronavirus pandemic



Business owner Tara Tones: 'We're giving up our office forever'

Fifty of the biggest UK employers questioned by BBC have said they have no plans to return all staff to the office full-time in the near future.

Coronavirus: Campaign to encourage workers back to offices

🕒 16 minutes ago 📄 1897

f 🗨️ 🐦 ✉️ ➦ Share

Coronavirus pandemic



People will again be encouraged to go back to their workplaces as part of a government campaign starting next week.

Economic growth (GDP)

No return of workers to offices 'could cost UK economy £480bn'

Ex-CBI adviser says economy will not return to pre-pandemic size until 2023 if home working continues
➦ Coronavirus: latest updates
➦ See all our coronavirus coverage

Simon Goodley
Sun 30 Aug 2020 12:04 BST



The UK economy could lose almost half a trillion pounds of output if workers fail to return to their offices, a study estimates.
Douglas McWilliams, a former chief economic adviser to the Confederation of British Industry, has warned the economy will not return to its pre-pandemic size until 2023 if home working continues in its current form, which would add up to at least £480bn in lost activity.

Coronavirus: What does my boss have to do to keep me safe?

1 hour ago



Coronavirus pandemic



More people in England will soon be encouraged to return to their workplace.

But with coronavirus still a concern, what are your rights?

It is Time to Address Airborne Transmission of COVID-19

Lidia Morawska^{1,*}, Donald K. Milton²



Airborne Transmission Confirmed 04.08.20

256 room, (d) or if the low number of virus was due to technical difficulties in removing small airborne
257 particles from the air.²⁶

258 Our findings reveal that viable SARS-CoV-2 can be present in aerosols generated by a COVID-19
259 patient in a hospital room in the absence of an aerosol-generating procedure, and can thus serve as a

260 source for transmission of the virus in this setting. Moreover, the public health implications are broad,
261 especially as current best practices for limiting the spread of COVID-19 center on social distancing,

262 wearing of face-coverings while in proximity to others and hand-washing. For aerosol-based

263 transmission, measures such as physical distancing by 6 feet would not be helpful in an indoor setting,
264 provide a false-sense of security and lead to exposures and outbreaks. With the current surges of cases, to

265 help stem the COVID-19 pandemic, clear guidance on control measures against SARS-CoV-2 aerosols
266 are needed, as recently voiced by other scientists.³⁵

267

37 **Findings** Viable virus was isolated from air samples collected 2 to 4.8m away from the patients. The

But How do
we manage
the Risk in
Accordance
with ALARP?

Safewell SafeSpace Initiative

The management of Invisible Risk is complex. In our business we take people on the journey from 'unknown unknown risk' to 'known knowns' and provide a holistic, systematic way of implementing best practice using validated solutions.

During the current COVID-19 pandemic we have been working hard to develop our SafeSpace initiative which is an engineered solution for managing the risk of airborne contamination in enclosed spaces used for human occupancy. We have patented a novel barrier concept to manage the natural and forced ventilation flows in enclosed spaces and this is currently under development.

We have also set up a Safe Space in the conference room at our business park near Banchory to test the performance of different technologies that can be used to reduce the risk of airborne and surface contamination in the workplace. Currently the focus is on aerosol transmission of COVID-19 but the principles behind Safe Space will have broader application for long terms risk management of pathogenic microbe contamination in the workplace and in all spaces where humans interact during education, medical care and leisure activities.



Measure & Log The Risk



Air Velocity, CO₂, VOC,
Temperature, Humidity,
Body Temperature



Airborne Particulate



Surface Cells-ATP



Bioaerosols

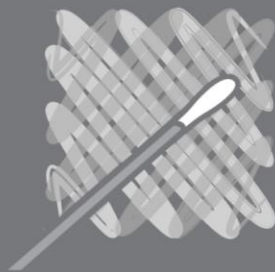


How do You Quantify Clean when Risk is Invisible?

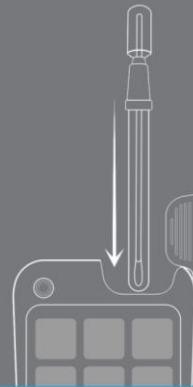


How Does it Work?

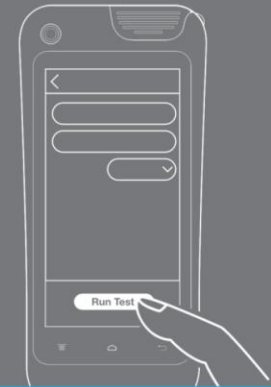
- EnSURE™ Touch is a handheld device that rapidly verifies the cleanliness of a surface in just **10 seconds**. It measures organic residue on surfaces via bioluminescence and adenosine triphosphate (ATP), which exists in all organic matter - mucus, saliva, any bodily fluids, food residue. The result is a numerical value (in relative light units, RLUs) representing how much contamination is on a surface, which is then translated to Pass-Caution-Fail indicators which can be customized for your operation.



1. Swab Surface



2. Insert Test



3. Run Test


How do You Prove a Space is Well Ventilated when the Risk is Invisible?

- By Measuring Build Up of Carbon Dioxide
- Level of CO2 can be used to manage Ventilation (1000ppm)
- Humans exhale CO2 and also bio-aerosols
- Logging CO2 in the space makes the risk visible




How do You Prove a Space is well ventilated when the Risk is Invisible?





Ambient climate
Temperature, humidity, CO2 and PIR sensor.



Presence detection
Check availability and occupancy rates of rooms.



How do You Reduce the Risk of Poor Indoor Air Quality?

Solution: Genano Air Decontamination

- Finnish Technology – Genano Numerous Case Studies
- Proven in Medical Sector and Schools
- Effective against Microbes such as COVID-19, SARS, MERS
- Removes particles and VOC's (odours)
- Different Sizes – 300 m3 & 500 m3 per hour
- HVAC versions available
- Safewell currently testing in our own offices
- Being adopted by major companies



1 Contaminated air is led inside the unit.

2 Particles are ionised in a powerful corona discharge.

The ionised particles are attached to the collection tube. Microbes are destroyed with electric shock.

3 Next, the air is led to active carbon collector which effectively removes ozone, VOC-gases and odours.

4 Outcoming ultra-pure air is completely free from particles of all sizes, microbes; bacteria and viruses, and harmful gaseous compounds.

The only changeable part is the active carbon filter.



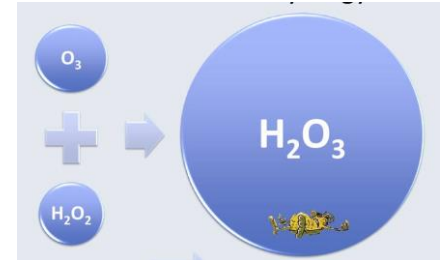
Ionisation –
Corona Discharge

**Mitigate
The Risk**

How do You Ensure Surfaces (Things) are Decontaminated?

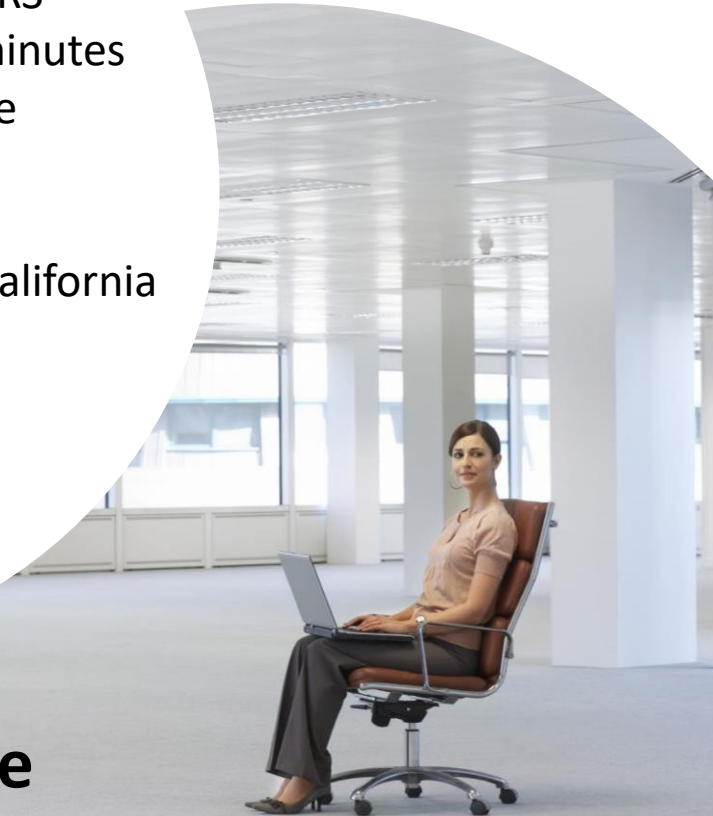
Solution: Automated Trioxidane Decontamination System

- Proven in Food and Cannabis Growing Sectors
- Generate Trioxidane a powerful anti-microbial
- Integral Safety Control System with sensors to automate function
- Effective against Microbes such as COVID-19, SARS, MERS
- Decontaminates plastic, steel and tile surfaces in <30 minutes
- Different Sizes – can decontaminate 50,000 m3 of space
- Safewell currently testing in our own offices
- Being adopted by major companies.
- Being rolled out in municipal buildings and schools in California



Reactive Oxygen Species 30ppb

**Mitigate
The Risk**





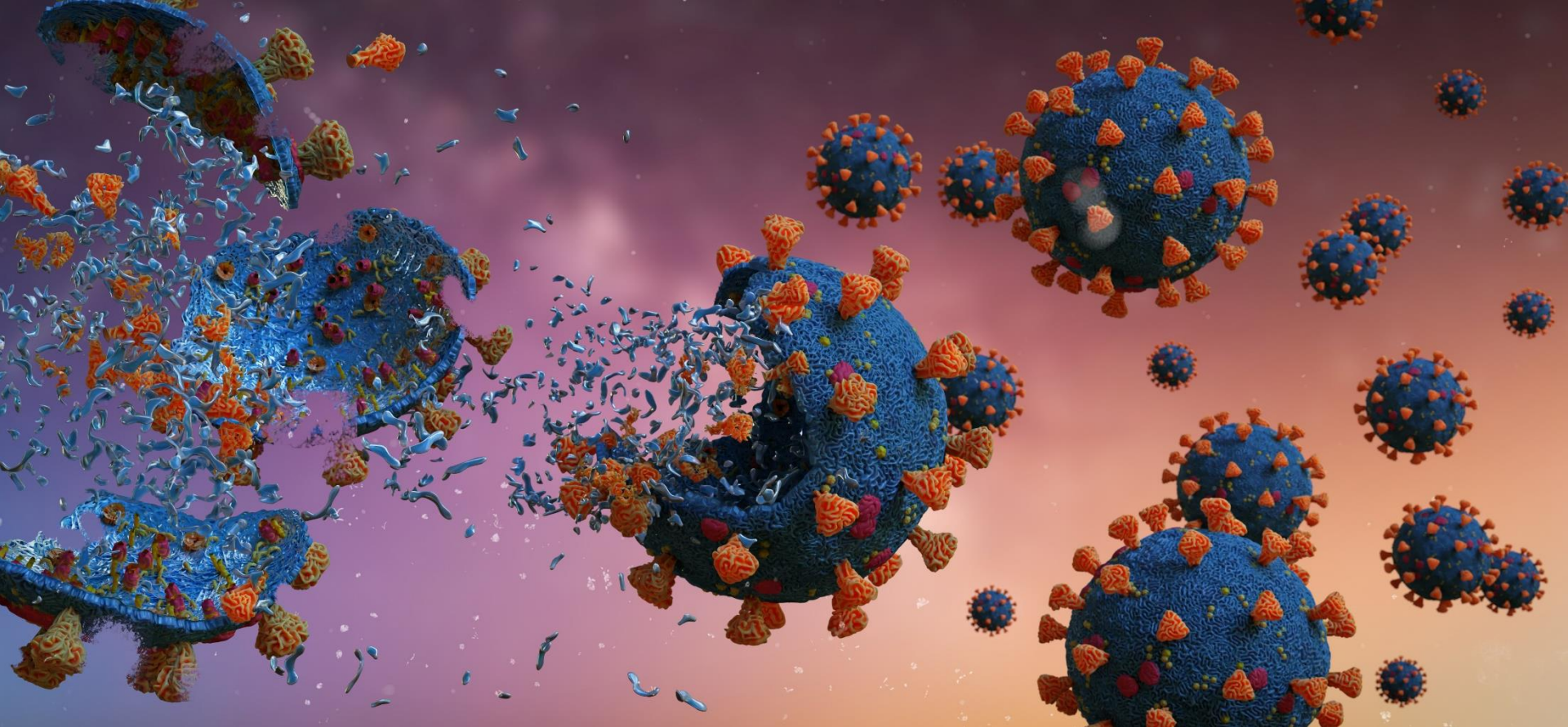
The background image is a collage of financial data. A large magnifying glass is positioned over a bar chart, which has several bars with numerical values like 18.3, 10.2, 3.4, and 1.7. To the right of the magnifying glass, there is a line graph showing a fluctuating trend. In the top right corner, there is a table with columns and rows of numbers. The overall theme is financial analysis and data validation.

Analysing the data Validating Solutions Provide Case Studies

Innovative Product Solutions to Integrate Best Practice

Innovation Achievement





Thank you and if you need guidance on your journey to best practice at this difficult time, we are here to help.

Do you have any questions?