



# Anacail

## Company overview

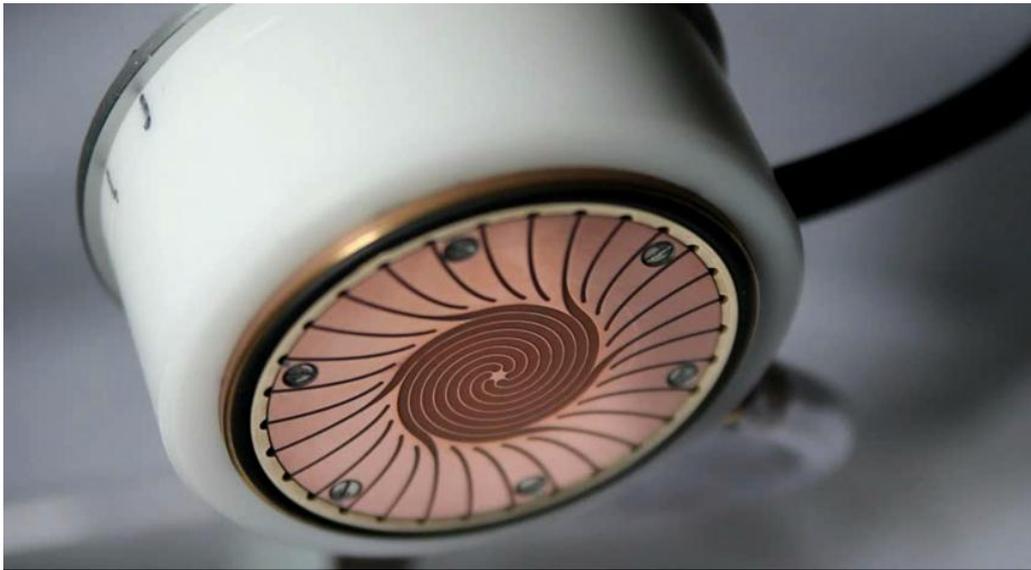
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[Gaelic] *shield, preserve, protect*

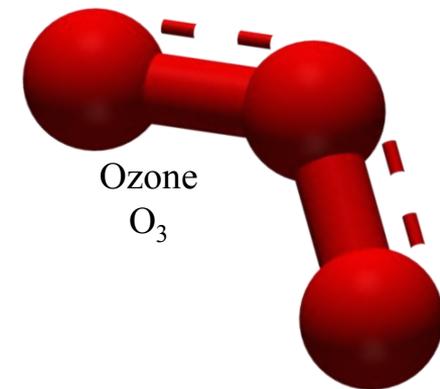


## Ozone

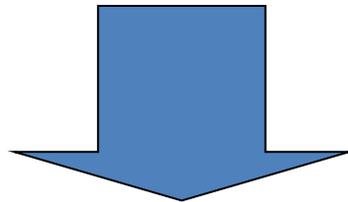
*on demand  
practical  
safe*

## Why Ozone?

- The ideal sterilising agent
- Very powerful germicide (better than Chlorine)
- Created from oxygen in air – **no chemical additives!**
- Unused ozone decays to oxygen – **no toxic residuals!**
- In our device it's created on demand and in situ – **no storage or handling problems!**

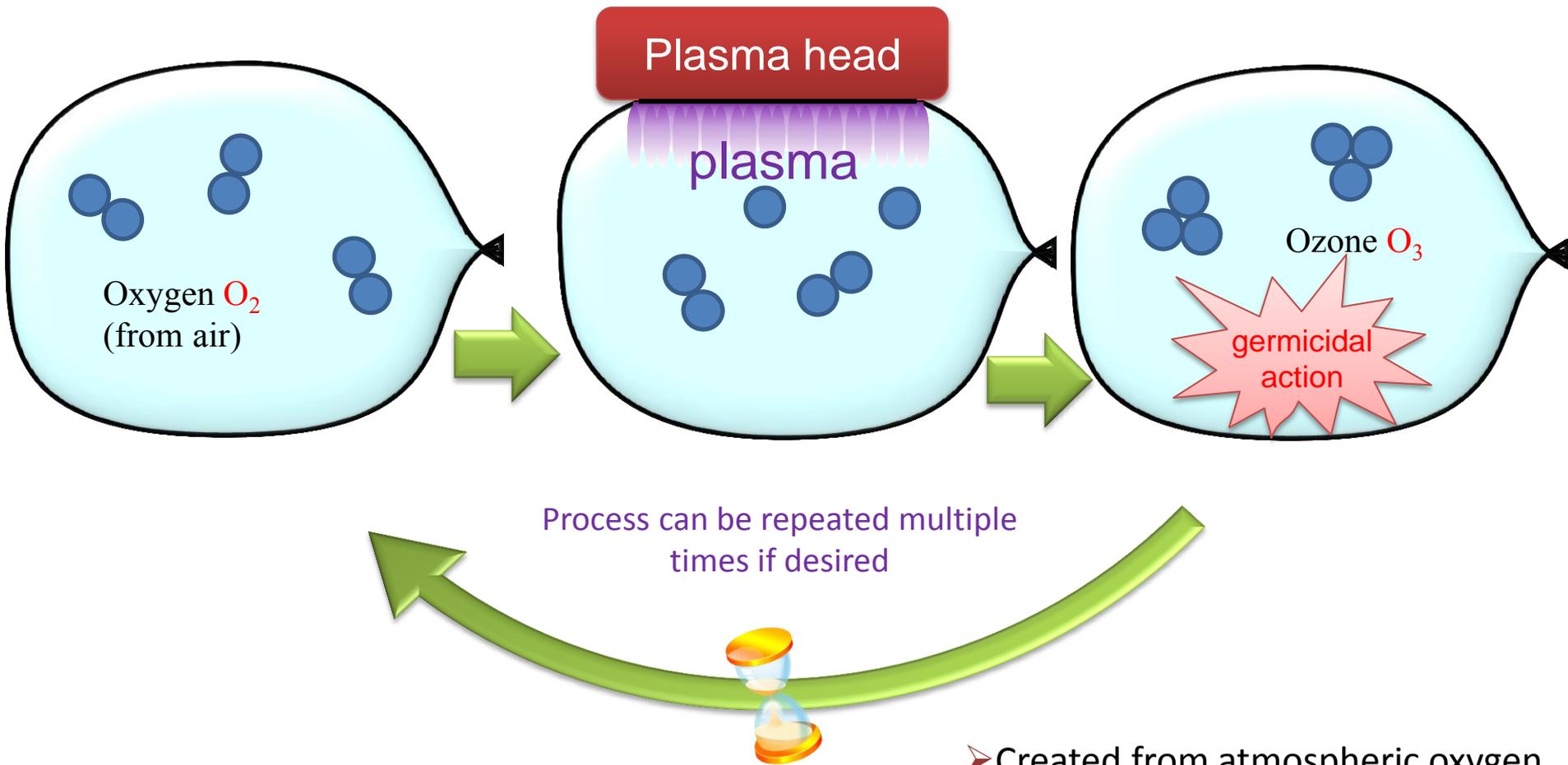


- Generate **ozone** and oxygen radicals in a sealed container
- Reduce bacterial load *in situ*
- Container is unaffected (still sealed)
- Can be applied retrospectively and repeatedly



- **Platform technology for pathogen reduction**
- **Increase food safety by reducing harmful pathogens**
- **Shelf-life extension: reduces waste, streamline supply chain**

# Ozone as a sterilising agent



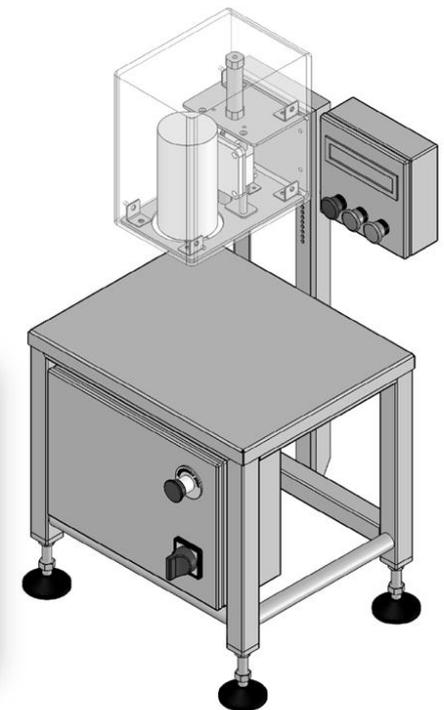
- Created from atmospheric oxygen
- Decomposes back to oxygen
- No residual chemicals

# Technical advantages

- **Electrically safe** – all hazardous voltages shielded from operator, even when operating
- **Chemically Safe** – all ozone is produced inside sealed packages – no operator exposure
- **Suited for production line** – Process is fully automated and rapid
- **Robust and reliable**



(i) Plasma head, then showing (ii) bag attachment and (iii) ozone plasma creation



Manufacturing Scale Prototype

Food trials at leading UK test labs:  
including at Campden BRI

**Bread and muffins:** increase in shelf-life,  
no detrimental effect on nutritional  
content

**Poultry:** significant reduction (~2 to 4 log)  
on many pathogens, including  
*campylobacter*, *psuedomonas* and *E.coli*  
**Skin-on and skin-off chicken tested**

- Packaging migration trials: no  
measureable migration on tested film



Mold control in bread

# Key benefits to food industry

- ✓ Supply chain efficiency - shelf life extension
- ✓ Enhanced food safety – reduction of *campylobacter*, *E.coli* etc
- ✓ Reduced preservative use - may reduce MAP and ingredient costs, helps ‘clean label’
- ✓ Will work with most existing packaging and MAP atmospheres
- ✓ Environmentally friendly – *No hazardous chemicals or residues*
- ✓ Fast, inexpensive and robust
- ✓ Suited for production line systems
- ✓ Immediate regulatory pressure for change:
  - FSA drive to reduce *campylobacter* contamination of poultry



# Current Status

- Results on a variety of foods using prototype device
- Scaled manufacturing prototype now in place
- Anacail seeking development partners to scale into full manufacture. Potential partners include:
  - Food manufacturers
  - Food processors
  - Food processing and packaging equipment manufacturers
  - Food retailers

- Potential for grant supported collaborative R&D opportunities

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17.5 days

Untreated

Treated