VN Aerotoxic Detection Solutions Ltd

Aircraft Cabin Air Quality Monitoring System

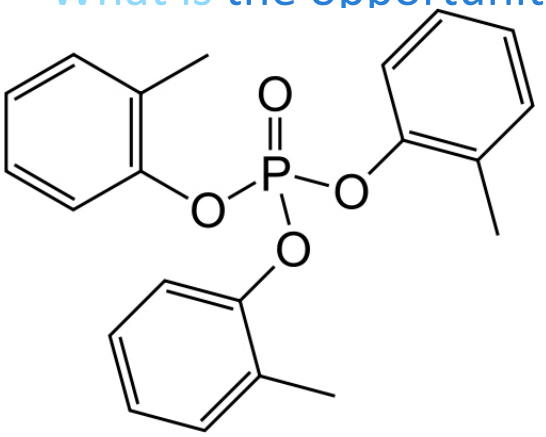
Fume event that lasted for two hours onboard a US Airways flight from Phoenix to Maui

VN Aerotoxic Detection Solutions Ltd (VN-ADS) proposes to raise £1,800,000 in three rounds of funding to develop an Aero-Toxic Detection technology for incorporation with, and use on, all aircraft that provide on-board climate control in the aircraft via 'bleed air systems'. A Round 1 £150k SEIS raise was over-subscribed and has successfully delivered all programme milestones. A Round 2A £600k EIS raise is now underway to design, manufacture and certify 100 hand-held prototype units for distribution to Cabin and Air crew throughout the industry. When successful, monetisation of this development will be achieved via technology licencing agreements with new aircraft manufacturers and sales of handheld devices to operators of existing fleets. Aircraft manufacturers and operators are under significant pressure by way of public enquiries and employee legal actions following the discovery of the organophosphate Tricresyl Phosphate, or 'TCP' in the aircraft cabin.

To date there are no 'real time' detectors available and it is this lack of detection capability that allows airlines to continue operating. Airlines however, are now losing or settling cases outside the court, brought by their staff for dangerous working conditions.

Initial Proof of Concept Research Completed	Global Market Opportunity	Licence, Wholesale & Retail Revenue Model

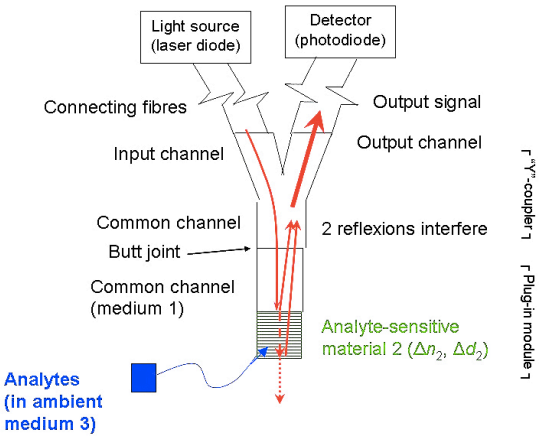
What is the opportunity & why does it exist?



$OPCl_3 + 3\ HOC_6H_4CHOP(OC_6H_4CH_3)_3 + 3\ HCl$
TCP is the cause of numerous poisonings and is a neurotoxin, in part via organophosphate-induced delayed neuropathy.

- Stage 1 delivered the design, build, test & proof for a specific 'Air Quality' detection device in an environmental chamber.
- Aircraft 'Fume Events' are calculated to happen on 1 in 100 flights daily (Neurotoxins present in the cabin during flight or upon start-up). Events occur when lubrication oil in the turbine is burnt due to seepage and/or leaks, the organophosphates in the oil are released and then mix with the incoming 'fresh air' via the aircraft bleed-air-system
- Multiple reports by flight crew & cabin staff of these incidents & their physical side effects on crew and passengers
- Numerous 'black out' & resulting 'near fatal' incidents reported by flight crew to their respective airlines

What is the technology and how proven is it?



Schematic diagram of the single sensing head of a mono fibreoptical meter .

VN-ADS Mono Fibre Optical Measuring Technology (MOMT), combined with certain types of coating have demonstrated the capability to detect Tricresyl Phosphate (TCP) and other Volatile Organic Compounds (VOCs) and Semi Volatile Organic Compounds (SVOCs) in real time.

- Patents granted in UK & USA and new patent investigation underway
- Stage 1 development process has delivered:

  1. Research to identify suitable end-coatings for the target analytes
  2. Proof of the efficacy and versatility of these coatings
  3. Software to gather raw data and produce compliance reporting
  4. Integration of the technology into a bench device for real time trials using an environmental chamber.
  5. Confirmation of the ability for integration of the technology into a handheld sensor/device
  6. Construction of a handheld mockup device

How will it make money and when?

- Licence 'built-in' technology to aircraft manufacturers for 'new build' aircraft
- Sales of Hand-held detection devices to aircraft owners & operators for existing fleets
- 1-2 years in development before potential revenues
- 2-3 years in revenue before potential investor exit

For further information on the VN-Aerotoxic Detection Solutions Ltd opportunity or any other VN-Capital Partners sponsored project please contact us on:
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