



A circular solution to reduce harmful release of anaesthetic gas

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#bettercarecostsless



Leading Sustainable Anaesthesia

We are proud to play our
part in sustaining our planet

The practice of volatile anaesthetic delivery



- Volatile anaesthetics are used in the induction and maintenance phases of anaesthesia during surgical procedures in both human and animal healthcare.
- The development of volatile anaesthetics and anaesthetic gases began in the 18th century. Today the practice has an excellent safety record thanks to modern medical specialisms and highly effective pharmaceuticals.
- In the UK, around 2.8 million procedures are performed using anaesthetics each year. Globally, there are approximately 230 million cases yearly.
- 85-90% of cases use volatile anaesthetics

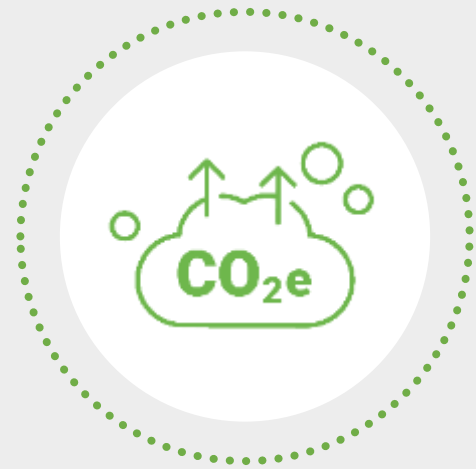
The Problem

Environmental damage of volatile anaesthetics



95%

Percentage of anaesthetic agents knowingly released to the atmosphere as waste



4,000,000

Tonnes of CO₂e (t/CO₂e) released per year from volatile anaesthetic agents globally (human and veterinary healthcare)



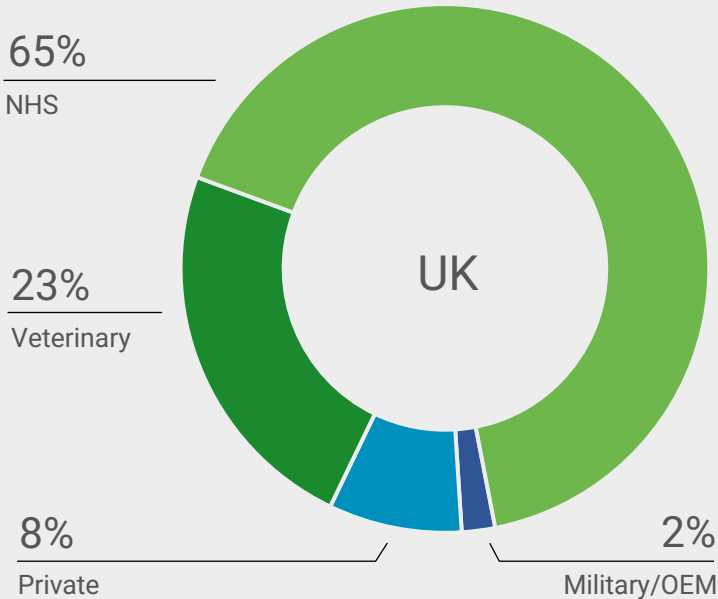
20%

Waste anaesthetic proportion of veterinary healthcare's carbon footprint

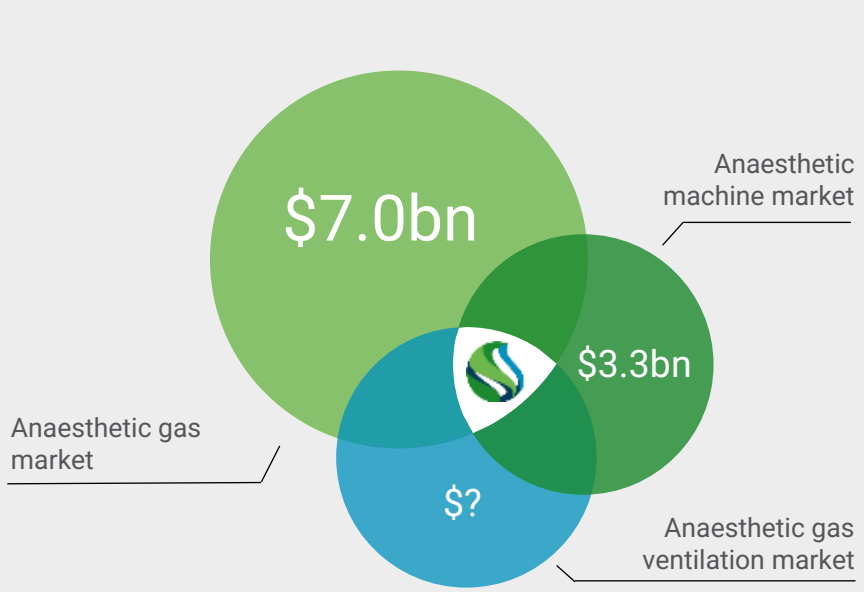
The Problem

Global anaesthetic market

UK Anaesthetic Agent Market



Global Anaesthesia Market



SageTech solution sits at the interface of significant global anaesthesia market

>\$10bn market is under threat if a sustainable solution is not found

Current anaesthetic agent growth 3.5% (CAGR)

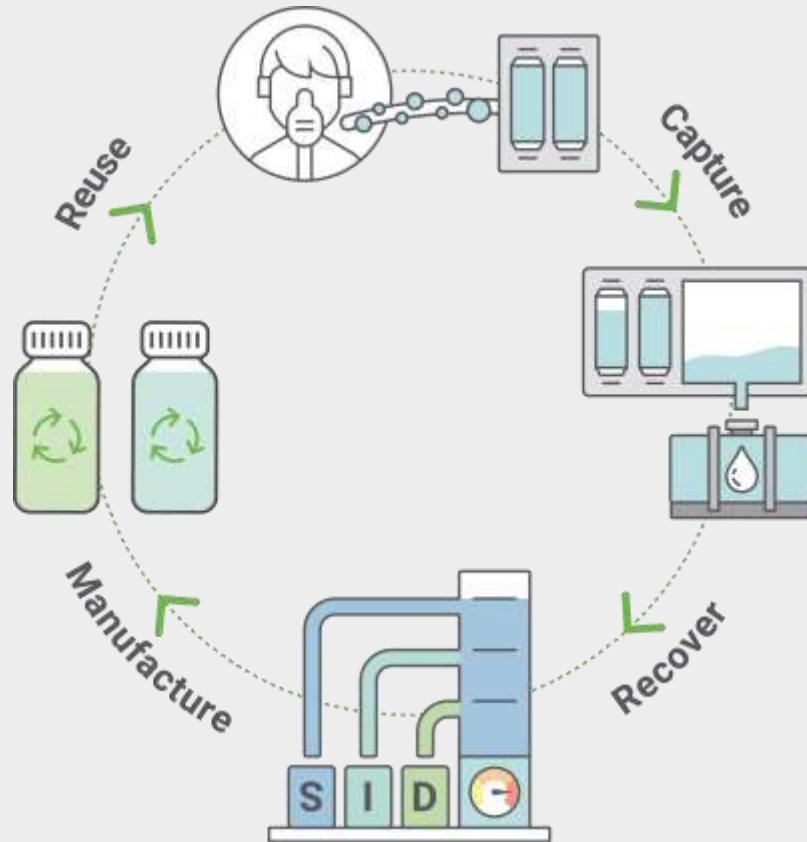
The Opportunity

- 95% wasted
- Minimally metabolised
- Stable molecules
- Environmental damage of emissions
- Impact of manufacture of virgin material

Excellent target for reuse



Circular economy solution



Capture

- Reusable capture canisters

Recover

- Local UK canister emptying

Manufacture

- Purify and recycle waste agent

Reuse

- Reduce raw materials and CO₂e

The Solution

VET Dock
VET Can



SID Dock
SID Can

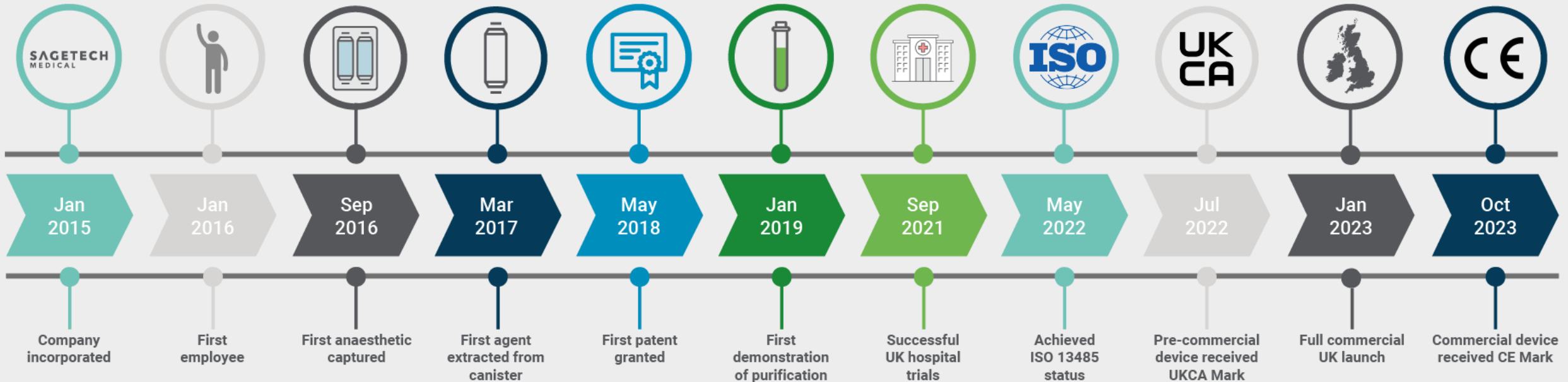


Human healthcare operating model



Our Journey

Sustainable Innovation By Design



Using GTINs for Traceability

Regulatory environment



EU medical device regulations

GTINs provide a global framework to identify, capture and share medical device product information. GTINs ensure SageTech is compliant with the EU MDR, enabling worldwide implementation for traceability across global supply chains.

Hazardous waste regulations

Hazardous Waste Regulations require full traceability and accountability from waste producer site through to waste processing facility. GTINs are an essential tool in securely meeting this requirement.

European F-gas regulations

New EU F-gas regulations control emissions from fluorinated greenhouse gas sources. Any organisation, must clearly manage and report on their F-gas releases. This will soon become mandatory legislation for hospitals.

NHS Net Zero strategy

The NHS Net Zero Plan define anaesthetic gas emissions as a scope one target. Tracking capture and usage will enable hospitals to report capture volumes as required by the plan.

MHRA/VMD

The waste that SageTech capture becomes raw material for new pharmaceuticals so full traceability of the origin of the captured material is necessary

Using GTINs for canister traceability



- The canisters use a GS1 GTIN as the unique device identifier.
- Each individual canister is then issued with a serial number to make it globally unique which is critical for traceability.
- The GTIN and the serial number together are captured in a 2D GS1 DataMatrix barcode enabling the canister to be scanned and identified across the supply chain.



Using GTINs for traceability in the waste pathway



The canisters pass through several hands on the logistics pathway

Waste carbon is bulked up at the in-country carbon exchange units

Bulk storage vessels are then transported to a regional waste processing facility

Regional waste processing facilities could be in-country or cross-border



Using GTINs for Traceability

Compliance



Life Cycle Maintenance

The SID-Dock has a serviceable life of 10 years. The SID-Cans are reusable for many years and are function checked on every cycle of reuse.

SageTech needs to be able to monitor service schedules for routine maintenance.

SageTech needs to keep up to date records of when each SID-Dock was purchased, by who, and when maintenance is due as part of the product lifecycle.



Reporting

Using the GTIN it is possible to track and trace each canister as to where it has been over a particular time period.

It is then possible to measure how much waste is captured at a canister level.

Hospitals can then be provided with a report on what volumes of waste anaesthetic have been captured which in turn allows an accurate estimate of the carbon saving to be made.

Implementation Challenges



Barcode Compliance

We worked with GS1 UK to ensure the device barcodes met requirements for regulatory compliance.

We worked through understanding the options for different barcode types, how the data captured would be structured, and how the human readable text would be displayed.

Using the verification service several editions of the physical barcode label were submitted for review. This enabled us to receive feedback on what changes and improvements were required so both GS1 standards and the highest ISO quality standards were met.

GS1 support



Supplier challenges

Chris Florey and his team provided invaluable assistance to our suppliers and distributors in ensuring GS1 GTINs are integrated and used as efficiently as possible within our supply chain.

International



The regulatory environment for the adoption of SageTech's volatile gas capture technology is currently more favourable in the EU. This is driving significant interest from across the continent with pilots planned, agreements signed or in progress in a number of territories:



SageTech's engagement with multi-nationals is also driving significant interest worldwide:



Having implemented GS1 GTINs across our products and processes gives SageTech the confidence that we can meet the regulatory challenges for identification and traceability as our technology is adopted around the world.