

Headspace Collection and Conditioning Device

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Problem to be Solved and Vision

- **Decentralized VOC analysis:** high-precision gas testing is currently trapped in expensive labs, making it inaccessible for immediate, on-site health monitoring.
- **Non-expert operation:** Existing headspace technology is too complex for general use, requiring specialized training and manual calibration to function.
- **Cost-effective sampling:** The high cost of current diagnostic equipment prevents widespread adoption in low-resource clinics and everyday settings.



Mechanical System - Challenges and Significant Changes

- Collection chamber design
- Critical tubing length and material
- Hardware integration constraints

