Biosecurity Solution with Fumigation Technology for European Defense

Summary

Profile type	Company's country	POD reference
Technology request	**Spain**	**TRES20250618012**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Commercial agreement with technical assistance** **Research and development cooperation agreement**	**• World**
Contact Person	**Term of validity**	**Last update**
Enrico FRANZIN	**20 Jun 2025** **20 Jun 2026**	**20 Jun 2025**

General Information

Short summary

A Spanish company has developed a dry fumigant disinfection technology for closed or semi-confined spaces in military and high-security environments. It eliminates viruses, bacteria, and fungi using autonomous or portable units. The company seeks European partners to adapt the system to defense regulations (e.g., NATO standards) and to collaborate on proposals for programs like the European Defence Fund (EDF).

Full description

This Spanish SME brings over 58 years of experience in developing advanced pest control and disinfection technologies, with a strong focus on dry fumigant microdispersion systems These systems are based on solid-phase biocidal formulations that are dispersed into the air in micronized particles, ensuring uniform coverage and high penetration capability in closed or semi-confined spaces. This proprietary technology is designed to eliminate biological agents—including viruses, bacteria, and fungi—quickly, safely, and with no residual contamination.

One of the core advantages of this technology is its autonomous dispersion capability, which does not require any external equipment, such as electrical systems, ventilation infrastructure, or human intervention. Units can be pre-programmed or manually activated, making them ideal for military deployments, field operations, and biosecurity interventions where operational simplicity, portability, and reliability are essential.

The company has extensive experience in the formulation of both synthetic biocidal agents and plant-based active substances, developed in compliance with the EU Biocidal Products Regulation (EU) No. 528/2012. This dual expertise allows the adaptation of the technology to mission-specific needs, whether for high-efficacy chemical applications or environmentally safer natural biocides in sensitive contexts.

Under the BAS4D framework, the SME aims to adapt this technology for dual-use scenarios, addressing needs in:

- CBRN defense
- Military command posts and transport units
- Emergency response shelters
- Critical infrastructure under biological threat
- The company is seeking European partners to:
- Adapt the system to NATO STANAG and other defense-related standards
- Integrate it with sensor networks for biological detection and environmental control
- Co-develop deployable biocontainment modules
- Conduct joint field validation in simulated or real operational scenarios
- Prepare joint submissions for funding programs such as the European Defence Fund (EDF) and Horizon Europe Cluster 3

The company's track record includes coordination of EU-funded initiatives like the LIFE NextFumigreen project, in which the company developed eco-compatible biocide dispersion systems. This experience supports its capacity for innovation, regulatory navigation, and technology transfer.

The project aims to deliver a rapid, autonomous, and field-validated biological decontamination solution that enhances European readiness and resilience in the face of biological threats, aligning with strategic defense and civil protection priorities.

Advantages and innovations

Technical specification or expertise sought

They are seeking partners with expertise in areas that can complement and enhance the development and adaptation of our autonomous dry fumigant microdispersion system for defense and dual-use applications. Specifically, they are looking for:

- Engineering and system integration capabilities for modular, portable biocontainment units compatible with NATO CBRN defense infrastructure.
- Design and development of smart control systems for autonomous activation, environmental monitoring, and remote operation (IoT/edge computing-based).
- Expertise in biological detection and sensor integration, including systems capable of identifying airborne pathogens or vector presence in real-time.
- Advanced formulation or encapsulation technologies for solid-phase biocidal products, both synthetic and plant-based, ensuring stability, safety, and efficacy.
- Regulatory support for dual-use technologies and biocidal products under EU Regulation No. 528/2012, and knowledge of defense certification processes (e.g., STANAG, ISO 22367, MIL-STD).
- Experience in field testing and operational validation of decontamination or disinfection systems under military or emergency response conditions.
- Project development experience in EU or national defense and security R&D programs (EDF, Horizon Europe Cluster 3, EDIDP, etc.).

Preferred partners include R&D institutions, SMEs, or technology integrators with capabilities in biosafety, biodefense, chemical engineering, or autonomous systems, and interest in jointly developing deployable disinfection solutions for high-security applications.

Stage of development

Sustainable Development goals

- **Goal 3: Good Health and Well-being**
- **Goal 17: Partnerships to achieve the Goal**
- **Goal 6: Clean Water and Sanitation**
- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

IPR Notes

IPR Notes

Partner Sought

Expected role of the partner

The partner is expected to contribute to the co-development, technical adaptation, and validation of an autonomous dry fumigant disinfection system targeted at dual-use and defense-related applications. The scope of collaboration includes:

- Automation engineering: Design and integration of an automated ignition and control system for the dry fumigation device, including programmable logic, safety features, and potential remote activation (IoT, sensor-based triggers).
- Technology integration: Mechanical and electronic adaptation of the system for use in military or mobile biocontainment environments, ensuring robustness, portability, and compliance with operational requirements.
- Sensor integration: Development or implementation of biosensors and environmental monitoring technologies to enable smart activation and performance validation.
- Regulatory compliance: Support in aligning the solution with NATO STANAGs, EU Biocidal Products Regulation (EU BPR No. 528/2012), and applicable dual-use export regulations.
- Field testing and validation: Participation in operational trials, including access to controlled environments (military, emergency response, public health) to assess efficacy and safety.
- Product customization: Contribution to the design of alternative variants, including natural active agents or chemical formulations adapted to different biosafety scenarios.
- R&D proposal development: Joint drafting of project proposals for European Defence Fund (EDF), Horizon Europe Cluster 3, or national programs related to security, CBRN resilience, or biosecurity.
- Technology diversification: Partners with complementary expertise in surface decontamination, aerosol disinfection, UV-C systems, or biological containment technologies are also encouraged to collaborate, with the goal of developing hybrid or modular biosafety platforms.
- Commercialization and outreach: Contribution to exploitation strategies, stakeholder engagement, and market access planning.

They welcome collaboration with automation specialists, CBRN engineers, and biosecurity technology developers who can extend the system’s capability and ensure compliance with international standards.

Type of partnership

Commercial agreement with technical assistance

Research and development cooperation agreement

Type and size of the partner

- **SME <=10**
- **University**
- **R&D Institution**
- **Big company**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **06005001 - Safety & systems**
- **06002001 - Biochemistry / Biophysics**
- **01003023 - Environmental and Biometrics Sensors, Actuators**
- **10002010 - Remote sensing technology**

Market keywords

- **08002002 - Industrial measurement and sensing equipment**
- **05004002 - Rescue and emergency equipment**
- **08002007 - Other industrial automation**
- **03008001 - Military electronics (excluding communications)**
- **09003001 - Engineering services**

Targeted countries

- **World**

Sector groups involved

- **Agri-Food**