# Spanish company seeks innovative dust agglomeration technology for emission-free industrial processes for underground mining applications (major Chilean client's project).

## Summary

| Profile type | Company's country | POD reference |
|---|---|---|
| **Technology request** | **Spain** | **TRES20250530007** |

| Profile status | Type of partnership | Targeted countries |
|---|---|---|
| **PUBLISHED** | **Commercial agreement with technical assistance** | **• World** |

| Contact Person | Term of validity | Last update |
|---|---|---|
| **Enrico FRANZIN** | **30 May 2025**<br>**30 May 2026** | **30 May 2025** |

## General Information

### Short summary

An industrial company seeks innovative technologies to agglomerate fine mineral dust (<75 µm) into stable pellets (>10mm) without water, adhesives, or thermal processes.
The solution must prevent emissions during transport, operate in confined spaces (less than 3m wide and 3m high), starting at 50 kg/h and scaling to 2t/h.
Partners with expertise in material science or industrial agglomeration processes are sought for R&D collaboration.

### Full description

A company in the mining sector requires a novel agglomeration method to transform fine dust particles (density: 2.68 t/m³) into durable pellets for safe transportation and reprocessing. Current water-based methods cause operational issues, while alternative approaches prove economically unviable.

KEY REQUIREMENTS:

Process constraints:
• Moisture content 7% in final pellets.

- Pellet diameter   10mm with UCS strength   100 Pa.
- Non-elastic behavior to prevent re-emission during handling.

Implementation needs:
- Compact system (max. 3m width/height) for underground installation.
- Prototype capacity: 50–100 kg/h, scalable to 2t/h.
- Compatibility with existing conveyor systems.

Target outcomes:
- Eliminate dust emissions during transport.
- Enable reintegration of mineral-rich dust into production.
- Reduce operational costs vs. traditional methods.

Technical challenges:
- Achieving cohesion in ultra-fine particles without binders.
- Ensuring mechanical stability under variable humidity/temperature.
- Minimizing energy consumption in confined environments.

Seeking:
- Technologies in mechanical compression, electrostatic bonding, or bio-based agglomeration.
- Partners for pilot testing (industrial site available).

Advantages and innovations

- Zero-emission process: Aligns with sustainability goals and circular economy principles.
- Resource recovery: Converts waste dust into reusable material, improving mineral yield.
- Cost efficiency: Reduces disposal expenses and potential revenue from recycled pellets.
- Regulatory compliance: Meets stringent environmental standards for mining operations.
- Modular design: Enables deployment in space-constrained underground facilities.

Technical specification or expertise sought

Proven experience in dust agglomeration or particle technology, abbility to scale lab-proven methods to industrial throughput, and knowledge of mineral dust properties (hygroscopicity, reactivity).

Stage of development

**Already on the market**

Sustainable Development goals

- **Goal 17: Partnerships to achieve the Goal**
- **Goal 8: Decent Work and Economic Growth**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 13: Climate Action**
- **Goal 12: Responsible Consumption and Production**

IPR Status

**Secret know-how**

IPR Notes

# Partner Sought

Expected role of the partner

Experts in non-thermal agglomeration or industrial mineral processing who can provide the desired technology.

Type of partnership

**Commercial agreement with technical assistance**

Type and size of the partner

• **R&D Institution**

• **SME 11-49**

• **Big company**

• **SME 50 - 249**

• **University**

• **SME <=10**

• **Other**

# Dissemination
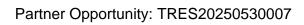
Technology keywords

• **02007020 - Biobased materials**

• **010002001 - Air Pollution/Treatment**

• **04002003 - Compression and liquefaction of gases**

• **03008 - Mining Technologies**

• **10001004 - Hazardous Materials**

Market keywords

• **09006 - Mining (non-energy related)**

• **06005001 - Coal mining**

• **08003003 - Mining machinery**

• **08004001 - Air filters and air purification and monitoring equipment**

| Targeted countries | Sector groups involved |
|---|---|
| • **World** | |