



IBE Projects GmbH

Circular Technologies for KMF / Mineral Wool Waste Recycling

Organisation: IBE Projects GmbH

Location: Vienna, Austria

Website: www.ibe.at

Focus area: Construction and Demolition Waste Circularity

Proposed RIVCircular topic: Topic 1 – Construction and Demolition Waste Circularity

1. Company profile

IBE Projects GmbH is a Vienna-based engineering and technology company specialising in advanced mineral processing, high-temperature treatment, mineral wool production technologies and circular solutions for mineral waste streams.

The company develops innovative technologies for the production of mineral wool, continuous basalt fibre and mineral-based construction products. A core technological competence of IBE is the use of electric induction melting and inline melt treatment for mineral raw materials and mineral waste streams.

IBE's technologies are aimed at improving resource efficiency, reducing waste disposal, lowering environmental impact and enabling the reuse of mineral residues as valuable secondary raw materials.

2. Technological background

IBE has developed and published several technologies related to mineral wool production, basalt melting, inline induction melting and recycling of mineral wool waste.

A key element of the IBE technology platform is the inline induction melting furnace, which allows controlled high-temperature treatment of mineral raw materials and fibrous or granular mineral waste. This technology can process mineral fractions with defined particle sizes and can be adapted to different material compositions.

IBE's approach enables the transformation of fibrous mineral waste into safe, inert and usable mineral products, including glassy granulate and crystalline cast materials. This creates the basis for converting problematic low-density mineral fibre waste into secondary raw materials for construction and industrial applications.

3. Problem addressed: KMF / AMF / mineral wool waste

Artificial mineral fibre waste, also known as KMF waste in German-speaking countries, represents a growing and difficult waste stream in Europe.

This waste is generated from:

- demolition and renovation of buildings;



- old insulation materials;
- mineral wool production residues;
- off-specification mineral wool products;
- cutting residues, fibre dust, shots and mixed mineral fractions.

KMF and mineral wool waste are problematic because they are bulky, difficult to compact, often contaminated, and in some cases may be classified as hazardous due to respirable fibre fractions. Traditional landfilling does not provide a circular solution and is becoming increasingly restricted and expensive across Europe.

Therefore, new technologies are needed to transform this waste into safe and useful secondary mineral materials.

4. IBE solution

IBE proposes a circular technology route for the thermal treatment, inertisation and recycling of artificial mineral fibre and mineral wool waste.

The process concept is based on the following principles:

- 1. Collection and preparation of KMF / mineral wool waste**
Waste streams are collected, sorted and prepared for controlled feeding into the treatment system.
- 2. High-temperature treatment / inertisation**
Fibrous mineral waste is processed in an electric high-temperature system based on IBE's inline induction melting know-how.
- 3. Transformation of fibres into inert mineral material**
The hazardous fibrous structure is destroyed through melting and mineral transformation. The result is a safe, non-fibrous secondary mineral material.
- 4. Production of secondary raw materials**
The treated material can be converted into glassy granulate, mineral castings, mineral feedstock or other construction-related products.
- 5. Circular integration into construction value chains**
The resulting material can potentially be used in construction products, mineral wool feedstock, fillers, aggregates or other mineral-based applications, depending on validation results.

5. Relevance for RIVCircular

IBE Projects GmbH is interested in building or joining a consortium under **RIVCircular Topic 1 – Construction and Demolition Waste Circularity**.

The proposed project direction is fully aligned with circular economy objectives:

- reduction of landfilling of construction and demolition waste;
- treatment of difficult and low-density mineral waste fractions;



- conversion of KMF / mineral wool waste into safe secondary mineral raw materials;
- demonstration of an industrially scalable recycling pathway;
- reduction of environmental and health risks associated with fibrous waste;
- support for regional circular construction value chains.

The project would focus on a demonstration-oriented approach at TRL 6–8, combining waste stream characterisation, pilot treatment, material validation, LCA, economic assessment and replication planning.

6. Proposed project concept

Working title

KMF-CIRCULAR: Demonstration of Closed-Loop Treatment of Artificial Mineral Fibre Waste from Construction and Demolition into Safe Secondary Mineral Raw Materials

Main objective

To demonstrate a circular treatment route for KMF / artificial mineral fibre and mineral wool waste, transforming problematic construction and demolition waste into safe, inert and reusable mineral materials.

Proposed activities

- mapping and characterisation of KMF / mineral wool waste streams;
- laboratory and pilot-scale treatment trials;
- high-temperature inertisation of fibrous waste;
- analysis of the treated material;
- confirmation of fibre destruction and safety improvement;
- assessment of potential applications for the secondary mineral material;
- environmental impact assessment and LCA;
- economic comparison with landfilling and conventional waste treatment;
- development of an industrial scale-up and replication plan.

7. Expected project results

The expected outcomes of the proposed project include:

- validated process route for KMF / mineral wool waste treatment;
- safe secondary mineral raw material produced from difficult CDW fractions;
- reduced landfill volume and landfill dependency;
- measurable reduction of hazardous fibrous characteristics;
- technical data for industrial scale-up;
- LCA and cost-benefit assessment;
- cooperation model between technology provider, waste operators, laboratories and regional circular economy partners.



8. Partners sought

IBE Projects GmbH is looking for partners from RIVCircular regions, including:

- waste management companies;
- demolition and construction waste operators;
- recycling companies;
- laboratories specialised in mineral materials and fibre analysis;
- LCA and environmental assessment experts;
- research organisations;
- regional innovation agencies;
- construction product manufacturers;
- public or private stakeholders interested in circular construction materials.

We are particularly interested in partners who can contribute:

- real KMF / mineral wool waste streams;
- waste logistics and operational experience;
- analytical testing and certification;
- LCA and environmental impact assessment;
- market validation and replication opportunities;
- regional demonstration sites.

9. Why IBE Projects GmbH

IBE Projects GmbH combines engineering, mineral processing know-how and industrial technology development.

Key strengths include:

- experience in mineral wool production technologies;
- expertise in basalt and mineral raw material processing;
- know-how in electric induction melting and inline melt treatment;
- technology for processing mineral wool waste and fibrous mineral residues;
- patented concepts for waste-free mineral wool production;
- ability to design pilot and industrial process concepts;
- strong focus on circular economy, waste reduction and secondary raw materials.

IBE's technology platform is particularly relevant for difficult mineral waste streams that cannot be efficiently recycled by conventional mechanical treatment alone.

10. Contact

Dr. Victor Bartashov

Managing Director / Technology Owner

Website: www.ibe.at

Email: info@ibe.at