F2M2C

Utilizzo di fanghi di segagione per preparazione di malta bicomponente

The exploitation of ornamental stones for the production of slabs and building items is widespread in Italy and in the Piedmont region. It represents an important national industrial sector not only for new constructions but also for the maintenance of the artistic heritage.
To obtain commercial products, such as blocks and slabs suitable for shifting and transport, cutting operations are needed.
The exploitation of blocks is performed by using chainsaw cutting machine, alone or in cooperation with the diamond wire saw. Performing the extraction phase, very thin debris is produced, mixed with water. This sludge is called in jargon “marmettola”.This material is not easy to be managed and often is disposed of as waste, not so much for its chemical composition but mainly for its high fineness level and consequently, its ease to enter solution. The idea is to use the stone sludge as a raw ingredient for made up the two-component grout (2CG), a backfilling technology used in mechanised tunnelling excavated with shielded machine (TBM).
The key factor of the industrial idea is that in the next years, for the realization of infrastructure projects according to the PNRR, a high number of tunnelling will be excavated with shielded machines, consequently a very big amount of two-component grout will be required.
The development of the idea makes it possible **to improve the quality of the "tunnel product" on the one hand** (also by improving its durability and hydraulic sealing capacity, therefore reducing long-term maintenance) and on the other **to facilitate the disposal of industrial waste extraction** in a virtuous process of the circular economy.
The objective of the PoC is to rise the technology to an industrial demonstration level, by testing in construction site the preparation of backfilling mortar by using turbomixers commonly used in the batching plant of construction sites.

PROJECT DURATION
20 months
From 11/12/2023 to 31/07/2025

FUNDING INSTRUMENT
The NODES Academic PoC Call intends to finance innovative projects developed by university research groups which have as their object solutions/technologies consistent with the NODES themes, and in particular with the Spoke Themes, which guarantee a socio-economic impact on the territory of the ecosystem.

BUDGET
F2M2C is 100% financed by NODES, a project financed by the MUR as part of the PNRR - Mission 4.

The total budget of the project amounts to **93.988 €**

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