

Calidena Process in the Project "Quality Standards for Increased Trade in the Eastern Partnership Countries"

Value Chain: Clay Roofing and Flooring Tiles (Azerbaijan)



Demonstration of the accuracy of fit of roof tiles in a construction material testing laboratory in Azerbaijan. Photo: Ulrich Harmes-Liedtke

Context and rationale for the selection of the value chain in Azerbaijan

The clay roofing and floor tiles, a type of construction material, was selected as the value chain for the Calidena process in Azerbaijan. The country has a long tradition of using clay in construction, having abundance of this raw material. Still, a large proportion of the clay roof and flooring tiles used in Azerbaijan are imported. The domestically produced tiles are mainly sold on the Azerbaijani market or exported to neighbouring countries.

The project partner, State Service for Antimonopoly and Consumer Market Control, in consultation with the Ministry of Economy, prioritised construction products, especially as the construction industry now has to align itself with the requirements of the EU Construction Materials Directive. In the dynamic construction sector, the state agency sees a particular need for regulation and use of quality infrastructure services in order to improve the safety and quality of the clay tiles and create better conditions for their export.

Identified gaps

A feasibility study, conducted as part of the project at the beginning of the Calidena process, identified several gaps in the value chain, including deficiency in national standards for clay tiles as products and their associated testing methods, non-recognition of conformity assessment certificates, limited awareness and implementation of ISO 17065. Notably, the clay tiles are tested according to the GOST standard, which does not address all EU requirements. Testing laboratories exhibit limited awareness of EU requirements, focusing primarily on geometric checks and lacking comprehensive testing practices, while accreditation for ISO 17025 faces international recognition challenges. In addition, the





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metrology sector grapples with a lack of calibrated equipment among producers and insufficient calibration ranges. These identified gaps underline the pressing need for systematic improvements and regulatory measures to strengthen the Quality Infrastructure supporting the clay tile industry in Azerbaijan.

Calidena activities

A kick-off workshop was organised in Baku on 17-19 July 2023 and attended by stakeholders in the clay roof and flooring tiles value chain (manufacturers, distributors, input suppliers) as well as representatives from the National Standard Body (AZSTAND), the National Accreditation Body (AZAK), the State Service for Antimonopoly and Consumer Market Inspection and conformity assessment bodies. A draft action plan was developed as a result of the workshop.



Participants at the kick-off workshop in Baku, Azerbaijan

Activities, foreseen in the action plan to address some of the identified gaps, include:

- Standardization: Acquisition and translation of EN 1304:2005, EN 538:1994, EN 539-1:2005, and EN 1024:2017 standards; organisation of discussion on the standards, including with producers; Technical Committee 10 to consider and potentially adopt the translated standards;
- Testing: Conduct of a comparative study of test method standards, collaboration with a German laboratory, including online training on testing methods for proficiency testing; establishment of contact with the German Regulator for Construction Technique (Deutsches Institut für Bautechnik, DIBT)
- Metrology and calibration: Verification of metrological traceability for all measurements required in EN 1304 and gap identification; verification of equipment calibration; organisation of a calibration workshop at a factory attended by representatives from private calibration labs and manufacturers
- Accreditation: Training on ISO 17025 for testing and calibration labs active in the clay tile sector
- Factory control system (FCS): Information seminar for manufacterers and market surveillance bodies on factory control systems (FCS) based on EN 1090-1 related to EN 1304, including CE marking; pilot implementation in a factory and documentation; factory study visit for other producers;
- Reuse and recycling: information seminar on recycling of construction material and demolition waste, including references to standards and conformity assessment and promotion of terms of product use by consumers;
- Crosscutting activities: Awareness raising of the private sector about Quality Infrastructure and services offered by QI institutions for value chain; Providing networking opportunities for producers with Azerbaijani QI institutions and assosiations as well as internationally with relevant European associations.

Expected outcomes

The outcomes expected from the Calidena process on the clay tiles value chain in Azerbaijan include:

- Progress toward development and adoption of relevant technical standards
- Improvement of testing capabilities
- Improvement and awareness raising of calibration services with the private sector
- Capacity building in accrediation on ISO 17025 and factory control systems
- Greater awareness of reuse and recycling of construction materials contributing to improving the sustainability of the construction sector
- Advances in QI services offered for the value chain
- Improved understanding of QI in the private sector and growing demand for QI services



Leading Organisations

Host: <u>State Service for Antimonopoly and Consumer Market Control</u> and <u>AZSTAND</u> Co-host: <u>Azerbaijan Construction Manufacturers Association (ATIA)</u>

Links to Green Transformation

Clay roof and floor tiles are common and widely used construction materials. The construction sector can have significant environmental impacts ranging from resource depletion to waste generation, depending on the materials used and the manufacturing processes applied. As a result, life cycle assessment (LCA) and lifecycle costing are playing an increasingly important role in the sustainability assessment of buildings. In that respect, clay roof and floor tiles can be considered sustainable and environmentally friendly due to the abundance of the raw material used in their manufacturing, energy-efficient production, natural insultation properties, longevity and recyclability. Clay is abundant and widely available in nature and its extraction is generally less environmentally damaging. The manufacturing process for clay tiles tends to be energy-efficient. Firing clay at high temperatures is the primary energy-intensive step, but improvements in technology and kiln design have made this process more energy-efficient. A further advantage of clay tiles is their natural insulation properties, which can contribute to energy efficiency in buildings. Clay tiles are known for their durability and longevity, reducing the need for frequent replacements and minimizing the environmental impact associated with manufacturing and disposal. Finally, when they reach the end of their life cycle, clay tiles can be recycled into new ones or used as aggregate in other construction materials. In the framework of the Calidena process in Azerbaijan, activities related to reuse and recycling are incorporated in the action plan, including information seminar on recycling of construction material and demolition waste and awareness raising and promotion activities about the terms of use by consumers.

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What is Calidena?

Calidena is a participatory approach developed and applied by the Physikalisch-Technische Bundesanstalt (PTB) to stimulate quality in value chains. Its toolset can be used in cooperation projects that aim to strengthen the user orientation of the Quality Infrastructure (QI) of partner countries and in value chain initiatives that aim at closing quality-related gaps. For more information on the Calidena process, visit the <u>Calidena website</u>.

Calidena in the Eastern Partnership (EaP) countries

In 2022, a Calidena process was launched in each of the five partner counties participating in the PTB project "Quality Standards for Increased Trade in the Eastern Partnership Countries." A different value chain was selected for each EaP country depending on local circumstances and needs to be identified based on a "QI market potential rapid assessment" study conducted in the framework of the EaP project.