



Elika Industrial Mining Company

The only producer of industrial pumice based on stone in Iran



Elika Industrial Lightweight Aggregate Mining and Production Company
The sole producer of stone-based lightweight aggregate in Iran
Chekad Kansar Kavan Elika Company was founded in 2016 by a team of university professors and industry experts specializing in mining, geology, and construction. The company was established to produce innovative, lightweight construction materials based on natural stone.

Leveraging their scientific expertise and extensive research, the team pioneered the development and production of stone-based lightweight aggregate in Iran—a first in the country's construction materials sector. Unlike conventional clay-based aggregates, which require additives such as heavy fuel oil (mazut) and pre-pelletizing before kiln firing, this novel process involves natural stone mixed with a precise amount of organic material, without any chemical additives. The mixture is granulated and directly introduced into the kiln. Once the material reaches its firing temperature, it expands to three to four times its original volume before being discharged from the kiln.

Pilot production using this proprietary method began in 2017 at the Kavian Industrial Zone, located on the Mashhad-Fariman road. The production process was officially registered in 2018. In 2021, the product received technical certification from the Road, Housing, and Urban Development Research Center of Iran.

To expand its production capacity and meet growing demand, a new manufacturing facility was launched in 2022 in the Tangal-Shur region.

About us





Elika lightweight aggregate serves as an ideal alternative to natural pumice.

During the mining of natural pumice, layers with high clay content or impurities, including lime and gypsum, are often encountered, which can significantly reduce the overall quality of the material. Moreover, the natural variability in the physical and chemical composition of pumice results in unpredictable and inconsistent performance across different batches.

These factors, combined with the fact that pumice deposits are geographically limited, make access difficult and transportation costs economically unjustifiable. Furthermore, the extraction and processing of natural pumice cannot be fully controlled, which adds to the variability and limits its reliability in construction applications.

In contrast, the production of Elika lightweight aggregate involves no chemical additives or hydrocarbons. Aside from emissions generated by fuel combustion in the kiln, no harmful substances are released into the environment. This makes Elika's production process environmentally sustainable. In clay-based lightweight aggregates, unburned mazut often remains trapped in the product, gradually released into indoor environments. Elika's stone-based aggregate is completely free from such issues.

The honeycomb-like internal structure of Elika aggregate, along with its closed and non-interconnected pores, ensures not only reduced weight but also superior thermal and acoustic insulation. As such, it is highly suitable for high-rise buildings where weight reduction and seismic performance are critical, as well as for insulation in hot and arid climates. Also, stone-based aggregates exhibit lower water absorption and greater strength and durability compared to clay-based varieties.

Elika lightweight aggregate is manufactured in a wide range of particle sizes, from 1 mm up to over 100 mm, tailored to meet customer specifications.

The outer surface of each particle is rough and irregular, featuring numerous fine pores, while the interior exhibits a black, cellular structure. The high porosity, combined with the ceramic characteristics developed during kiln firing, imparts remarkable properties to these aggregates, including low density, low thermal conductivity, effective sound insulation, fire resistance, and excellent chemical durability.

Elika Lightweight Aggregate Properties Table

Coarse Aggregate	Fine Aggregate	Particle Size/Property
3–7%	5–12%	Water Absorption (%)
350	450	Bulk Density (kg/m ³)
34–40	32–35	Internal Friction Angle (°)
17		Los Angeles Abrasion (%)
0.1 >		Magnesium Sulfate Boundness
0.3 >		Sodium Sulfate Soundness
7.9		pH
63.1–65.2		Cation Exchange Capacity
No organic		Organic Impurities
Zero		Weight Loss on Ignition
Zero		Clay Lumps & Soft Particles
Weight loss 0.75% by 20th cycle		Freeze-Thaw Resistance

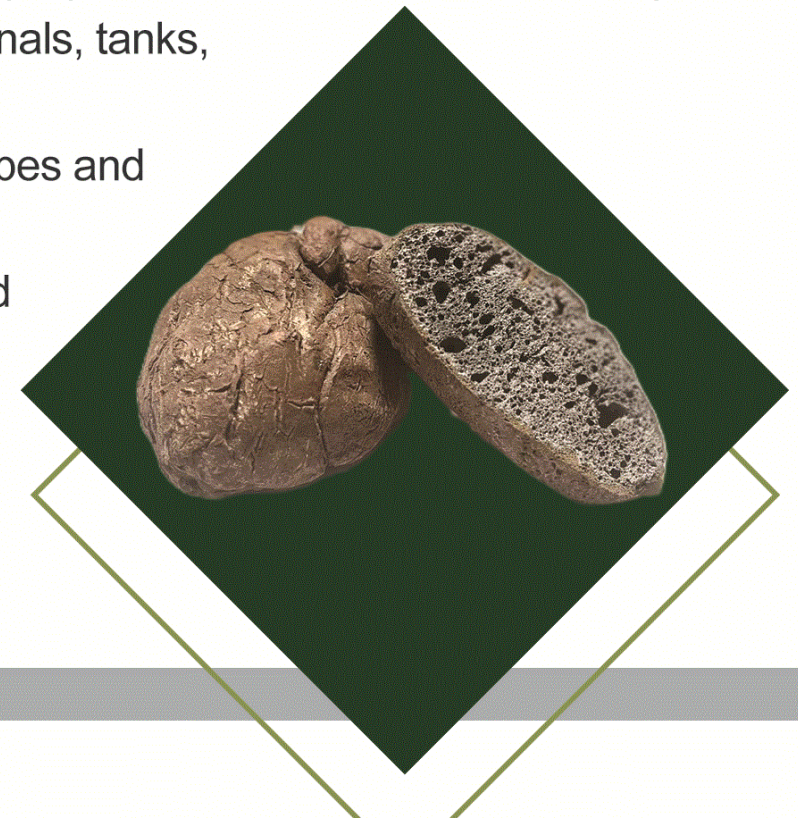


Applications of Erika Lightweight Aggregate

- A combination of rounded and crushed Erika aggregates is used in the production of both load-bearing and non-load-bearing lightweight concrete components for buildings and infrastructure projects.
- Thanks to their high internal friction angle, low weight, adequate compressive strength, and excellent drainage capacity, crushed and rounded aggregates are ideal for backfilling around structures and retaining walls.
- They are also used to improve the structure of heavy and clay soils by reducing density and increasing water retention capacity.
- Because of their buoyancy and long-term durability in water, aggregates with impermeable coatings are applied as a surface layer to reduce evaporation in pools, canals, tanks, reservoirs, and dams.
- They can also be used as protective bedding for underground pipes and tunnels.

Additionally, Erika aggregates are effective in absorbing oil-based pollutants from water surfaces.

Currently, Erika lightweight aggregate is available in various packaging formats for construction applications and can be custom-ordered in different volumes according to customer requirements.



Advantages of Erika Blocks

- Certified by the Road, Housing, and Urban Development Research Center
- ISO 9001 certified
- Exceptional compressive strength
- Excellent thermal and acoustic insulation
- Environmentally friendly production process
- Strong adhesion to cement mortar
- Easy to cut and chase for electrical and plumbing installations
- Very low water absorption
- Minimal linear shrinkage
- Quick and efficient installation
- Significantly reduced finishing costs
- Minimal material waste during construction
- Substantial reduction in building dead load, enhancing seismic performance



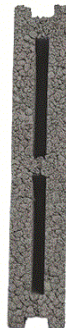
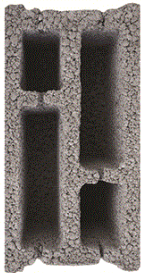
Technical specifications of the Elika block

Value for All Block Types	Technical Specification	No.
1,353–1,373	Density (kg/m ³)	1
35–45	Compressive Strength (kg/cm ²)	2
155–171	Water Absorption (kg/m ³)	3
0.36–0.40	Thermal Resistance (m ² ·K/W)	4
44–50	Sound Attenuation (dB)	5
0.063	Linear Shrinkage (%)	6

Elika blocks are manufactured using only three components: Elika stone-based lightweight aggregate, cement, and water, without the use of any chemical additives. As a result, the blocks combine low weight and high structural strength with superior thermal and acoustic insulation.

They can be produced in a variety of shapes and sizes, both solid and hollow, depending on customer requirements.

List of Elika Production Blocks

			Double Wall Blocks
Double-wall, 15cm width	Double-wall, 10cm width	Double-wall, 7cm width	Type
20x40x15cm	20x40x10cm	20x40x7cm	Size
7–7.5kg	5.5–6kg	4.5–5kg	Weight
			Triple Wall Blocks
Triple-wall, 20cm width	Triple-wall, 15cm width	Triple-wall, 10cm width	Type
20x40x20cm	20x40x15cm	20x40x10cm	Size
10–10.5kg	8–8.5kg	7–7.5kg	Weight



● Direct installation of shelves and cabinets on blocks

● Direct application of plaster and tile on blocks

● Easy cutting and grooving

Usable with screws and
plugs

Excellent mortar adhesion

Excellent adhesion to
cement mortar



Quality Control (QC)

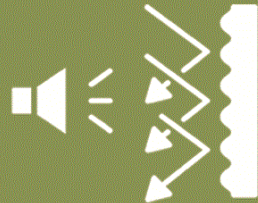
At Elika, quality control is performed in compliance with the Iranian National Standard No. ۷۷۸۲, National Building Regulations, and ACI and ASTM standards.

The quality assurance process includes:

- Inspecting and verifying the quality of raw materials
- Testing and certifying the final product
- Calibrating laboratory instruments and production equipment
- Performing routine in-house testing by Elika's technical team
- Conducting sample tests at accredited laboratories and analyzing the results
- Gathering and evaluating continuous customer feedback to drive quality improvements



Thermal
insulation
(0.36–0.4 m²·K/W)



Sound
insulation
(44 – 50dB)

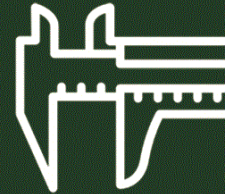


Lightweight

Fire resistance



Dimensional
tolerances
±4 mm



High compressive
strength
(35 – 45MPa)



Elika Industrial Lightweight Aggregate Manufacturing Company, leveraging in-house R&D, reverse engineering, and technology transfer, has successfully developed stone-based lightweight aggregate and associated lightweight concrete products. The company's growth and innovation journey can be summarized as follows:

Phase 1: Initial Research and Feasibility Studies (1994–2014)

Initiation of research on lightweight construction materials by Dr. Naser Hafezi-Moghaddas in 1994.

Launch of detailed scientific studies in 2014 by a team of university experts, aimed at identifying optimal raw material sources for extraction.

Phase 2: Technology Development and Patents (2016–2020)

In 2016, the company achieved a technological breakthrough by developing a kiln-firing process to produce lightweight aggregates from shale.

That same year, it obtained its first exploration license and designed an optimized rotary kiln system.

In 2017, Elika commenced pilot-scale industrial production under an official operating permit.

In 2019, the company registered and began operations at its second mine.

The same year, Elika improved product quality, secured technical certificates, obtained the Iranian National Standard Mark, and launched collaborations with the Road, Housing, and Urban Development Research Center.

In 2019, Elika patented its industrial pumice production process, officially approved by the Iranian Concrete Research Center.

In 2020, Elika was granted a second patent for its stone-based lightweight aggregate production method.

Reduced Weight and Energy Consumption

The lower density of Elika stone-based blocks, compared to cement and LECA alternatives, leads to lighter structural loads. This contributes to reduced construction and transportation costs and also enhances energy efficiency within the building.

Cost Efficiency and Lower Final Price

By utilizing domestic raw materials and low-cost fuels during production, Elika blocks offer a significantly lower cost compared to imported blocks and even LECA (which are highly dependent on clay and fuel prices). Also, localized production reduces transportation costs important economic advantage.

Environmental Compatibility and Green Construction

Elika blocks are clay-free, non-polluting, recyclable, and categorized as a green material. This aligns with the Sustainable Development Goals and helps reduce the environmental footprint of construction activities.

Versatility in Sizes and Applications

Elika blocks are available in a wide range of dimensions and forms, tailored to market demand. They are suitable for various construction, infrastructure, and even agricultural applications.

Elika's stone-based lightweight blocks outperform LECA, AAC, and cement blocks in terms of quality, durability, insulation properties, weight, cost-efficiency, and environmental compatibility. As a result, they represent an ideal choice for replacing these traditional products in the domestic market.

Phase 3: Mass Production and Infrastructure Expansion (2019–Present)

Since 2019, the company has operated its pilot mass-production plant in Kaveyan Industrial Zone (Fariman), consistently scaling up output.

In 2021, Elika inaugurated its main production facility on Tangalshour Road, initiating large-scale production of pumice and lightweight blocks.

At the end of 2020, the company obtained a full industrial operation license for both lightweight aggregates and lightweight concrete products.

Phase 4: Organizational Development and New Company Formation (2020)

In 2020, Elika registered a new legal entity, Elika Industrial Lightweight Aggregate Manufacturing Company, founded by the board members of Chakad Kansar Kavan Elika.

The same year, the new company secured its industrial establishment permit.

This timeline reflects Elika's commitment to innovation, progressing from fundamental research to full-scale industrial production and brand development in the Iranian construction materials market. Today, Elika is recognized as one of the country's pioneers in the production of stone-based lightweight aggregates and concrete blocks, backed by advanced technology and a specialized team.

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آدرس و تماس



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فرهاد، فرهاد ۲۵، پلاک ۴۶



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ارتباط با ما



www.elikagroup.com



info@elikagroup.ir



[elikagroup](https://www.instagram.com/elikagroup)



اسکن QR





Industrial lightweight aggregate mining and productive company of **Elika**



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