



GEOPOLYMER BRICKS

From Mine Tailings

NEW GENERATION FACING BRICKS

Our startup produces
bricks using industrial
waste materials and by-
products



IMPACT STARTUP VISA PROGRAM

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Problem:

Traditional bricks need to be fired at 1000-1300 degrees C, emitting 1 M tons of CO2 each year in Canada



Solution: GeoBricks!

Suitable for indoor and outdoor

PadraBrick has pioneered energy efficient clay bricks.

The technology of producing **geopolymer bricks** with **aluminosilicate wastes** will make durable products with a compressive strength of at least **30 MPa**, depending on the materials used, the curing method, and the proper kiln temperature.

TECHNOLOGY DESCRIPTION

- Raw materials

A) Kaolinite

Chemical Composition

| C | SiO ₂ | Al ₂ O ₃ | Fe ₂ O ₃ | CaO | MgO | Na ₂ O | TiO ₂ | K ₂ O | LOI |
|---|------------------|--------------------------------|--------------------------------|------|------|-------------------|------------------|------------------|-----|
| % | 62.7 | 28.9 | 0.12 | 0.84 | 0.13 | 0.18 | 1.15 | 0.06 | 5.7 |

Si:Al=1.8-2 Kaolin%=5.7:14=40-41% weight

B) Alkaline based reagents+Aluminosilicate waste materials

C) Shale

Chemical Composition

| C | SiO ₂ | Al ₂ O ₃ | Fe ₂ O ₃ | CaO | MgO | Na ₂ O | K ₂ O | LOI |
|---|------------------|--------------------------------|--------------------------------|------|------|-------------------|------------------|------|
| % | 40.8 | 22.6 | 19.25 | 1.43 | 0.46 | 0.69 | 0.96 | 9.43 |

Mixing

- Based on the mixed design, raw materials will be **weighted accordingly**
- The materials will be **put into the crusher accordingly**
- **Alkaline solution provides a reaction medium** and assures the mixing and handling of the mixture



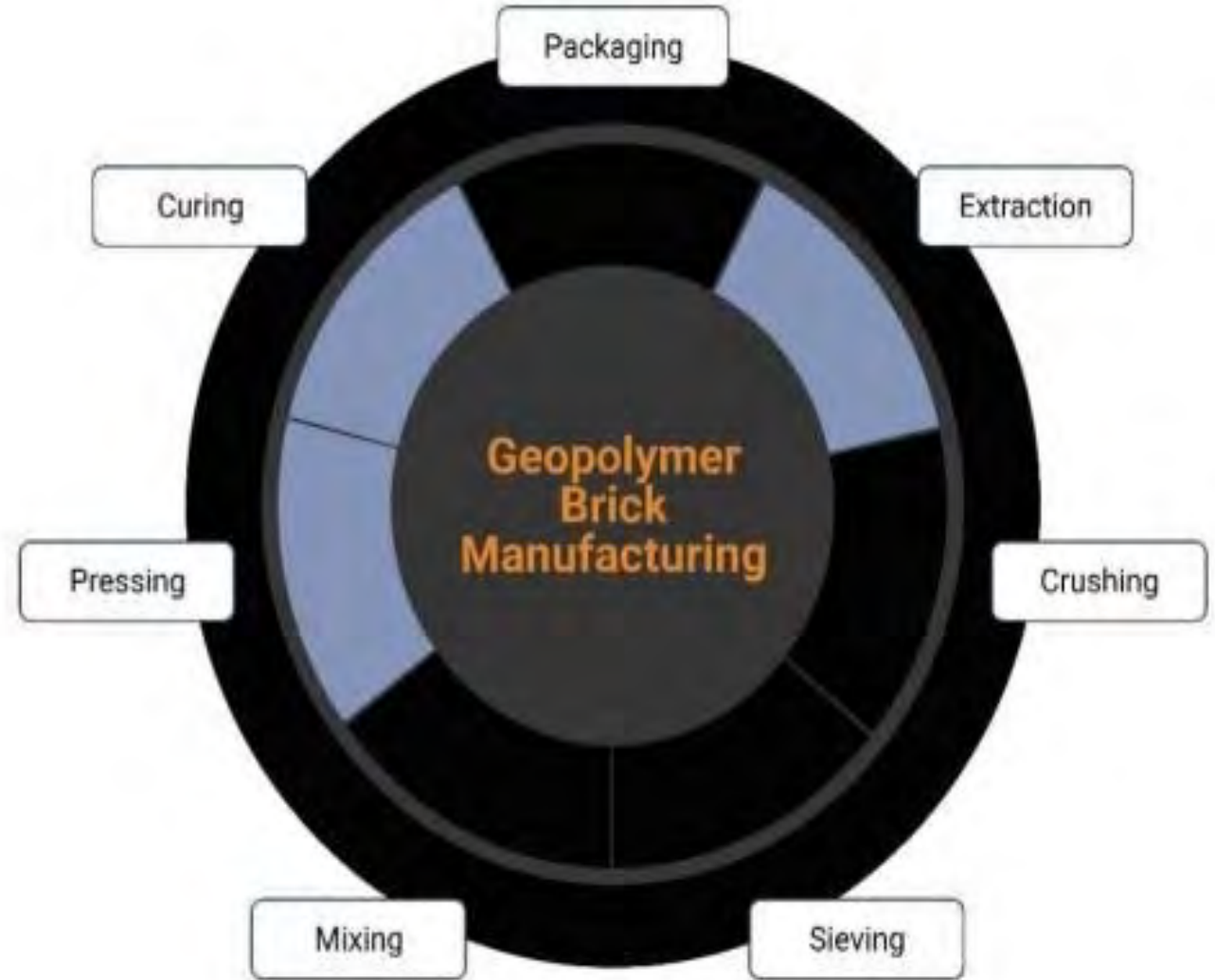
Pressing

- Our bricks can be manufactured in **different sizes from 3 to 6 cm (1" to 2") thick**
- They are made with the **dry pressing method** with hydraulic press machines (**300 tons**)
- With 2 Press Machines (300 Ton, 7200 PCS/8hrs) we make **5,000,000 bricks/year**

MANUFACTURING PROCESS

Manufacturing process has **six general phases**:

1. Mining and storing raw materials (Extraction)
2. Preparing raw materials (Crushing, Sieving, Mixing)
3. Forming bricks (Pressing)
4. Drying
5. Firing and Cooling (Curing)
6. Packaging and storing finished products



Note: In the highlighted blue areas (Extraction, Pressing, and Curing), our work differs from that of ordinary clay brick production.



The Curing Process

To cure our bricks, we use shuttle kilns. The **drying and heating process takes about 8 hours**. We heat up to **800 degrees Celsius**. **We heat bricks to color them.**

COMPETITIVE ADVANTAGE

- PadraBrick uses **energy-efficient** formulas that do not require high temperatures to make very strong bricks, while **ordinary bricks require 1000-1300 degrees C** for at least 12 hours
- As a result of our novel formula, the temperature for manufacturing the bricks decreases, resulting in **less consumption of fossil fuels**, also **less pollution**
- The **use of industrial wastes and by-products** reduces natural resource use, saves energy, and **preserves the environment**
- The **price** of our product is **lower** than the price of competitors in the market(Every brick costs us **35 cents**, and we sell it for **60 cents**.)



Coal company Teck fined \$60M for contaminating rivers in southeastern B.C.

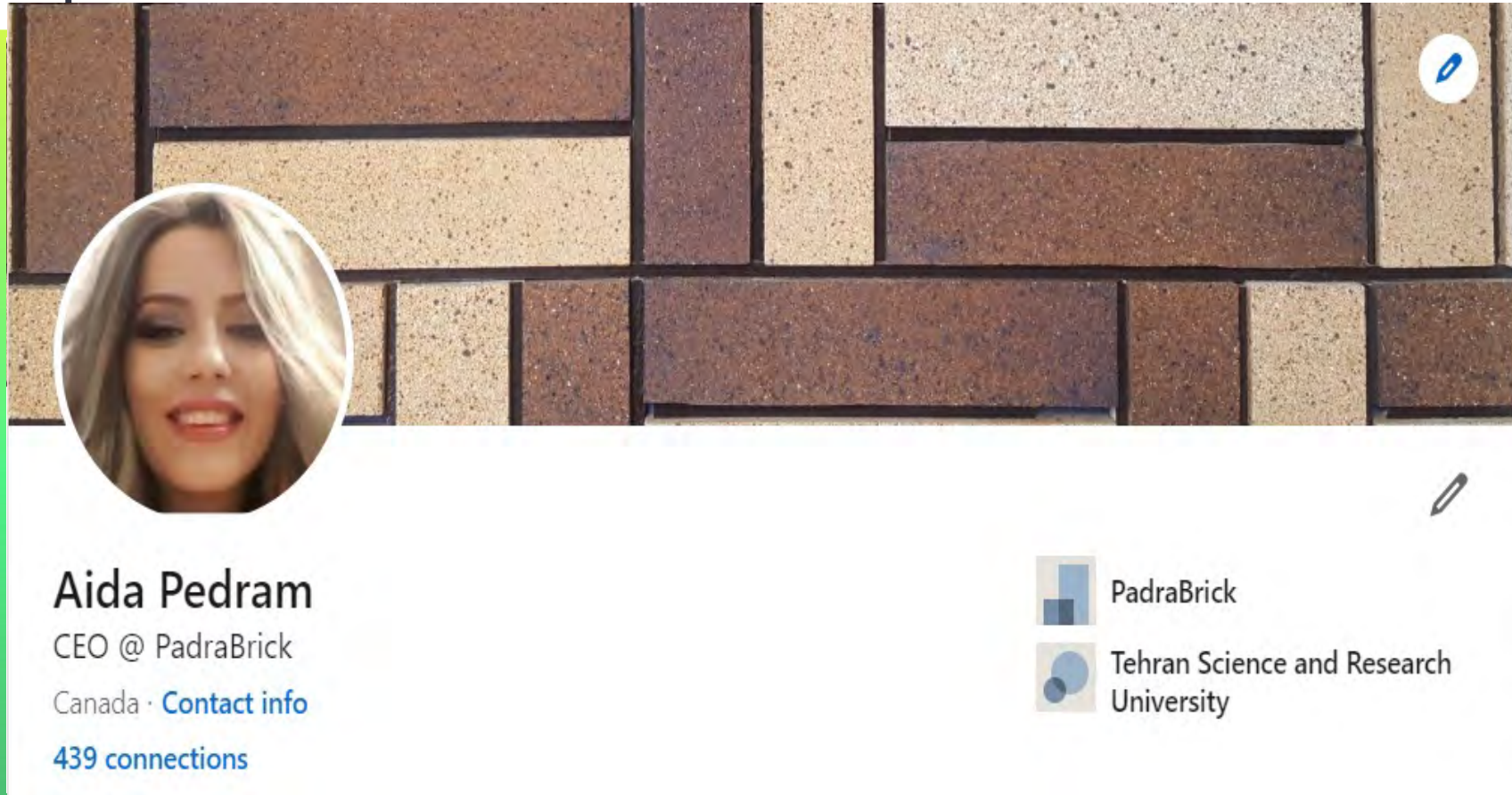


Face Bricks by PadraBrick



Contact me via:

LinkedIn



A screenshot of a LinkedIn profile for Aida Pedram. The profile picture shows a woman with blonde hair. The background of the profile is a brick wall. The text on the profile includes: "Aida Pedram", "CEO @ PadraBrick", "Canada · [Contact info](#)", and "439 connections". On the right side, there are two organization logos: "PadraBrick" and "Tehran Science and Research University".

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THANK YOU!