



# Suravajin Aghigh Mining & Industrial Company

and its products at a glance



# About Us

*Suravajin Aghigh Mining and Industrial Co.*

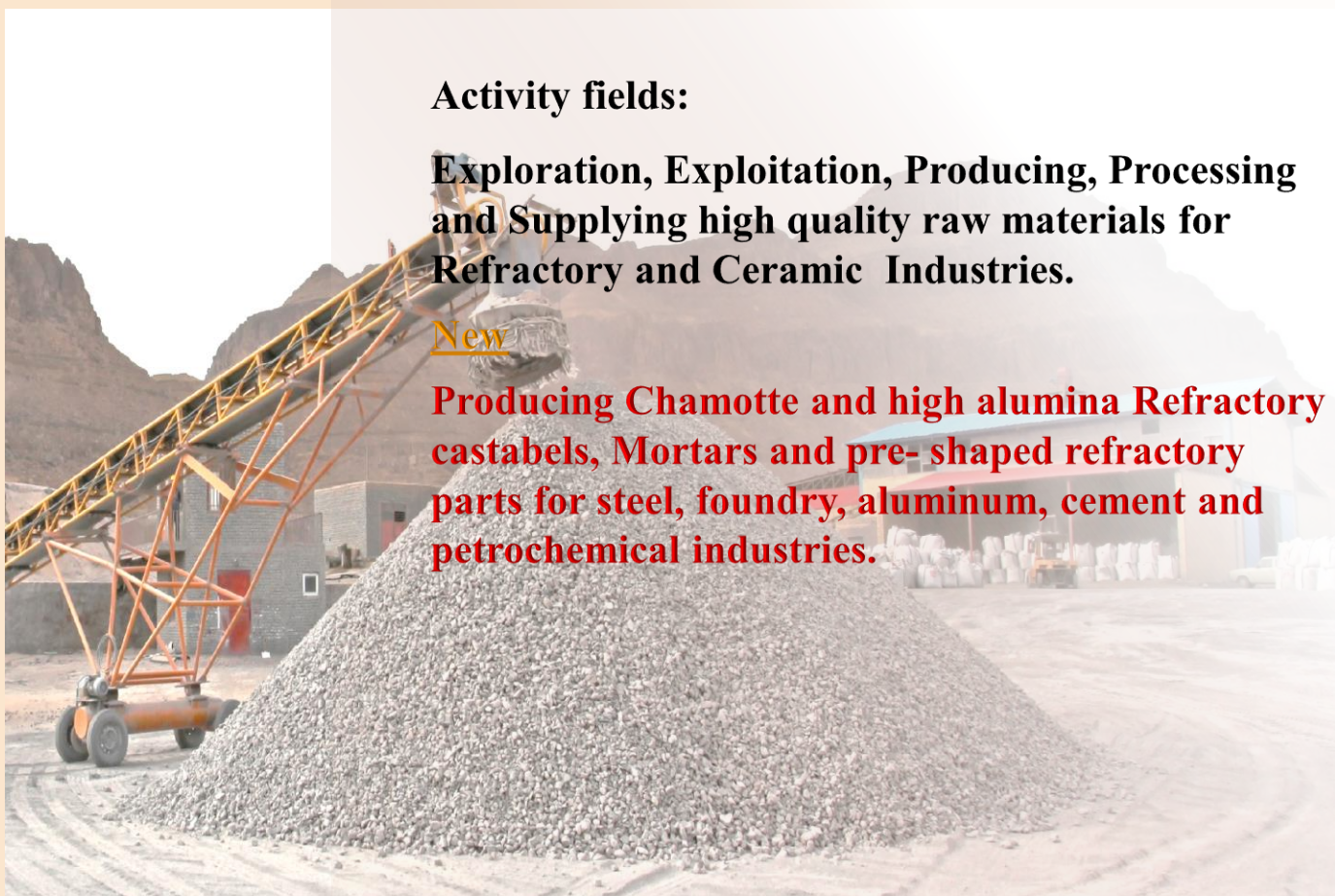
**Established date: 2003**

## **Activity fields:**

**Exploration, Exploitation, Producing, Processing and Supplying high quality raw materials for Refractory and Ceramic Industries.**

New

**Producing Chamotte and high alumina Refractory castables, Mortars and pre-shaped refractory parts for steel, foundry, aluminum, cement and petrochemical industries.**





Suravajin Aghigh  
Mining & industrial CO  
شرکت معدنی و صنعتی سوراوجین عقیق

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# Refractory Castables



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### Fire clay and High Alumina Refractory Castables

Product	Chemical Composition (%)				Main Raw Material Basis	Max Service Temperature (°C)	Water required (%)	Grain Size (mm)	Bulk Density (gr/cm <sup>3</sup> ) 110 °C	C.C.S (Kg/cm <sup>2</sup> )	
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO						110 °C	-
SURA CAST 45	40 - 45	33 - 38	5 - 7	8 - 10	Fire clay	1250	12 - 14	0 - 5	2.1 - 2.25	300 - 500	200 - 400 (1200 °C)
SURA CAST 45-LI	44 - 48	35 - 39	2 - 3	7 - 9	Fire clay	1300	10 - 12	0 - 5	2.1 - 2.3	350 - 550	300 - 500 (1200 °C)
SURA CAST 50-I	48 - 53	33 - 38	1.5 - 2.5	3.5 - 4.5	High duty Fire Clay	1350	8 - 10	0 - 5	2.1 - 2.3	400 - 600	400 - 600 (1200 °C)
SURA CAST 50-II	48 - 51	28 - 32	2 - 3	7 - 9	High duty Fire Clay	1350	8 - 10	0 - 5	2.1 - 2.3	350 - 550	300 - 500 (1200 °C)
SURA CAST H	47 - 51	40 - 45	1.5 - 2.5	3 - 4	High duty Fire Clay	1420	8 - 10	0 - 5	2.1 - 2.3	400 - 600	400 - 600 (1300 °C)
SURA CAST 55-I	53 - 58	28 - 33	1.5 - 2.5	3.5 - 4.5	Bauxite	1400	8 - 10	0 - 5	2.2 - 2.35	400 - 600	400 - 600 (1300 °C)
SURA CAST 55-II	55 - 60	24 - 28	2 - 3	7 - 9	Bauxite	1400	10 - 12	0 - 5	2.2 - 2.35	350 - 550	300 - 500 (1300 °C)
SURA CAST 60	58 - 62	20 - 24	1.5 - 2.5	3.5 - 4.5	Bauxite	1450	8.5 - 10.5	0 - 5	2.2 - 2.35	500 - 700	500 - 700 (1300 °C)
SURA CAST 65	63 - 67	16 - 20	1.5 - 2.5	3.5 - 4.5	Rotary Bauxite	1500	8.5 - 10.5	0 - 5	2.3 - 2.45	500 - 700	500 - 700 (1350 °C)
SURA CAST 70	68 - 73	14 - 18	1.5 - 2.5	3.5 - 4.5	Rotary Bauxite	1550	8.5 - 10.5	0 - 5	2.4 - 2.55	500 - 700	500 - 700 (1350 °C)
SURA CAST 80	78 - 82	8 - 12	1.5 - 2.5	3.5 - 4.5	Rotary Bauxite	1600	8 - 10	0 - 5	2.5 - 2.7	500 - 700	500 - 700 (1400 °C)
SURA CAST 85	82 - 85	3 - 7	1.5 - 2.5	3.5 - 4.5	Rotary Bauxite	1650	8 - 10	0 - 5	2.6 - 2.8	500 - 700	500 - 700 (1400 °C)
SURA CAST 90	89 - 91	4 - 5	0.2	3 - 4	Tabular Alumina	1700	7 - 9	0 - 5	2.65 - 2.8	500 - 700	550 - 700 (1500 °C)
SURA CAST 95	93 - 95	0.2	0.1	3 - 4	Tabular Alumina	1800	7 - 9	0 - 5	2.75 - 2.85	500 - 700	550 - 800 (1500 °C)
Standards							ASTM C1445		ASTM C20	ASTM C133	

The technical data provided represent average reference values established by ASTM test procedures. The values are determined in a laboratory and serve to give general information. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

**SHIPPING DATA:** shipped dry in multi-wall moisture-Plastic Bag of 25 Kg. Net Weight.

دارنده گواهی نامه: ISO/IEC 17025: 2017

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## SURA CAST 45

### TECHNICAL DATA

#### **PHYSICAL PROPERTIES:**

Classification	Fire Clay Castable	
Main Raw Material Basis	Fire clay with Fondu Cement	
Maximum service temperature (°C)	1250	
Approximate amount of water required for pouring (%)	12 – 14	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 °C	2100 – 2250	ASTM C 20
Grain Size (mm)	0 – 5	

#### **THERMOMECHANICAL PROPERTIES:**

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	300 – 500	ASTM C133
After Heating at 1200 °C	200 - 400	

#### **CHEMICAL ANALYSIS (Calcined Basis):**

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
33 - 38 %	40 - 45 %	5 – 7 %	8 - 10 %	

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## SURA CAST 45-LI

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	Fire Clay Castable	
Main Raw Material Basis	Fire clay with low iron Cement	
Maximum service temperature (°C)	1300	
Approximate amount of water required for pouring (%)	10 – 12	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2100 – 2300	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	350 – 550	
After Heating at 1200 °C	300 - 500	ASTM C133

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
35 - 39 %	44 - 48 %	2 – 3 %	7 - 9 %	

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## SURA CAST 50-I

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	Medium Alumina Castable	
Main Raw Material Basis	High duty Fire Clay	
Maximum service temperature (°C)	1350	
Approximate amount of water required for pouring (%)	8 – 10	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 °C	2100 – 2300	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	400 – 600	ASTM C133
After Heating at 1200 °C	400 - 600	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
33 - 38 %	48 - 53 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 50-II

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	Medium Alumina Castable	
Main Raw Material Basis	High duty Fire Clay	
Maximum service temperature (°C)	1350	
Approximate amount of water required for pouring (%)	8 – 10	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2100 – 2300	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	350 – 550	ASTM C133
After Heating at 1200 °C	300 - 500	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
28 - 32 %	48 - 51 %	2 – 3 %	7 – 9 %	

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## SURA CAST H

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	Medium Alumina Castable	
Main Raw Material Basis	High duty Fire Clay	
Maximum service temperature (°C)	1420	
Approximate amount of water required for pouring (%)	8 – 10	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2100 – 2300	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	400 – 600	ASTM C133
After Heating at 1300 °C	400 - 600	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
40 - 45 %	47 - 51 %	1.5 – 2.5 %	3 – 4 %	

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## SURA CAST 55-I

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	Medium Alumina Castable	
Main Raw Material Basis	Bauxite	
Maximum service temperature (°C)	1400	
Approximate amount of water required for pouring (%)	8 – 10	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2200 – 2350	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	400 – 600	ASTM C133
After Heating at 1300 °C	400 - 600	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
28 - 33 %	53 - 58 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 55-II

### TECHNICAL DATA

#### PHYSICAL PROPERTIES:

Classification	Medium Alumina Castable	
Main Raw Material Basis	Bauxite	
Maximum service temperature (°C)	1400	
Approximate amount of water required for pouring (%)	10 – 12	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2200 – 2350	ASTM C 20
Grain Size (mm)	0 – 5	

#### THERMOMECHANICAL PROPERTIES:

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	350 – 550	ASTM C133
After Heating at 1300 °C	300 - 500	

#### CHEMICAL ANALYSIS (Calcined Basis):

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
24 - 28 %	55 - 60 %	2 – 3 %	7 – 9 %	

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## SURA CAST 60

### TECHNICAL DATA

#### **PHYSICAL PROPERTIES:**

Classification	Medium Alumina Castable	
Main Raw Material Basis	Bauxite	
Maximum service temperature (°C)	1450	
Approximate amount of water required for pouring (%)	8.5 – 10.5	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2200 – 2350	ASTM C 20
Grain Size (mm)	0 – 5	

#### **THERMOMECHANICAL PROPERTIES:**

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1300 °C	500 – 700	

#### **CHEMICAL ANALYSIS (Calcined Basis):**

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
20 - 24 %	58 - 62 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 65

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Castable	
Main Raw Material Basis	Rotary Bauxite	
Maximum service temperature (°C)	1500	
Approximate amount of water required for pouring (%)	8.5 – 10.5	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2300 – 2450	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1350 °C	500 - 700	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
16 - 20 %	63 - 67 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 70

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Castable	
Main Raw Material Basis	Rotary Bauxite	
Maximum service temperature (°C)	1550	
Approximate amount of water required for pouring (%)	8.5 – 10.5	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2400 – 2550	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1350 °C	500 - 700	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
14 - 18 %	68 - 73 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 80

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Castable	
Main Raw Material Basis	Rotary Bauxite	
Maximum service temperature (°C)	1600	
Approximate amount of water required for pouring (%)	8 – 10	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2500 – 2700	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1400 °C	500 - 700	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
8 – 12 %	78 - 82 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 85

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Castable	
Main Raw Material Basis	Rotary Bauxite	
Maximum service temperature (°C)	1650	
Approximate amount of water required for pouring (%)	8 – 10	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2600 – 2800	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1400 °C	500 - 700	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
3 – 7%	82 - 85 %	1.5 – 2.5 %	3.5 – 4.5 %	

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## SURA CAST 90

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Castable	
Main Raw Material Basis	Tabular Alumina	
Maximum service temperature (°C)	1700	
Approximate amount of water required for pouring (%)	7 – 9	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2650 – 2800	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1500 °C	550 - 700	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
4 – 5 %	89 - 91 %	0.2 %	3 – 4 %	

The technical data provided represent average reference values established by ASTM test procedures. The values are determined in a laboratory and serve to give general information. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

**SHIPPING DATA:** shipped dry in multi – wall moisture –Plastic Bag of 25 Kg. Net Weight.

دارنده گواهی نامه : ISO/IEC 17025: 2017

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Suravajin Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

## SURA CAST 95

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Castable	
Main Raw Material Basis	Tabular Alumina	
Maximum service temperature (°C)	1800	
Approximate amount of water required for pouring (%)	7 – 9	ASTM C 1445
Bulk Density, Kg/m <sup>3</sup> After Drying at 110 ° C	2750 – 2850	ASTM C 20
Grain Size (mm)	0 – 5	

#### ***THERMOMECHANICAL PROPERTIES:***

	Cold Crushing Strength Kg/cm <sup>2</sup>	
After Drying at 110 °C	500 – 700	ASTM C133
After Heating at 1500 °C	550 - 800	

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Lime (CaO)	
0.2 %	93 - 95 %	0.1 %	3 – 4 %	

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**SHIPPING DATA:** shipped dry in multi – wall moisture –Plastic Bag of 25 Kg. Net Weight.

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شرکت معدنی و صنعتی سوراجین عقیق



**CAST-45** (FIRE CLAY BASE)



**CAST-55** (FIRED SAMPLE)



**CAST-55** (BAUXITE BASE)



**CAST-60** (FIRED SAMPLE)



**CAST-60** (BAUXITE BASE)



**CAST- 70** (FIRED SAMPLE)



**CAST- 70** (ROTARY BAUXITE BASE)



**CAST- 80** (FIRED SAMPLE)



**CAST- 80** (ROTARY BAUXITE BASE)



**CAST- 90** (FIRED SAMPLE)



**CAST- 90** (TABULAR ALUMINA BASE)

# Chamotte and High Alumina Mortars



Suravajin Aghigh  
Mining & industrial CO



Suravaj Aghigh Mining & Industrial Co

شرکت معدنی و صنعتی سوراوجین عقیق

## *Chamotte and High Alumina Mortars*

Product	Chemical Composition (%)			Main Raw Material Basis	Max service temperature (° C)	Water required (%)	Grain Size (mm)
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>				
CHAMOTTE MORTAR-I	36 - 39	54 - 57	≤ 2.5	High duty Fire Clay	1350	25 - 30	0 – 0.2
CHAMOTTE MORTAR-II	36 - 39	51 - 54	≤ 2.5	Fire clay	1300	25 - 30	0 – 0.2
ALUMINA MORTAR – 50	49 - 53	34 - 38	≤ 2.5	High duty Fire Clay	1350	25 - 30	0 – 0.2
ALUMINA MORTAR – 60	58 - 62	26 - 30	≤ 2.5	Rotary Bauxite	1450	25 - 30	0 – 0.2
ALUMINA MORTAR – 70	70 - 74	16 - 20	≤ 2.5	Rotary Bauxite	1550	25 - 30	0 – 0.2

*The technical data provided represent average reference values established by ASTM test procedures. The values are determined in a laboratory and serve to give general information. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.*

**SHIPPING DATA:** shipped dry in multi – wall moisture –Plastic Bag of 20 Kg. Net Weight.

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Suravajin Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

## **CHAMOTTE MORTAR-I** **TECHNICAL DATA**

### ***PHYSICAL PROPERTIES:***

<b>Classification</b>	<b>High duty Fire clay mortar</b>
<b>Main Raw Material Basis</b>	<b>High duty Fire clay</b>
<b>Maximum service temperature (°C )</b>	<b>1350</b>
<b>Approximate amount of water required for pouring (%)</b>	<b>25 - 30</b>
<b>Grain Size (mm)</b>	<b>0 – 0.2</b>

### ***CHEMICAL ANALYSIS (Calcined Basis):***

<b>Silica (SiO<sub>2</sub>)</b>	<b>Alumina (Al<sub>2</sub>O<sub>3</sub>)</b>	<b>Iron Oxide ( Fe<sub>2</sub>O<sub>3</sub>)</b>
<b>54 - 57 %</b>	<b>36 - 39 %</b>	<b>≤ 2.5 %</b>

*The technical data provided represent average reference values established by ASTM test procedures. The values are determined in a laboratory and serve to give general information. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.*

***SHIPPING DATA:*** shipped dry in multi – wall moisture –Plastic Bag of 20 Kg. Net Weight.

**ISO/IEC 17025: 2017 : دارنده گواهی نامه**





Suravaj Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

## CHAMOTTE MORTAR-II

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	Fire clay mortar
Main Raw Material Basis	Fire clay
Maximum service temperature (°C)	1300
Approximate amount of water required for pouring (%)	25 - 30
Grain Size (mm)	0 – 0.2

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )
51 – 54 %	36 - 39 %	≤ 2.5 %

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**SHIPPING DATA:** shipped dry in multi – wall moisture –Plastic Bag of 20 Kg. Net Weight.

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Suravajin Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

## ALUMINA MORTAR- 50

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

<b>Classification</b>	<b>High duty Fire clay mortar</b>
<b>Main Raw Material Basis</b>	<b>High duty Fire clay</b>
<b>Maximum service temperature (°C)</b>	<b>1350</b>
<b>Approximate amount of water required for pouring (%)</b>	<b>25 - 30</b>
<b>Grain Size (mm)</b>	<b>0 – 0.2</b>

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

<b>Silica (SiO<sub>2</sub>)</b>	<b>Alumina (Al<sub>2</sub>O<sub>3</sub>)</b>	<b>Iron Oxide (Fe<sub>2</sub>O<sub>3</sub>)</b>
<b>34 – 38 %</b>	<b>49 - 53 %</b>	<b>≤ 2.5 %</b>

*The technical data provided represent average reference values established by ASTM test procedures. The values are determined in a laboratory and serve to give general information. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.*

***SHIPPING DATA:*** shipped dry in multi – wall moisture –Plastic Bag of 20 Kg. Net Weight.

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## ALUMINA MORTAR- 60

### TECHNICAL DATA

#### ***PHYSICAL PROPERTIES:***

Classification	High Alumina Mortar
Main Raw Material Basis	Rotary Bauxite
Maximum service temperature (°C)	1450
Approximate amount of water required for pouring (%)	25 - 30
Grain Size (mm)	0 – 0.2

#### ***CHEMICAL ANALYSIS (Calcined Basis):***

Silica (SiO <sub>2</sub> )	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )
26 – 30 %	58 - 62 %	≤ 2.5 %

The technical data provided represent average reference values established by ASTM test procedures. The values are determined in a laboratory and serve to give general information. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

***SHIPPING DATA:*** shipped dry in multi – wall moisture –Plastic Bag of 20 Kg. Net Weight.

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## **ALUMINA MORTAR- 70**

### **TECHNICAL DATA**

#### ***PHYSICAL PROPERTIES:***

<b>Classification</b>	<b>High Alumina Mortar</b>
<b>Main Raw Material Basis</b>	<b>Rotary Bauxite</b>
<b>Maximum service temperature (°C)</b>	<b>1550</b>
<b>Approximate amount of water required for pouring (%)</b>	<b>25 - 30</b>
<b>Grain Size (mm)</b>	<b>0 – 0.2</b>

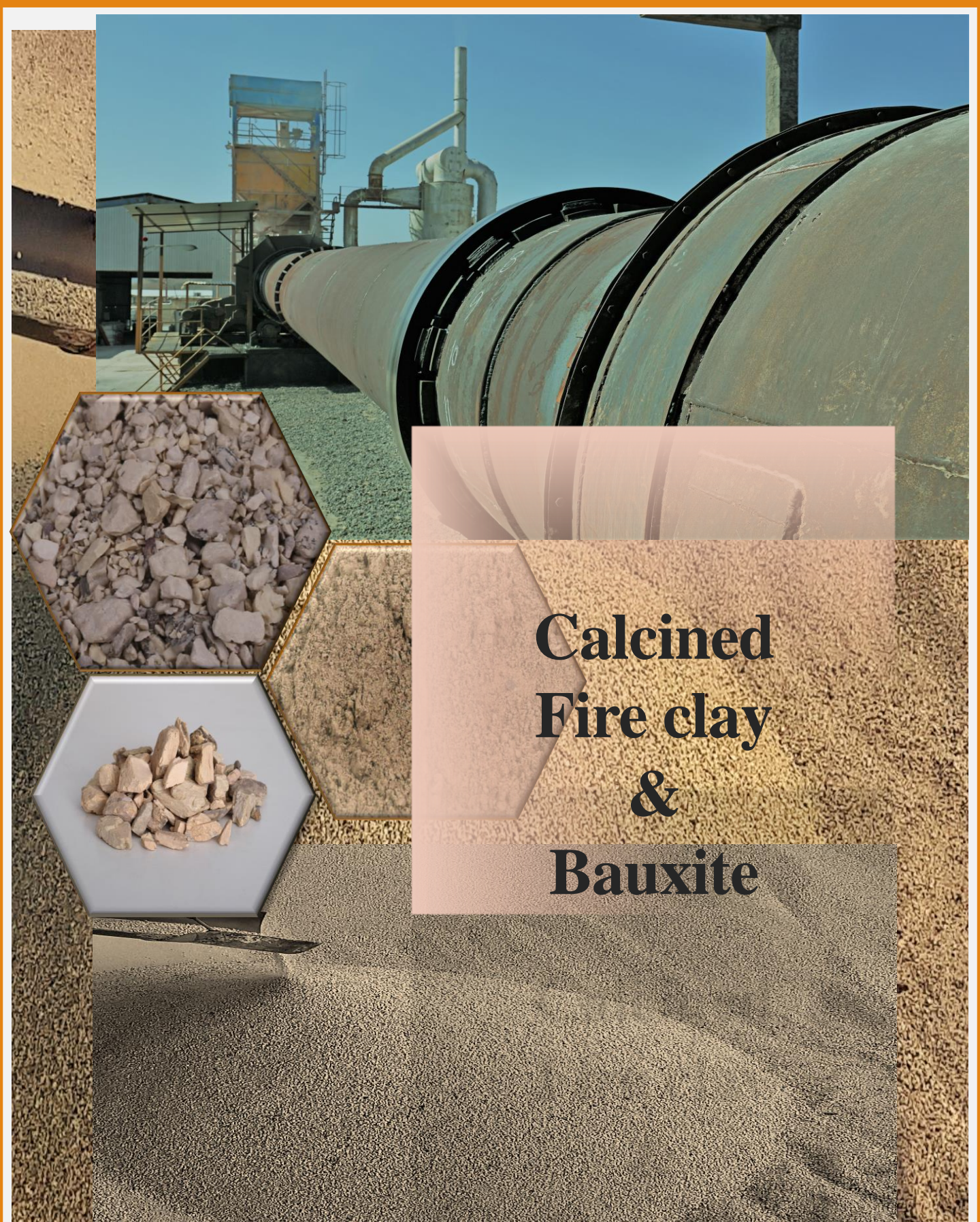
#### ***CHEMICAL ANALYSIS (Calcined Basis):***

<b>Silica (SiO<sub>2</sub>)</b>	<b>Alumina (Al<sub>2</sub>O<sub>3</sub>)</b>	<b>Iron Oxide (Fe<sub>2</sub>O<sub>3</sub>)</b>
<b>16 – 20 %</b>	<b>70 - 74 %</b>	<b>≤ 2.5 %</b>

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**SHIPPING DATA:** shipped dry in multi – wall moisture –Plastic Bag of 20 Kg. Net Weight.

**ISO/IEC 17025: 2017 : دارنده گواهی نامه**



# Calcined Fire clay & Bauxite



Suravajin Aghigh  
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CODE	Super CT - 42	CT - 44	CT - 50	CT-55	CT-60	CT - 65
<b>Calcined Fire Clay and Bauxite</b>						
<b>Chemical Analysis</b>						
SiO <sub>2</sub>	48 - 52	44 - 48	34 - 38	33 - 37	28 - 32	23 - 27
Al <sub>2</sub> O <sub>3</sub>	40 - 44	42 - 46	48 - 52	53 - 57	58 - 62	63 - 67
Fe <sub>2</sub> O <sub>3</sub>	1.1 - 1.3	2.4 - 2.8	2.3 - 2.7	2.3 - 2.7	2.3 - 2.7	2.3 - 2.7
TiO <sub>2</sub>	4.5 - 5.5	4.5 - 5.5	5.5 - 6.5	5.5 - 6.5	6 - 7	6 - 7
CaO	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
MgO	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
K <sub>2</sub> O+Na <sub>2</sub> O	≤ 1.2	≤ 1.2	≤ 1.2	≤ 1.5	≤ 1.5	≤ 1.2
L.O.I	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bulk density (gr/cm <sup>3</sup> )	2.6 - 2.7	2.6 - 2.7	2.6 - 2.7	2.6 - 2.7	2.65 - 2.75	2.7 - 2.8
Water Absorption%	1 - 2	1 - 2	1 - 2	2 - 2.5	2 - 2.5	2 - 2.5
Application	Refractory products					
Available Size	0 - 50 / 3 - 5 / 1 - 3 / 0 - 1 / 0 - 0.1 (mm)					
Delivery Place	Tehran					
Packing	Bulk- big bag					

دارنده گواهی نامه : ISO/IEC 17025: 2017



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شرکت معدنی و صنعتی سوراوجین عقیق

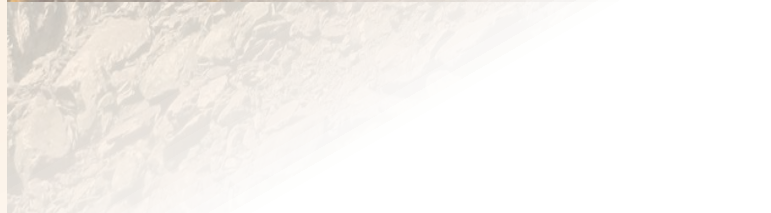
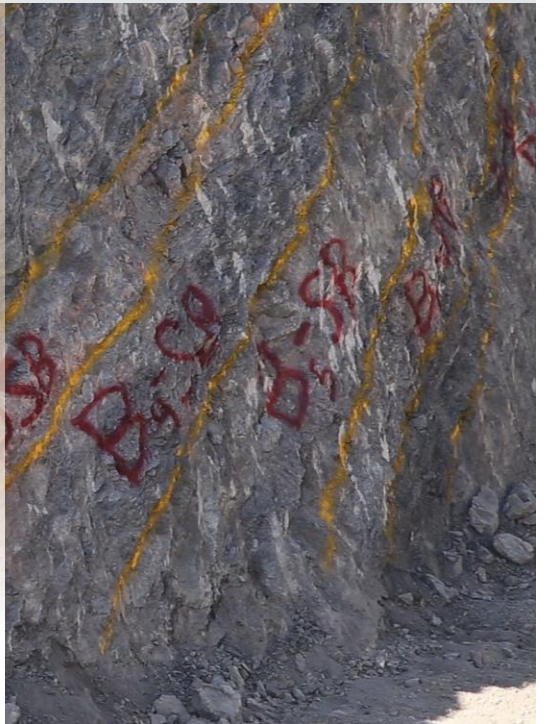
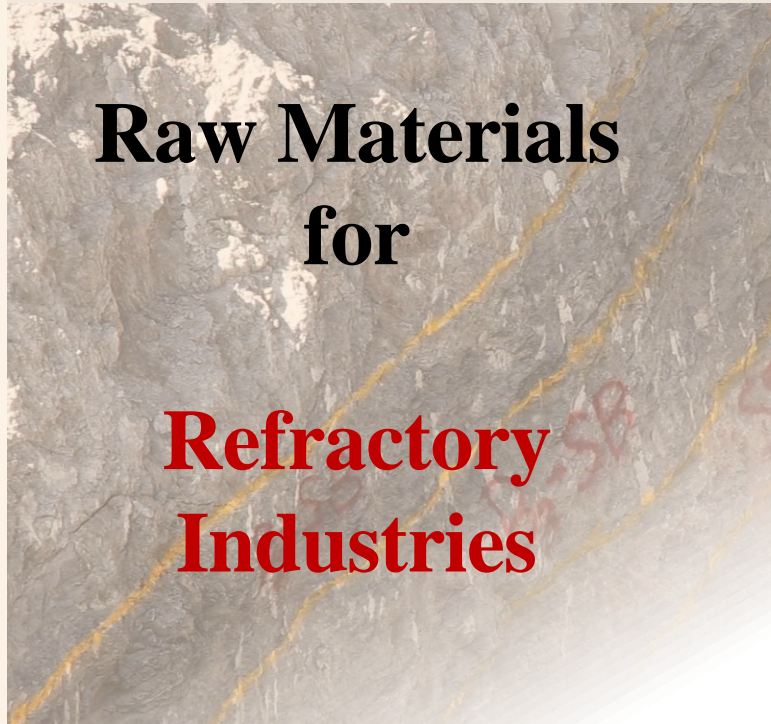
CODE	CS-10	CS-20
<b>Calcined Fire Clay</b>		
<b>Chemical Analysis</b>		
SiO <sub>2</sub>	51 - 53	50 - 52
Al <sub>2</sub> O <sub>3</sub>	41 - 43	42 - 44
Fe <sub>2</sub> O <sub>3</sub>	1.9 - 2.2	0.9 - 1.1
TiO <sub>2</sub>	1.9 - 2.1	< 2
CaO	< 0.5	< 0.5
MgO	< 0.6	< 0.6
K <sub>2</sub> O+Na <sub>2</sub> O	< 1	< 1
L.O.I	< 0.2	< 0.2
Bulk density (gr/cm <sup>3</sup> )	2.6 - 2.7	2.65 - 2.75
Water absorption(%)	1 - 1.5	1 - 1.5
Application	Refractory products	
Available Size	0 - 12 (mm)	0 - 30 (mm)
	3 - 5 / 1 - 3 / 0 - 1 / 0 - 0.1 (mm)	
Delivery Place	Tehran	
Packing	Bulk- big bag	

دارنده گواهی نامه : ISO/IEC 17025: 2017

# Ball Clays

**Raw Materials  
for**

**Refractory  
Industries**







Suravaj Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

*Chemical Analysis*

*(Raw materials for Refractories)*

CODE	ARB-10	ARB-30	ARB-70	ARB-80	ARB-100
Type	Ball Clay				
SiO <sub>2</sub>	46 - 49	36 - 38	54 - 57	52 - 56	46 - 48
Al <sub>2</sub> O <sub>3</sub>	28 - 30	26 - 28	23 - 25	26 - 28	31 - 33
Fe <sub>2</sub> O <sub>3</sub>	< 2	1.4 – 1.8	< 2	< 2	1.5 – 2.2
TiO <sub>2</sub>	1 – 2.5	1 – 1.5	1 - 2	1-2	1-2
Na <sub>2</sub> O + K <sub>2</sub> O	< 1	< 2	1 - 2	1 - 2	< 1
CaO	< 0.2	< 0.3	< 0.2	< 0.3	< 0.2
L.O.I	17 - 19	30 - 32	14 - 16	12 - 14	15 - 17
Plasticity	28 - 31	31 - 33	31 - 33	32 - 35	32 - 34
Application	Refractory Binder , Facade Bricks	Insulation Refractory Binder	Refractory Binder		
Sizing	< 40 mm < 10 mm < mesh 140	<250 mm < 40 mm < mesh 140	< 40 mm < mesh 140		< 40 mm < 10 mm < mesh 140
Packing	Big bag, Bulk				
Delivery Place	Tabas – Robate Khan				

\*Samples are tested under company laboratory condition. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

دارنده گواهی نامه : ISO/IEC 17025: 2017



Suravajin Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

### Chemical Analysis

### *(Raw material For Refractories)*

CODE	ARB-10
Type	Ball Clay
SiO <sub>2</sub>	46 - 49
Al <sub>2</sub> O <sub>3</sub>	28 - 30
Fe <sub>2</sub> O <sub>3</sub>	< 2
TiO <sub>2</sub>	1 - 2.5
CaO	< 0.2
MgO	-----
Na <sub>2</sub> O + K <sub>2</sub> O	< 1
SO <sub>3</sub>	-----
L.O.I	17 - 19

### Physical Properties

Mineralogy	Quartz , Kaolinite
Refractoriness (P.C.E)	+28
Plasticity	28 - 31
Application	Refractory Binder , Facade Bricks
Mine Location	Tabas , Robat khan
Sizing	< 40 mm , < 10 mm , < 140 mesh

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Chemical Analysis

*(Raw material For Refractories)*

CODE	ARB-30
Type	Ball Clay
SiO <sub>2</sub>	36 - 38
Al <sub>2</sub> O <sub>3</sub>	26 - 28
Fe <sub>2</sub> O <sub>3</sub>	1.4 – 1.8
TiO <sub>2</sub>	1 – 1.5
CaO	< 0.3
MgO	-----
Na <sub>2</sub> O + K <sub>2</sub> O	< 2
SO <sub>3</sub>	-----
L.O.I	30-32

Physical Properties

Mineralogy	Quartz , Kaolinite
Refractoriness (P.C.E)	-----
Plasticity	31 - 33
Application	Insulation Refractory Binder
Mine Location	Tabas , Robat khan
Sizing	< 250 mm , < 40 mm , < 140 mesh

\*Samples are tested under company laboratory condition. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

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*(Raw material For Refractories)*

Chemical Analysis

CODE	ARB-70
Type	Ball Clay
SiO <sub>2</sub>	54-57
Al <sub>2</sub> O <sub>3</sub>	23-25
Fe <sub>2</sub> O <sub>3</sub>	< 2
TiO <sub>2</sub>	1-2
CaO	< 0.2
MgO	-----
Na <sub>2</sub> O + K <sub>2</sub> O	1-2
SO <sub>3</sub>	-----
L.O.I	14 -16

Physical Properties

Mineralogy	Quartz , Kaolinite , Illite
Refractoriness (P.C.E)	+28
Plasticity	31 - 33
Application	Refractory Binder
Mine Location	Tabas , Robat khan
Sizing	< 40 mm , < 140 mesh

\*Samples are tested under company laboratory condition. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

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شرکت معدنی و صنعتی سوراوجین عقیق

*(Raw material For Refractories)*

**Chemical Analysis**

CODE	ARB-80
Type	Ball Clay
SiO <sub>2</sub>	52-56
Al <sub>2</sub> O <sub>3</sub>	26-28
Fe <sub>2</sub> O <sub>3</sub>	< 2
TiO <sub>2</sub>	1-2
CaO	< 0.3
MgO	----
Na <sub>2</sub> O + K <sub>2</sub> O	1-2
SO <sub>3</sub>	----
L.O.I	12-14

**Physical Properties**

Mineralogy	Quartz , Kaolinite
Refractoriness (P.C.E)	+29
Plasticity	32 -35
Application	Refractory Binder
Mine Location	Tabas , Robat khan
Sizing	< 40 mm , < 140 mesh

\*Samples are tested under company laboratory condition. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

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Suravajin Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

*(Raw material For Refractories)*

Chemical Analysis

CODE	ARB-100
Type	Ball Clay
SiO <sub>2</sub>	46 - 48
Al <sub>2</sub> O <sub>3</sub>	31 - 33
Fe <sub>2</sub> O <sub>3</sub>	1.5 - 2.2
TiO <sub>2</sub>	1-2
CaO	< 0.2
MgO	-----
Na <sub>2</sub> O + K <sub>2</sub> O	< 1
SO <sub>3</sub>	-----
L.O.I	15 - 17

Physical Properties

Mineralogy	Quartz , Kaolinite
Refractoriness (P.C.E)	+31
Plasticity	32 - 34
Application	Refractory Binder
Mine Location	Tabas , Robat khan
Sizing	< 40 mm , < 10 mm < 140 mesh

\*Samples are tested under company laboratory condition. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

دارنده گواهی نامه : ISO/IEC 17025: 2017

# Ball Clays



**Raw Materials  
for  
Sanitary ware  
Industries**





Suravajni Aghigh Mining & Industrial Co  
شرکت معدنی و صنعتی سوراوجین عقیق

## *Ball clays (For Sanitary ware)*

### Chemical Analysis

CODE	AC-35	AC-50	U1	
<b>Ball Clay</b>				
<b>Chemical Analysis</b>				
SiO <sub>2</sub>	68 – 70	65 - 68	69 - 72	
Al <sub>2</sub> O <sub>3</sub>	18 – 20	19 - 21	17 - 19	
Fe <sub>2</sub> O <sub>3</sub>	< 1.5	< 2	< 1	
TiO <sub>2</sub>	< 1.3	< 1.3	≤ 1	
Na <sub>2</sub> O	< 0.2	< 0.2	< 0.2	
K <sub>2</sub> O	< 0.5	< 0.5	< 0.3	
CaO	1.5-2	1.5-2	1.5-2	
MgO	< 0.5	< 0.5	< 0.5	
L.O.I	5 - 7	6 - 7	5 - 7	
<b>Physical &amp; Thermal properties at 1180°C/6 h</b>				
Strength (kg/cm <sup>2</sup> )	Dried	28 - 35	40-45	27 - 30
	Fired	550 - 600	750	450-500
Fired Shrinkage	9.5 – 10.5	9.5 – 10.5	9-10	
% Water Absorption	< 1	0.8-1.2	1-2	
Plasticity	30 - 33	30 - 33	28-30	
Color	Cream	Cream	Light Cream	
Application	Sanitary Ware			
Sizing	< 40 mm, < 10 mm, Powder			
Packing	Big bag, Bulk			
Delivery Place	Tabas – Robat Khan			

\*Samples are tested under company laboratory condition. Values are liable to natural deviations and are not to be cited as guaranteed properties or guaranteed values.

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## ***Ball clay (For Sanitary ware)***

### **Chemical Analysis**

<b>CODE</b>	<b>AC-50</b>
<b>TYPE</b>	<b>Ball Clay</b>
<b>Chemical Analysis</b>	
SiO <sub>2</sub>	65 - 68
Al <sub>2</sub> O <sub>3</sub>	19 - 21
Fe <sub>2</sub> O <sub>3</sub>	< 2
TiO <sub>2</sub>	< 1.3
CaO	< 0.2
MgO	< 0.5
K <sub>2</sub> O	1.5-2
Na <sub>2</sub> O	< 0.5
L.O.I	6 - 7
<b>Physical &amp; Thermal properties at 1180°C/6 h</b>	
Dry strength (Kg/cm <sup>2</sup> )	40-45
Fired Strength (kg/cm <sup>2</sup> )	750
Total Shrinkage	9.5 – 10.5
% Water Absorption	0.8-1.2
Plasticity	30 - 33
Color	Cream
Application	Sanitary Ware
Sizing	< 40 mm, < 10 mm, Powder
Packing	Big bag, Bulk
Delivery Place	Tabas – Robat Khan

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## **Ball clay (For Sanitary ware)**

### **Chemical Analysis**

CODE	AC-35
TYPE	Ball Clay
<b>Chemical Analysis</b>	
SiO <sub>2</sub>	68-70
Al <sub>2</sub> O <sub>3</sub>	18-20
Fe <sub>2</sub> O <sub>3</sub>	< 1.5
TiO <sub>2</sub>	< 1.3
CaO	< 0.2
MgO	< 0.5
K <sub>2</sub> O	1.5-2
Na <sub>2</sub> O	< 0.5
L.O.I	5 - 7
<b>Physical &amp; Thermal properties at 1180°C/6 h</b>	
Dry strength (Kg/cm <sup>2</sup> )	28-35
Fired Strength (kg/cm <sup>2</sup> )	450-600
Total Shrinkage	9.5-10.5
% Water Absorption	< 1
Plasticity	30 - 33
Color	Cream
Application	Sanitary Ware
Sizing	< 40 mm, < 10 mm, Powder
Packing	Big bag, Bulk
Delivery Place	Tabas – Robat Khan

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## **Ball clay** (For Sanitary ware)

### **Chemical Analysis**

<b>CODE</b>	<b>U1</b>
<b>TYPE</b>	<b>Ball Clay</b>
<b>Chemical Analysis</b>	
<b>SiO<sub>2</sub></b>	69 - 72
<b>Al<sub>2</sub>O<sub>3</sub></b>	17 - 19
<b>Fe<sub>2</sub>O<sub>3</sub></b>	< 1
<b>TiO<sub>2</sub></b>	≤ 1
<b>CaO</b>	< 0.2
<b>MgO</b>	< 0.3
<b>K<sub>2</sub>O</b>	1.5-2
<b>Na<sub>2</sub>O</b>	< 0.5
<b>L.O.I</b>	5 - 7
<b>Physical &amp; Thermal properties at 1180°C/6 h</b>	
<b>Dry strength (Kg/cm<sup>2</sup>)</b>	27 - 30
<b>Fired Strength (kg/cm<sup>2</sup>)</b>	450-500
<b>Total Shrinkage</b>	9-10
<b>% Water Absorption</b>	1-2
<b>Plasticity</b>	28-30
<b>Color</b>	Light Cream
<b>Application</b>	Sanitary Ware
<b>Sizing</b>	< 40 mm, < 10 mm, Powder
<b>Packing</b>	Big bag, Bulk
<b>Delivery Place</b>	Tabas – Robat Khan

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## Raw Material for (Sanitary were)

### Chemical Analysis

<b>CODE</b>	<b>ASEM -20</b>			
<b>TYPE</b>	Kaolin			
<b>SiO<sub>2</sub></b>	44 - 45			
<b>Al<sub>2</sub>O<sub>3</sub></b>	37 - 38			
<b>Fe<sub>2</sub>O<sub>3</sub></b>	<0.7			
<b>TiO<sub>2</sub></b>	1.6			
<b>CaO</b>	<0.3			
<b>MgO</b>	<0.7			
<b>Na<sub>2</sub>O</b>	<0.3			
<b>K<sub>2</sub>O</b>	<0.3			
<b>SO<sub>3</sub></b>	0.12			
<b>L.O.I</b>	13 - 14			
<b>Mineralogical Analysis</b>	Kaolinite(≥ 94%), Anatase and Quartz			
	<b>Physical Properties</b>			
<b>Drying Strength (kg/cm<sup>2</sup>)</b>	17-19			
	<b>Thermal properties (Dilatometry) α ×10<sup>-7</sup> °C<sup>-1</sup></b>			
	α 300	α 400	α 500	α 600
<b>At 1160 °C 50,</b>	42.22	42.59	43.07	43.66
<b>At 1123 °C 33,</b>	40.30	41.14	41.84	--
<b>Color</b>	At 1160° C 55, L= 89 a = 1.8 b = 9.6			
<b>Application</b>	Porcelain and white bodies - Sanitary ware			
<b>Sizing</b>	<40 cm - Powder			
<b>Packing</b>	Big bag-Bulk			
<b>Delivery Place</b>	According to customer order			

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## Raw Material for (Sanitary were)

### Chemical Analysis

<b>CODE</b>	<b>ASEM -10</b>			
<b>TYPE</b>	<b>Kaolin</b>			
<b>SiO<sub>2</sub></b>	45 - 46			
<b>Al<sub>2</sub>O<sub>3</sub></b>	36 - 37			
<b>Fe<sub>2</sub>O<sub>3</sub></b>	1.8			
<b>TiO<sub>2</sub></b>	1.5			
<b>CaO</b>	<0.25			
<b>MgO</b>	0.5			
<b>Na<sub>2</sub>O</b>	<0.7			
<b>K<sub>2</sub>O</b>				
<b>SO<sub>3</sub></b>	0.1			
<b>L.O.I</b>	13 - 14			
<b>Mineralogical Analysis</b>	Kaolinite(≥ 92%), Anatase and Quartz			
<b>Physical Properties</b>				
<b>Drying Strength (kg/cm<sup>2</sup>)</b>	17-19			
<b>Thermal properties (Dilatometry) <math>\alpha \times 10^{-7} \text{ }^\circ\text{C}^{-1}</math></b>				
	$\alpha$ 300	$\alpha$ 400	$\alpha$ 500	$\alpha$ 600
<b>At 1156 °C 60</b>	41.60	42.26	42.92	43.59
<b>At 1195 °C 60</b>	42.02	42.57	43.14	43.77
<b>Color</b>	At 1190° C L= 70-75 a= 0.7 b=5.42			
<b>Application</b>	Porcelain bodies- Sanitary ware			
<b>Sizing</b>	0 -12 mm			
<b>Packing</b>	Big bag-Bulk			
<b>Delivery Place</b>	According to customer order			

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# Raw Materials

for

## Tile & Ceramics

**Kaolin**

**Feldspar**

**Bentonite**

**Illitic clay**

**Ball clay**



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## Raw Materials for Tile and Ceramics

Chemical Analysis		ACE	ASI-10	ASI-20	ASF-10	ASB-10	ASK
Type		Ball Clay	Illitic Clay		Feldspar	Bentonite	Kaolin
SiO <sub>2</sub>		61 - 63	69 - 71	66 - 68	70 - 72	66 - 70	73 - 75
Al <sub>2</sub> O <sub>3</sub>		24 - 26	13 - 14	13.5 - 14.0	14 - 15	11.5 - 12.5	14.5 - 15.5
Fe <sub>2</sub> O <sub>3</sub>		0.65 - 0.75	2.1 - 2.3	2.4 - 2.6	0.9 - 1.1	1.2 - 1.4	1.3 - 1.5
TiO <sub>2</sub>		1.2 - 1.3	0.28 - 0.32	0.35 - 0.4	0.21 - 0.25	0.13 - 0.17	0.25 - 0.35
Na <sub>2</sub> O		0.3 - 0.4	12 - 16	1.1 - 1.3	4.5 - 5.5	0.8 - 1.2	0.2 - 0.3
K <sub>2</sub> O		0.8 - 1.0	3.6 - 4	3.7 - 4.1	1.5 - 1.7	0.2 - 0.6	1.3 - 1.5
CaO		0.05 - 0.10	2.1 - 2.5	3.6 - 4.0	0.5 - 0.7	4.7 - 5.3	0.4 - 0.6
MgO		0.4 - 0.5	0.9 - 1.3	0.9 - 1.1	2.0 - 2.4	2 - 2.6	0.4 - 0.6
L.O.I		9.0 - 9.5	5 - 6	6.7 - 7.3	2.2 - 2.5	8 - 10	4.7 - 5.0
Physical & Thermal Properties at		1175°C/ 60'	1160°C/ 60'		1175°C/ 60'		
Strength (kg/cm <sup>2</sup> )	Green	9-11	9 - 13	8-10	5-7	12-14	3 - 5
	Dried	18-22	36 - 40	38-42	18-22	33-37	9 - 11
	Fired	> 150	> 550	> 700	> 600	> 100	> 100
Fired Shrinkage		2.2 - 2.8	7-9	10-12	9-11	4-6	<0.2
% Water Absorption		11 - 13	< 0.5	< 0.1	< 0.1	8-12	16 - 20
Coefficient of thermal Expansion at 500°C (α × 10 <sup>-7</sup> °C <sup>-1</sup> )		64.397	95.17	77.510	90.671	89.635	69.336
Color		L= 86 ± 2 a = 1.8 - 1.9 b = 7 - 8	L= 47 ± 2 a = 10 ± 1 b = 15 ± 2	L= 40 ± 2 a = 11 ± 1 b = 12 ± 1	L= 57 ± 2 a = 4 ± 0.5 b = 12 ± 1	L= 70 ± 2 a = 3 ± 0.5 b = 17 ± 1	L= 84 ± 2 a = 4 ± 0.5 b = 6 ± 1
Application		Engobe	Wall, Floor Porcelain tiles	Wall, Floor Porcelain tiles	Floor, Porcelain tiles, Ceramics	Tiles, Ceramic	Wall, Floor tiles
Sizing		Briquette	<15 mm	< 25 cm <15 mm	<10 mm	<200 mm	<200 mm <10 mm
Packing		Big bag	Big bag -bulk	Big bag - bulk	Big bag -bulk	Bulk	Bulk
Delivery Place		Tabas Robate Khan	Qazvin-Boein Zahra				

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## *Raw Material for Tile and Ceramics*

CODE	ACE	
	Ball Clay	
<b>Chemical Analysis</b>		
SiO <sub>2</sub>	61 -63	
Al <sub>2</sub> O <sub>3</sub>	24-26	
Fe <sub>2</sub> O <sub>3</sub>	0.65-0.75	
TiO <sub>2</sub>	1.2-1.3	
Na <sub>2</sub> O	0.3-0.4	
K <sub>2</sub> O	0.8-1.0	
CaO	0.05-0.10	
MgO	0.4- 0.5	
L.O.I	9-9.5	
<b>Physical &amp; Thermal Properties at</b>	1175°C/ 60'	
<b>Strength (Kg/cm<sup>2</sup>)</b>	Green	9-11
	Dried	18-22
	Fired	>150
<b>Fired Shrinkage</b>	2.2-2.8	
<b>% Water Absorption</b>	11-13	
<b>Coefficient of thermal Expansion at 500°C (<math>\alpha \times 10^{-7} \text{ } ^\circ\text{C}^{-1}</math>)</b>	64.397	
<b>Color</b>	L= 86 ± 2 a = 1.8 – 1.9 b = 7 - 8	
<b>Application</b>	Engobe	
<b>Sizing</b>	Briquette	
<b>Packing</b>	Big Bag	
<b>Delivery Place</b>	Tabas – Robate Khan	

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## **Raw Material for Tile and Ceramics**

CODE	ASI-10	
	Illitic Clay	
<b>Chemical Analysis</b>		
SiO <sub>2</sub>	69 -71	
Al <sub>2</sub> O <sub>3</sub>	13-14	
Fe <sub>2</sub> O <sub>3</sub>	2.1 – 2.3	
TiO <sub>2</sub>	0.28 – 0.32	
Na <sub>2</sub> O	1.2 – 1.6	
K <sub>2</sub> O	3.6-4	
CaO	2.1-2.5	
MgO	0.9-1.3	
L.O.I	5-6	
<b>Physical &amp; Thermal Properties at 160°C/ 60'</b>		
Strength (Kg/cm <sup>2</sup> )	Green	9-3
	Dried	36-40
	Fired	>550
Fired Shrinkage	7-9	
% Water Absorption	< 0.5	
Coefficient of thermal Expansion at 500°C ( $\alpha \times 10^{-7} \text{ }^\circ\text{C}^{-1}$ )	95.17	
Color	L= 47 ± 2 a = 10 ± 1 b = 15 ± 2	
Application	Wall, Floor, Porcelain tiles	
Sizing	<15 mm	
Packing	Big Bag-bulk	
Delivery Place	Qazvin-Boein Zahra	

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## Raw Material for Tile and Ceramics

CODE	ASI-20		
TYPE	Illitic Clay		
<b>Chemical Analysis</b>			
SiO <sub>2</sub>	66 - 68		
Al <sub>2</sub> O <sub>3</sub>	13.5 - 14.0		
Fe <sub>2</sub> O <sub>3</sub>	2.4 - 2.6		
TiO <sub>2</sub>	0.35 - 0.4		
Na <sub>2</sub> O	1.1 - 1.3		
K <sub>2</sub> O	3.7 - 4.1		
CaO	3.6 - 4.0		
MgO	0.9 - 1.1		
L.O.I	6.7 - 7.3		
<b>Physical &amp; Thermal Properties at 160°C/ 60'</b>			
Strength (Kg/cm <sup>2</sup> )	Green	8 - 10	
	Dried	38 - 42	
	Fired	>700	
Fired Shrinkage	10 - 12		
% Water Absorption	< 0.1		
Coefficient of thermal Expansion at 500°C ( $\alpha \times 10^{-7} \text{ } ^\circ\text{C}^{-1}$ )	$\alpha$ 300	$\alpha$ 400	$\alpha$ 500
	69.828	73.414	77.510
Color	L= 47 ± 2 a = 10 ± 1 b = 15 ± 2		
Application	Wall, Floor, Porcelain tiles		
Sizing	<15 mm		
Packing	Big Bag-bulk		
Delivery Place	Qazvin-Boein Zahra		

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## Raw Material for Tile and Ceramics

CODE	ASF		
TYPE	Feldspar		
<b>Chemical Analysis</b>			
SiO <sub>2</sub>	70-72		
Al <sub>2</sub> O <sub>3</sub>	14 -15		
Fe <sub>2</sub> O <sub>3</sub>	0.9-1.1		
TiO <sub>2</sub>	0.21-0.25		
Na <sub>2</sub> O	4.5-5.0		
K <sub>2</sub> O	1.5-1.7		
CaO	0.5-0.7		
MgO	2.0-2.4		
L.O.I	2.2-2.5		
<b>Physical &amp; Thermal Properties at 1175°C/ 60'</b>			
<b>Strength (Kg/cm<sup>2</sup>)</b>	Green	5-7	
	Dried	18.22	
	Fired	>600	
<b>Fired Shrinkage</b>		9-11	
<b>% Water Absorption</b>		< 0.1	
<b>Coefficient of thermal Expansion at 500°C (<math>\alpha \times 10^{-7} \text{ } ^\circ\text{C}^{-1}</math>)</b>	$\alpha$ 300	$\alpha$ 400	$\alpha$ 500
	80.785	85.239	90.671
<b>Color</b>		L= 57 ± 2   a = 4 ± 0.5   b = 12 ± 1	
<b>Application</b>		Floor, Porcelain tiles	
<b>Sizing</b>		<10 mm	
<b>Packing</b>		Big Bag-bulk	
<b>Delivery Place</b>		Qazvin-Boein Zahra	

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## **Raw Material for Tile and Ceramics**

CODE	ASB		
TYPE	Bentonite		
<b>Chemical Analysis</b>			
SiO <sub>2</sub>	66.70		
Al <sub>2</sub> O <sub>3</sub>	11.5 – 12.5		
Fe <sub>2</sub> O <sub>3</sub>	1.2 -1.4		
TiO <sub>2</sub>	0.13 - 0.17		
Na <sub>2</sub> O	0.8 – 1.2		
K <sub>2</sub> O	0.2 - 0.6		
CaO	4.7 – 5.3		
MgO	2 – 2.6		
L.O.I	8 -12		
<b>Physical &amp; Thermal Properties at 1175°C/ 60'</b>			
Strength (Kg/cm <sup>2</sup> )	Green	12 – 14	
	Dry	33 - 37	
	Fired	> 100	
Fired Shrinkage	4 - 6		
% Water Absorption	8 - 12		
Coefficient of thermal Expansion at 500°C ( $\alpha \times 10^{-7} \text{ } ^\circ\text{C}^{-1}$ )	$\alpha$ 400	$\alpha$ 500	$\alpha$ 600
	81.176	83.519	89.635
Color	L= 70 ± 2 a = 3 ± 0.5 b = 17 ± 1		
Application	Wall & Floor tiles, Fuller's Earth, Cat Litter		
Sizing	<20 cm		
Packing	bulk		
Delivery Place	Qazvin-Boein Zahra		

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## **Raw Material for Tile and Ceramics**

CODE	ASK	
	<b>Kaolin</b>	
<b>Chemical Analysis</b>		
SiO <sub>2</sub>	73 - 75	
Al <sub>2</sub> O <sub>3</sub>		
Fe <sub>2</sub> O <sub>3</sub>	1.3 - 1.5	
TiO <sub>2</sub>	0.25 - 0.35	
Na <sub>2</sub> O	0.2 - 0.3	
K <sub>2</sub> O	1.3 - 1.5	
CaO	0.4 - 0.6	
MgO	0.4 - 0.6	
L.O.I	4.7-5.0	
<b>Physical &amp; Thermal Properties at 1175°C/ 60'</b>		
Strength (Kg/cm <sup>2</sup> )	Green	3-5
	Dried	9 -11
	Fired	>100
Fired Shrinkage	<0.2	
% Water Absorption	16-20	
Coefficient of thermal Expansion at 500°C ( $\alpha \times 10^{-7} \text{ } ^\circ\text{C}^{-1}$ )	69.336	
Color	L= 84 ± 2   a = 4 ± 0.5   b = 6 ± 1	
Application	Wall & Floor tiles, Porcelain tile	
Sizing	<200 mm , < 10 mm	
Packing	Big bag, Bulk	
Delivery Place	Qazvin-Boein Zahra	

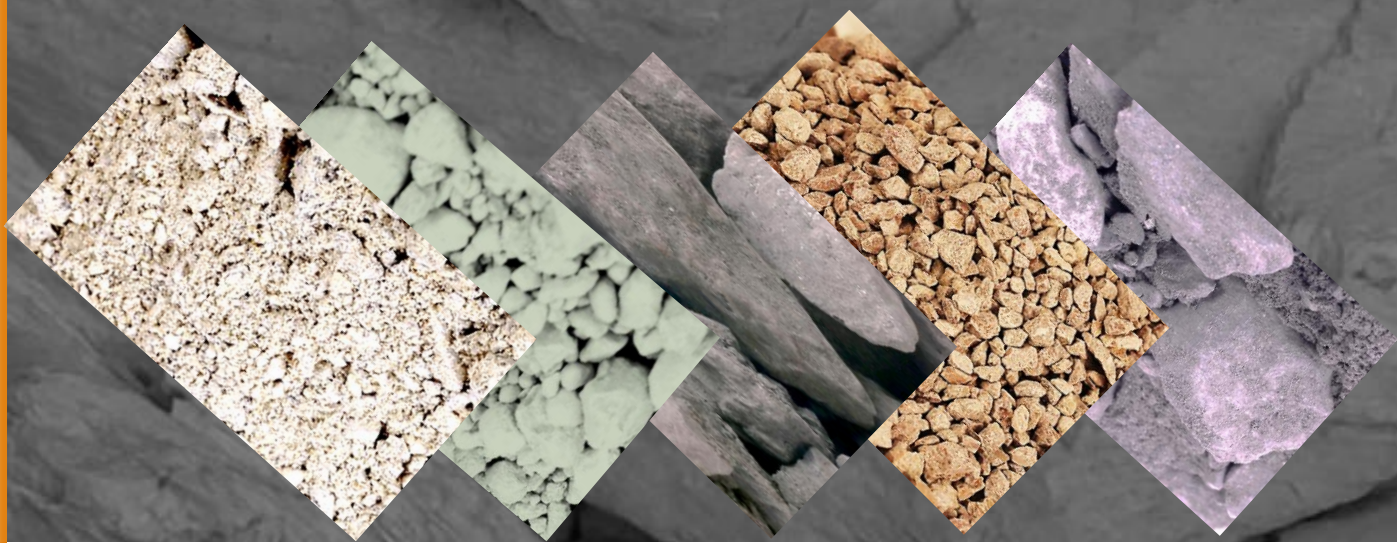
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**Raw Materials**

**for**

**Refractory  
Facade Bricks**



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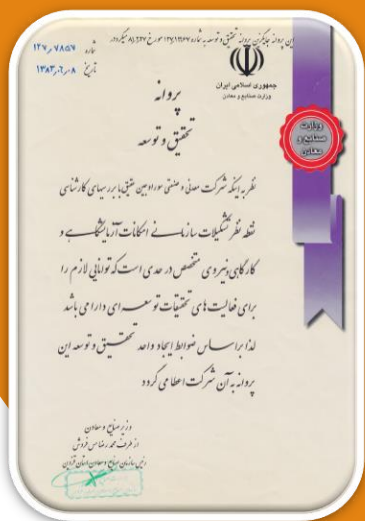
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## Raw Materials for Refractory Facade Bricks

Code	ASI 10	ASI 20	ASF 10	ASB 10	ARK 20	ARB 10	ARB 30	ARB 70	ARB 100	ARF 37
	Clay	Clay	Feldspar	Bentonite	Ball clay	Ball clay	Ball clay	Ball clay	Ball clay	Fire clay
Chemical Analysis										
SiO <sub>2</sub>	68±1	67±2	69±1	66.5-67.5	62.64	46 ±1	38±1	54-55	42	39±1
Al <sub>2</sub> O <sub>3</sub>	12.5±1	13±0.5	16±1	12-13	19-21	27±1	26±1	>24	33±1	37-39
Fe <sub>2</sub> O <sub>3</sub>	1.9-2	<2.2	0.9 -1	1-1.3	2-3	<1.5	1.5	<2	<2	4-6
TiO <sub>2</sub>	0.3	0.4	<0.5	<0.2	1-2	<1.5	1	1.5	1.5	5-5.5
CaO	2.8-3	3	<1	5.5-6.5	<1	<0.5	0.5	0-4	<0.4	<0.5
MgO	0.9-1.1	0.8	2±0.5	1.5		--	--	--	--	<0.5
K <sub>2</sub> O	3-3.4	3.2-3.8	2-2.5	2-2.5	<3	<2	2.5	2	<1	<1.5
Na <sub>2</sub> O	1-3.4	1-1.3	4.5-5	0.7	<1					
L.O.I	5-6	6±0.5	2-3	8-9	6.5-7	18-20	<30	14-15	16	9 -11
Mine Location	Qazvin	Qazvin	Qazvin	Qazvin	Tabas	Tabas	Tabas	Tabas	Tabas	Tabas
Sizing	0-25 cm 0-15 mm	0-25 cm 0-15 mm	<5 mm	0-25 cm	0-25 cm 0-30 mm Powder	0-30 mm Powder	0-30 mm Powder	0-30 mm Powder	0-30 mm Powder	0-25 cm 0-30 mm
* Samples are tested under company laboratory condition										

دارنده گواهی نامه : ISO/IEC 17025: 2017

# Certificates



# Commendation



Suravajin Aghigh  
Mining & industrial CO



## Location of Production Sites



### آدرس واحد ها :

( تولید جرمها و مواد ویژه نسوز): استان اصفهان-شهرستان نطنز-شهرک صنعتی شجاع آباد نطنز  
 کد پستی: ۸۷۶۹۱۷۱۱۶۸  
 فاصله از اصفهان: ۱۱۸ کیلومتر

واحد تولیدی  
 نطنز

(تولید و فرآوری بال کلی): استان خراسان جنوبی- شهرستان طبس - روستای رباط خان  
 کد پستی: ۹۷۹۶۱۹۶۵۹۷  
 فاصله از بیرجند: ۳۸۸ کیلومتر-فاصله از یزد ۲۸۲ کیلومتر

واحد تولیدی  
 رباط خان طبس

(دانه بندی و فرموله کردن خاک رس صنعتی): استان قزوین-شهرستان بوئین زهرا-شهر  
 دانسفهان-روستای سوراوجین- معدن سوراوجین عقیق  
 کد پستی: ۳۴۵۹۱۳۱۸۳۱  
 فاصله از قزوین: از قزوین تا دانسفهان ۷۶ کیلومتر-از دانسفهان تا معدن سوراوجین ۸ کیلومتر

واحد تولیدی  
 بوئین زهرا

آدرس دفتر مرکزی: تهران- خیابان سید جمال الدین اسد آبادی - خیابان ابن سینا- نبش کوچه ۳۱- ساختمان شماره ۸۲-  
 طبقه سوم - واحد ۶- کد پستی ۱۴۳۳۸۶۳۵۹۵  
 تلفکس: ۰۲۱-۸۸۱۰۷۲۵۲-۸۸۱۰۵۲۳۰

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