

Leading Producer and Supplier of Raw Material
Synchronous with new Refractory and Ceramic



Suravajin Aghigh Mining & industrial CO





**LEADING & RELIABLE SUPPLIER IN
IRAN**

**We are active in the field of
producing, processing and
supplying of high quality raw
materials for:**

- *Alumina and chamotte refractories**
- *Ceramic tiles**
- *Sanitary ware**
- *Insulation fire bricks**
- *Refractory facade bricks**

The products are prepared according to customer requirement in the form of blended or semi formulated raw materials.

Delivery sizes: Lump to grinded and powder





No.	Product Name	Method	Test Title	Applicable Basis	Reference
Minerals	-	-	SiO ₂ (wt.%)	ISO 724	ISO 724-16
			Al ₂ O ₃ (wt.%)	ISO 724	ISO 724-16
			Fe ₂ O ₃ (wt.%)	ISO 724	ISO 724-16
			CaO (wt.%)	ISO 724	ISO 724-16
			MgO (wt.%)	ISO 724	ISO 724-16
			Loss on Ignition (wt.%)	ISO 724	ISO 724-16

Production process from mine to market are monitored by permanent quality control approach.

Research & Development department is responsible for the following tasks and objectives:

- ❖ Improve and stabilize production quality.
- ❖ Design of new products according to customer's demand.
- ❖ Continuously improve the final products characteristics.
- ❖ Advising technical solution to the customers.



Raw Materials for Ceramic Tiles

Code	ASI – 10	ASI - 20	ARK-50	ASF -10
	Illitic Clay	Illitic Clay	Ball Clay	Feldspar
Chemical Analysis				
SiO ₂	68 ± 2	67 ± 2	69	69 ± 1
Al ₂ O ₃	12.5 ± 1	13 ± 0.5	16 - 18	16 ± 1
Fe ₂ O ₃	1.9 - 2	<2.2	<0.8	0.9 -1
TiO ₂	0.3	0.4	<1.5	<0.5
CaO	2.8 - 3	3	<0.5	<1
MgO	0.9 - 1.1	0.8	<0.5	2±0.5
K ₂ O	3 - 3.4	3.2 - 3.8	2.5	2-2.5
Na ₂ O	1 - 1.3	1 - 1.3	0.8 - 1	4.5-5
L.O.I	5 - 6	6 ± 0.5	5 - 6	2-3
Physical Properties				
Green Strength(Kg/cm ²)	9 -11	10 - 11	8	----
Dry Strength(Kg/cm ²)	35 - 40	40 - 45	25 - 30	----
	Firing at 1125°C/46 min		Firing at 1200°C/55 min	Firing at 1170°C/60 min
% Firing shrinkage	1 – 1.2	1.2 -1.4	5.5	8-9
Water absorption	12 – 13	11 - 13	6	0.06
Firing strength (Kg/cm ²)	> 200	> 200	> 450	>540
Mine location	Qazvin Bouein Zahra area		Tabas Robotkhan	Qazvin Bouein Zahra area
Packing	Bulk/Big bag			
Sizing	< 25 cm / < 15 mm		< 30 mm / < 10 mm	<5 mm



Raw Materials for Sanitary ware

Code	U 1	AC - 50	AC - 35
	Ball Clay		
	Chemical Analysis		
SiO ₂	70 ± 1	65 - 67	66 - 68
Al ₂ O ₃	18 ± 1	19 – 21	19 – 21
Fe ₂ O ₃	< 1	< 2	< 1.8
TiO ₂	< 1	< 1	< 1
CaO	< 0.5	< 0.5	< 0.5
MgO	< 0.5	< 0.5	< 0.5
K ₂ O	1.5 – 2.5	1.5 – 2.5	1.5 – 2.5
Na ₂ O	< 1	< 1	< 1
SO ₃	< 0.8	< 0.8	< 0.8
L.O.I	6 ± 1	6 ± 1	6 ± 1
	Physical properties at firing at 1190°C		
Dry strength (Kg/cm ²)	22 - 28	38 - 42	28 - 35
% Dry shrinkage	4. 47	4. 69	4. 84
% Firing shrinkage	12.45	10.23	10.76
Firing strength (Kg/cm ²)	459	644	780
Water absorption	5.51	1.1	0.05
Firing Color	Light cream	Dark cream	Cream
Mine location	Tabas/Robat khan		
Sizing	0-30 mm / 0-10 mm / Powder		
Packing	Bulk /Big Bag		
* Samples are tested under company laboratory condition			



Raw Material for Porcelain bodies & Sanitary ware

Code	A-SEM-10			
	Kaolin			
	Chemical Analysis			
SiO ₂	45-46			
Al ₂ O ₃	36-37			
Fe ₂ O ₃	1.8			
TiO ₂	1.5			
CaO	<0.25			
MgO	0.5			
K ₂ O	<0.7			
Na ₂ O	<0.7			
SO ₃	0.1			
L.O.I	13-14			
Mineralogical Analysis	Kaolinite (≥ 92%) , Anatase and Quartz			
	Physical Properties			
Drying strength (Kg/cm ²)	17-19			
	Thermal Properties (Dilatometry) $\alpha \times 10^{-7} \text{ }^\circ\text{C}^{-1}$			
	α 300	α 400	α 500	α 600
At 1156 ° C 60'	41.60	42.26	42.92	43.59
At 1195 ° C 60'	42.02	42.57	43.14	43.77
Color	at 1190°C L = 70-75 a = 0.7 b = 5.42			
Application	Porcelain bodies, Sanitary ware			
Sizing	0-12 mm			
Packing	Big bag - Bulk			
Delivery place	According to customer order			
* Samples are tested under company laboratory condition				



Raw Material for Porcelain bodies & Sanitary ware

Code	A-SEM-20			
	Kaolin			
	Chemical Analysis			
SiO ₂	44-45			
Al ₂ O ₃	37-38			
Fe ₂ O ₃	<0.7			
TiO ₂	1.6			
CaO	<0.3			
MgO	<0.7			
K ₂ O	<0.3			
Na ₂ O	<0.3			
SO ₃	0.12			
L.O.I	13-14			
Mineralogical Analysis	Kaolinite (≥ 94%) , Anatase and Quartz			
	Physical Properties			
Drying strength (Kg/cm²)	17-19			
Color	at 1160°C 55' L = 89 a = 1.8 b = 9.6			
	Thermal Properties (Dilatometry) α x 10⁻⁷ °C⁻¹			
	α 300	α 400	α 500	α 600
At 1160 ° C 50'	42.22	42.59	43.07	43.66
At 1123 ° C 33'	40.30	41.14	41.84	-
Application	Porcelain and white bodies –Sanitary ware			
Sizing	<40 cm-powder			
Packing	Big bag - Bulk			
Delivery place	According to customer order			
* Samples are tested under company laboratory condition				



Raw Material for Engobes

Code	ACE			
	Ball Clay			
	Typical Chemical Analysis			
SiO ₂	60 ± 1			
Al ₂ O ₃	25.5 ± 1			
Fe ₂ O ₃	<0.8			
TiO ₂	<1			
CaO	<0.3			
MgO	<0.6			
K ₂ O	<1.2			
Na ₂ O	<0.5			
SO ₃	-			
L.O.I	9-10			
	Physical Properties			
Drying strength (Kg/cm ²)	25			
Shrinkage at 1170°C	3-4 %			
Color	At 1180 °C / 65' L = 82.5 ± 1 a = 3 ± 0.3 b = 15 ± 1			
	Thermal Properties (Dilatometry) α x 10⁻⁷ °C⁻¹			
	α 300	α 400	α 500	α 600
At 1180 ° C 65'	62	66	71	86
At 1135 ° C 48'	60	64	69	86
Application	Engobes			
Sizing	0-30 mm 0-10 mm - powder			
Packing	Big bag - Bulk			
Delivery place	Tabas - Robatkhan			
* Samples are tested under company laboratory condition				



Raw Materials for Refractory Industries

Code	ARB-10	ARB-30	ARB-70	ARB-80	ARB-100
Plastic Refractory Clays					
Chemical Analysis					
SiO ₂	46 ± 1	38 ± 1	54-55	51 ± 1	42
Al ₂ O ₃	27 ± 1	26 ± 1	>24	28 ± 1	33 ± 1
Fe ₂ O ₃	< 1.5	1.5	<2	< 2	< 2
TiO ₂	< 1.5	1	1.5	1.5	1.5
CaO	< 0.5	0.5	0.4	< 0.4	< 0.4
MgO	---	---	---	---	---
K ₂ O+Na ₂ O	< 2	2.5	2	< 2	< 1
SO ₃	---	---	---	---	---
L.O.I	18 -20	< 30	14-15	13 ± 1	16
Type	Refractory plastic clay				
Mineralogy	Quartz, Kaolinite				
Refractoriness P.C.E	+28	---	+29	30	+31
Application	Refractory Industries	Insulate refractory bricks	Refractory Binder	Refractory Binder	Refractory Binder
Mine Location	Tabas/Robatkhan				
Sizing	0-250 / 0-30 / 0-10 mm / Powder <140, <200 mesh				
* Refractory plastic clays are available in 0-30/0-10 mm / micronized powder <200 mesh					



Raw Materials for Refractory Industries

Code	ARF-45	ARF-40
	Fire Clay	
	Chemical Analysis	
SiO ₂	33.5 ± 1	38.5 ± 1
Al ₂ O ₃	45 ± 1.5	40 ± 1.5
Fe ₂ O ₃	< 2.2	< 2.5
TiO ₂	5 - 5.5	5 - 5.5
CaO	< 0.5	< 0.5
MgO	< 0.5	< 0.5
K ₂ O+Na ₂ O	< 1	< 1
SO ₃	---	---
L.O.I	12 - 13	12 - 13
Type	Refractory hard clay	
Refractoriness P.C.E	+32	+32
Application	Chamotte	Chamotte
Mine location	Tabas/Robatkhan	
Sizing	0-25 cm / 0-30 mm	
* Samples are tested under company laboratory condition		



Raw Materials for Refractory Industries

Code	Bauxite-50	Bauxite-55	Bauxite-60
	Refractory Grade Bauxite		
	Chemical Analysis		
SiO ₂	30 ± 1.5	23 ± 1.5	18 ± 2
Al ₂ O ₃	50 ± 1.5	55 ± 1.5	60 ± 2
Fe ₂ O ₃	< 2	< 2	< 2
TiO ₂	5.5 ± 0.5	5.5 ± 0.5	5.5 ± 0.5
CaO	< 0.5	< 0.5	< 0.5
MgO	< 0.5	< 0.5	---
K ₂ O+Na ₂ O	< 1	< 1	< 1
SO ₃			
L.O.I	12 -13	12 -13	12 -13
Type	Refractory grade Bauxite		
Mineralogy	Diaspore, Bohemite, Kaolinite, Quartz, Rutile		
Refractoriness P.C.E	+34	+34	+34
Application	Refractory bricks		
Mine Location	Tabas, Robot khan		
Sizing	0-250 mm		
* Samples are tested under company laboratory condition			



Raw Materials for Refractory Industries

Code	A-SEM-R
	Fire Clay
	Chemical Analysis
SiO ₂	45-46
Al ₂ O ₃	36-37
Fe ₂ O ₃	<2
TiO ₂	1.5
CaO	0.25
MgO	0.5
K ₂ O+Na ₂ O	<0.7
SO ₃	0.1
L.O.I	13-14
Type	Refractory hard clay
Mineralogy	Kaolinite, Anatas, Quartz
Refractoriness P.C.E	+34
Application	Chamotte
Packing	Big bag
Delivery place	According to customer order
Sizing	0-12 mm
* Samples are tested under company laboratory condition	



Raw Materials for Refractories

Code	CS-10	CS-20
	Calcined Fire clay (CHAMOTTE)	
	Chemical Analysis	
SiO₂	51-52	50-51
Al₂O₃	41-42	42-43
Fe₂O₃	<2.2	≤ 1
TiO₂	<2	<2
CaO	<0.3	<0.3
MgO	0.6	0.6
K₂O+ Na₂O	<0.8	<0.8
L.O.I	<0.15	<0.15
Bulk Density	2.6-2.7	2.65-2.75
%Water absorption	1.5-2	1
Application	Refractory products	
Available Size	0-30 / 4.8-2.4/2.4-1.2 /1.2-0.6 /≤0.1/≤0.6 mm	
Delivery place	Tehran	
Packing	Bulk-Big bag	



Raw Materials for Refractories

Code	CT-44	CT50	CT55	CT60	CT65
	Calcined Fire clay (CHAMOTTE)				
	Chemical Analysis				
SiO₂	43±1	37 ± 1.5	33.5±1	26 ± 2	20±2
Al₂O₃	44±1.5	50 ± 1.5	55±1.5	60 ± 2	65±2
Fe₂O₃	<2.8	2.5 ± 0.2	2.6±0.2	2.5 ± 0.2	2.5 ± 0.2
TiO₂	5.5-6	6.2 - 6.7	5.5-6.5	6.2 – 6.7	5.5-6.5
CaO	<0.6	< 0.6	<0.6	< 0.6	<0.6
MgO	<0.6	< 0.6	<0.6	< 0.6	<0.6
K₂O+Na₂O	<1.2	< 1.2	<1.2	< 1.2	<1.2
L.O.I	<0.15	<0.15	<0.15	<0.15	<0.15
Bulk density	2.5	2.6	2.6-2.7	2.65-2.75	2.7-2.8
%Water absorption	1-2.5	1-2.5	2.5-3	2.5-3	2.5
Application	Refractory products				
Delivery place	Tehran				
Available size	0-30 / 4.8-2.4 / 2.4-1.2 / -0.6 / ≤0.1/≤0.6 mm				
Packing	Bulk- big bag				



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	ARF-40	ASEM-50	ASEM-60
	Clay	Clay	Feldspar	Bentonite	Ball clay	Ball clay	Ball clay	Ball clay	Ball clay	Fire clay	Fire clay	Red clay	Red clay
Chemical Analysis													
SiO ₂	68±1	67±2	69±1	66.5-67.5	62.64	46 ±1	38±1	54-55	42	39±1	38.5±1	28-31	35-36
Al ₂ O ₃	12.5±1	13±0.5	16±1	12-13	19-21	27±1	26±1	>24	33±1	37-39	40±1.5	32-36	31-34
Fe ₂ O ₃	1.9-2	<2.2	0.9 -1	1-1.3	2-3	<1.5	1.5	<2	<2	4-6	<2.5	19-27	14-15
TiO ₂	0.3	0.4	<0.5	<0.2	1-2	<1.5	1	1.5	1.5	5-5.5	5-5.5	1-1.3	1-1.3
CaO	2.8-3	3	<1	5.5-6.5	<1	<0.5	0.5	0-4	<0.4	<0.5	<0.5	<0.5	<0.5
MgO	0.9-1.1	0.8	2±0.5	1.5		--	--	--	--	<0.5	<0.5	<0.5	<0.5
K ₂ O	3-3.4	3.2-3.8	2-2.5	2-2.5	<3	<2	2.5	2	<1	<1.5	<1	<0.5	<1
Na ₂ 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	12-13	10.5-11.5	12
Mine Location	Qazvin	Qazvin	Qazvin	Qazvin	Tabas	Tabas	Tabas	Tabas	Tabas	Tabas	Tabas	Isfahan	Isfahan
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	0-25 cm 0-30 mm	0-12 mm	0- 400 mm
* Samples are tested under company laboratory condition													





ASI-10 ASI-20
Illitic Clay



ARK-50
Ball Clay



ASF-10
Feldspar

APPLICATIONS:

CERAMIC TILES



U1
Ball Clay



AC-50 AC-35
Ball Clay



A-SEM-10
Kaolin

APPLICATIONS:

SANITARY WARE

SANITARY WARE, PORCELAN BODIES



A-SEM-20
Kaolin

*APPLICATIONS:
PORCELAIN AND WHITE BODIES, SANITARY WARE*



ACE
Ball Clay

ENGOB



ARB-10 --- 100
Ball Clay

*REFRACTORIES
(BINDER, INSULATORS, BRICKS)*



ARF - 45 ARF - 40
Fire Clay

*APPLICATIONS:
CHAMOTTE*



A-SEM-R
Fire Clay

REFRACTORY BRICKS



Bauxite -50-55-60
Refractory grade

REFRACTORY BRICKS



CS-10
Chamotte



CS-20
Chamotte

APPLICATIONS:

REFRACTORY INDUSTRIES

SURAVAJIN AGHIGH MINING & INDUSTRIAL CO

Head office: Unit 6, 3rd floor, No.82.Ebnesina, Yousef Abad Ave, Tehran 1433863595- Iran.

Telefax: +9821) 88105230 - 88107252

e-mail: info@iranclay.ir www.iranclay.ir