

CACSAND

high performance calcium
aluminate aggregate



**Special aggregate for your
high performance applications!**



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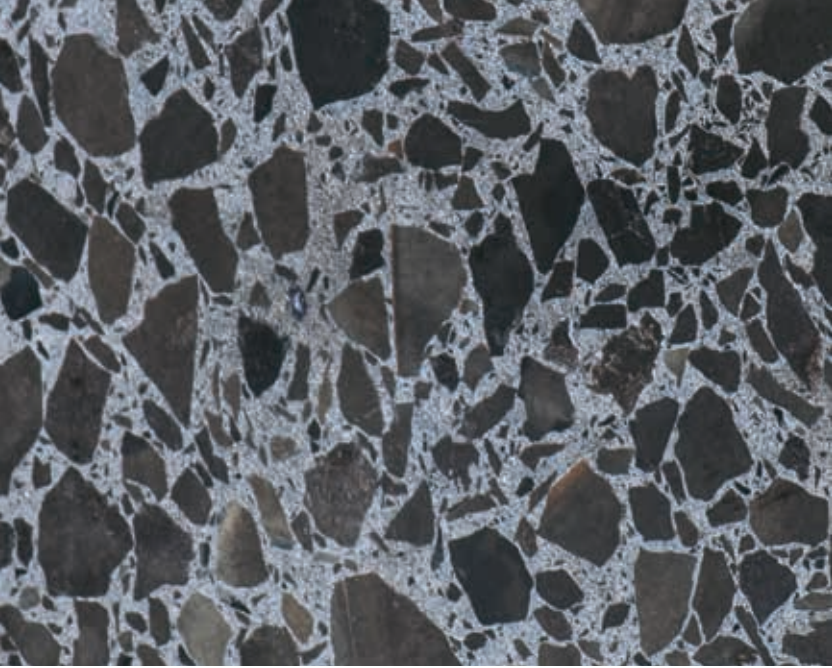
CACSAND

Calcium Aluminate
Aggregate

**Tailor Made
Aggregate
for High
Performance
Applications**

Çimsa is one of the leading manufacturers of calcium aluminate cement for more than 10 years. For most aggressive conditions; Çimsa now offers a tailor made solution; CACSAND, a high performance calcium aluminate aggregate, that consists of only pure calcium aluminate cement clinker. When combined with ISIDAC 40, Calcium Aluminate Cement, CACSAND offers a unique solution for all high performance applications. CACSAND offers maximum performance when used in mortars designed for sewage rehabilitation, refractory applications and abrasive environments.





CACSAND CALCIUM ALUMINATE AGGREGATE

1. Chemical Properties:

CACSAND is pure calcium aluminate cement clinker, because of this property its chemical composition is exactly similar to ISIDAC 40, calcium aluminate cement.

Chemical Properties		CACSAND
SiO ₂	%	3,60
Al ₂ O ₃	%	39,80
Fe ₂ O ₃	%	17,05
CaO	%	36,20
MgO	%	0,65
SO ₃	%	0,04
Loss of ignition	%	0,30
Na ₂ Eq	%	0,16
Chloride (Cl-)	%	0,0090
S (Sulphur)	%	0,01



2. Particle Size Distribution:

CACSAND is a tailor made product developed for most durability oriented applications. The particle size distribution of CACSAND may vary from micron level to centimetres according to the demand.

Representative sieve analysis of CACSAND is as follows:

Sieve Size (mm)	Retained on (%)
8	0
4	0
2	0,3
1	32,9
0,5	28,4
0,25	18,9
0,125	10,6
0,125	8,9

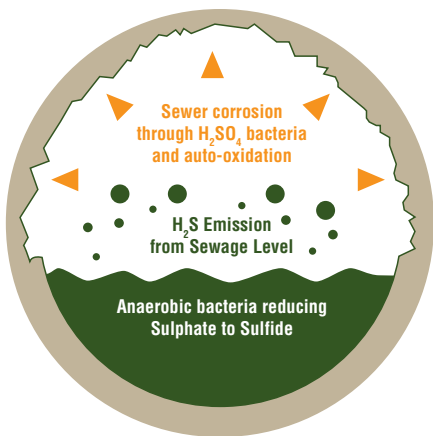
3. Physical and Mechanical Properties:

Physical and Mechanical Properties	Unit	Physical Properties
Density	g/cm ³	3.25
ASTM C 131 Los Angeles Abrasion	%	16
EN 1097-3 Bulk Density	g/cm ³	2.05
Hardness	Mohs	> 7
Open Porosity	ε	None



4. Biogenic Corrosion and Acid Resistance:

CACSAND forms a perfect matrix when combined with ISIDAC 40 in sewage applications. This combination provides unique solution for sewage rehabilitation mortars, pipe inner linings and all other calcium aluminate based applications where there is risk of biogenic corrosion.



Studies* about the biogenic corrosion in sewage networks showed that;

- CAC mortar with dolomite aggregate performed 4 times better than the OPC mortar.
- CAC mortar with the calcium aluminate clinker aggregate performed 10 times better than the CAC mortar with an inert aggregate.

- CAC mortar with the calcium aluminate clinker aggregate performed 40 times better than the OPC mortar with an inert aggregate.

CAC based terrazzo tiles is a perfect application of ISIDAC 40 and CACSAND, offering a long lasting solution for surfaces that suffers from continuous acid attack, such as animal farms and fertilizer production plants.

5. High Temperature Resistance:

Laboratory tests showed that CAC mortars prepared with CACSAND have the lowest strength loss in high temperatures.

CACSAND provides heat resistance up to 1200°C when combined with ISIDAC 40 as the binder.

Mixture	ISIDAC 40 and CACSAND	ISIDAC 40 and Chamot Aggregate	ISIDAC 40 and Bouxite Aggregate	Original Portland Cement and Limestone Aggregate
Compressive Strength after 400 °C	37,2	29,7	39,2	35,5
Compressive Strength after 600 °C	43,8	41,3	46,9	24,8
Compressive Strength after 800 °C	59,5	45,3	56,7	0
Compressive Strength after 1100 °C	32,4	25,1	30,2	0

6. Abrasion Resistance

CACSAND has high abrasion resistance when compared with limestone based aggregates. The abrasion resistance of CACSAND is tested according to ASTM C-131 Los Angeles abrasion test. Los Angeles Abrasion value of CACSAND is 16%.

*Erich S., Helard L., Letourneux R., Willocq J., Bock E., Biogenic and Chemical Sulfuric Acid Corrosion of Mortars', Journal of Materials in Civil Engineering.

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