

MARBURN

TRADING COMPANY



**PRODUCT
PROFILE
2022**



ELECTROLAND ALUMINATE CEMENT

ELECTROLAND cement is a calcium-aluminate cement with versatile properties including high heat refractory, rapid hardening and very high mechanical strength.

Resistant to aggressive environments (sulphates, marine, diluted acids) as well as to abrasion and high temperatures (refractory applications), ELECTROLAND is recommended in the formulation of special mortars, joints and high-tech self-levelling screeds.



CEMENT FEATURES

Chemical Characteristics

Standard Value		Standard Value		Standard Value	
Al ₂ O ₃	41%	FeO	4%	S ²	0,02%
CaO	38%	SiO ₂	4%	SO ₃	0,02%
Fe ₂ O ₃	11%	Cl	0,01%	Alkalies	0,2%

Mechanical and Physical Characteristics

Standard Value	Standard Value
Compression strength 6 h (MPa) : 50	Compression strength 24h (MPa) : 75
Initial setting time (min) : 210	Final setting time (min) : 230
Blaine specific surface (cm ² /g) : 3270	

Additional Properties

Additional Characteristics	Additional Characteristics
Laser granulometry D(v,0.9) (um) <70	Melting temperature 1280°C
Apparent gravity (g/cm ²) : 1,1	Specific gravity (g/cm ²) : 3,2
Primary mineral component: Monocalcium Aluminate CaO·Al ₂ O ₃	
Secondary mineral component: Ca ₂ Fe AlO ₅ , Ca ₁₂ Al ₁₄ O ₃₃ , β-Ca ₂ SiO ₄ Ca ₃ TiFe ₂ O ₈ , FeO	

RECOMMENDED USAGE

ELECTROLAND is recommended for mortars and concrete that require the following:

- Rapid hardening, even in cold weather.
- Resistance to the attack of sulphates and certain acids ($\text{pH} \geq 4$).
- Chemical and bacteriological resistance.
- Resistance to abrasion /mechanical impact.
- Suitability to the construction chemistry industry characterised by rapid setting and hardening (water leak sealers, adhesives, mortars, grouts, self-levellers, etc.) and by rapid hardening and drying with dimensional control (self-levellers, grouts)
- Refractory, refractory-insulators and resistant to thermal shock.



PRECAUTIONS FOR USE

ELECTROLAND is not recommended for prestressed concrete or mass concrete in large volumes.

It is also not recommended for soil stabilization or cement-treated bases for roads as well as mortars and concretes in contact with media that can release alkali.

In view of its high reactivity, mortars and concretes with ELECTROLAND must be cured during the first 24 hours.

A minimum cement dosage of 400 kg/cm^3 and a maximum water/cement ratio of 0,40 is required.

DISPATCH AND STORAGE

Available in bulk, in big bags of 1,050kg, 1,200 and 1,500 kg and in bags of 25 kg.

ELECTROLAND should be stored in dry and ventilated places. Bulk storage should take place in sealed silos.

ELECTROLAND ALUMINATE CEMENT

ALUMINITE REFRACTORY CEMENT

ALUMINITE is a refractory cement specifically designed for the production of heat-resistant, insulating mortars and concretes. ALUMINITE is made of calcium aluminates and aluminium rich minerals that are both ground to micron size.

By raising its surface temperature, its components are sintered which increases its melting point and mechanical strength. ALUMINITE hardens quickly which contributes to its rapid demolding.



CEMENT FEATURES

Chemical characteristics

Standard Value		Standard Value		Standard Value	
Al ₂ O ₃	42,9%	FeO	4,5%	S ²	0,03%
CaO	36,1%	SiO ₂	2,9%	SO ₃	0,10%
Fe ₂ O ₃	11,4%	Cl	0,01%	Alkalies	0,07%

Mechanical strengths (EN 196-1 modified by EN 14647) setting time (EN 196-3) and Blaine specific surface areas (EN 196-6).

Standard Value	Standard Value
Compression strength 6 h (MPa) : 47,7	Compression strength 24h (MPa) : 65,2
Initial setting time (min) : 145	Final setting time (min) : 165
Blaine specific surface (cm ² /g) : 3270	

Additional Characteristics	Additional Characteristics
Primary mineral component: CaAl ₂ O ₄	Melting temperature 1360°C
Apparent gravity (g/cm ³) : 1,2	Specific gravity (g/cm ³) : 3,2
Laser granulometry D(v,0.9) (um) less than 90 um	

This product does not require the addition of a chromium (VI) reducing agent.

RECOMMENDED USAGE

Heat-resistant, insulating mortars and concrete, including those resistant to thermal shock (with appropriate aggregates).

Fields of use include:

- The iron and steel industry
- The photochemical industry
- Incinerators
- The aluminium industry
- Ceramics
- Chimneys and braai areas

ALUMINITE is not suitable for non-refractory or non-insulating applications.

PRECAUTIONS FOR USE

Given the high reactivity of this cement, care should be exercised during the curing process, particularly in hot, dry and windy climates.

Intensive curing is recommended three hours after application and over the next 24 hours.

The first temperature ramp rate should be gradual so as to avoid fissures caused by the rapid discharge of water.

A ramp rate of 50°C per hour from room temperature up to 600°C is recommended and should be maintained for two hours. Finally, the temperature can be raised to the required level.

Once the ALUMINITE is fired, subsequent temperature ramp rates are unaffected.

DISPATCH AND STORAGE

Available in 25kg bags, that must be stored in ventilated, dry conditions and protected from air and ground moisture.



ALUMINITE REFRACTORY CEMENT

GORKAL 70

UNIVERSAL APPLICATION

GORKAL 70 is a high alumina universal cement product designed for a wide range of refractory applications.

This white cement is also extensively used in mixtures made by the manufacturers of construction chemicals.

A chemically pure cement, GORKAL 70 has no additives and modifiers, which reduces the risk of an unfavourable interaction with other mixes.



CEMENT FEATURES

Chemical Composition

Component	Values %
Al ₂ O ₃	69 - 71%
CaO	28 - 30%
Fe ₂ O ₃	<0,3%
SiO ₂	<0,5%
Na ₂ O+ K ₂ O	<0,5%

Hydraulic Properties

Properties	Values (minutes)
Start of setting	>160
End of setting	<240

Shelf Life

If stored correctly in dry conditions, the GORKAL 70 shelf life can be 12 months.

Special Properties

Properties	Measure
Blaine fineness	4000 - 4500 cm ² /g
Refractoriness	≥158 sP
Density	3,0g/cm ³
Bulk density	1,1g/cm ³

Mechanical Properties

Properties	Pressure (MPa)
Cold flexural strength after 24h	>5 MPa
Cold crushing strength after 24h	>30 MPa

Mineralogical Composition

Phase	Composition
Principal phase	CA, CA ₂
Traces of secondary phases	αA, C ₁₂ A ₇

GORKAL 70A

LIMITED WATER DEMAND

GÓRKAL 70 is a hydraulic binder with a high alumina content developed for applications where limited water demand is needed.

A chemically pure cement, GORKAL 70A has a stable phase composition, modified hydraulic behaviour and high refractoriness which means it can be used in a variety of construction and refractory mixes.



CEMENT FEATURES

Chemical Composition

Component	Values %
Al ₂ O ₃	69 - 71%
CaO	28 - 30%
Fe ₂ O ₃	<0,3%
SiO ₂	<0,5%
Na ₂ O+ K ₂ O	<0,5%

Hydraulic Properties

Properties	Values (minutes)
Start of setting	>300
End of setting	<600

Shelf Life

If stored correctly in dry conditions, the GORKAL 70A shelf life can be 12 months.

Special Properties

Properties	Measure
Blaine fineness	3300 - 4000 cm ² /g
Refractoriness	≥158 sP
Density	3,0g/cm ³
Bulk density	1,1g/cm ³

Mechanical Properties

Properties	Pressure (MPa)
Cold flexural strength after 24h	>5 MPa
Cold crushing strength after 24h	>30 MPa

Mineralogical Composition

Phase	Composition
Principal phase	CA, CA ₂
Traces of secondary phases	αA, C ₁₂ A ₇

GORKAL 70F

INCREASED HYDRAULIC ACTIVITY

GÓRKAL 70F (Fast) is a hydraulic binder with increased hydraulic activity.

A chemically pure cement, GORKAL 70F was created to offer customers the same high refractoriness parameters with shorter setting times.

This cement is suited to a variety of refractory products, particularly in guniting and shotcreting.



CEMENT FEATURES

Chemical Composition

Component	Values %
Al ₂ O ₃	69 - 71%
CaO	28 - 30%
Fe ₂ O ₃	<0,3%
SiO ₂	<0,5%
Na ₂ O+ K ₂ O	<0,5%

Hydraulic Properties

Properties	Values (minutes)
Start of setting	>75
End of setting	<160

Shelf Life

If stored correctly in dry conditions, the GORKAL 70F shelf life can be 6 months.

Special Properties

Properties	Measure
Blaine fineness	4200 - 4500 cm ² /g
Refractoriness	≥158 sP
Density	3,0g/cm ³
Bulk density	1,1g/cm ³

Mechanical Properties

Properties	Pressure (MPa)
Cold flexural strength after 24h	>5 MPa
Cold crushing strength after 24h	>30 MPa

Mineralogical Composition

Phase	Composition
Principal phase	CA, CA ₂
Traces of secondary phases	αA, C ₁₂ A ₇

GORKAL 50+

MECHANICAL STRENGTH

GÓRKAL 50+ is a high alumina cement with a stable phase composition, resulting in excellent mechanical properties.

It can be used in mortars and concretes in construction chemicals, as well as an insulating component of refractory compounds or other jointless materials.

With a low Fe_2O_3 content and a noticeable increase in mechanical strength, this product also has a short setting time.



CEMENT FEATURES

Chemical Composition

Component	Values %
Al_2O_3	51 - 55%
CaO	<38%
Fe_2O_3	<3%
SiO_2	<5%

Special Properties

Properties	Measure
Blaine fineness	3000 - 3500 cm^2/g
Refractoriness	≥ 146 sP
Density	3,0g/ cm^3
Bulk Density	1g/ cm^3

Hydraulic Properties

Properties	Values (minutes)
Start of setting	>220
End of setting	<600

Mechanical Properties

Properties	Pressure (MPa)
Compressive strength after 6h	>18 MPa
Compressive strength after 24h	>45 MPa

Mineralogical Composition

Phase	Composition
Basic Phase	Calcium monoaluminate
Accompanying Phases	Brownmillerite C4AF Dodecacalcium hepta-aluminate C12A7 Gehlenite C2AS



Marburn Trading has been importing high quality refractory cement since 1983. Over the last 38 years, this family run business has established strong relationships with a number of cement producers around the world.

MARBURN

TRADING COMPANY

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