

Your guide to the use of High Strength Cement

Cement products



Guide to the use of High Strength Cement

Mixes for concrete


Low-strength concrete

15 MPa





Suitable for unreinforced foundations for single storey houses and free-standing walls. 1 part AfriSam High Strength Cement + 4 parts coarse sand + 4 parts stone. To make a mix for 1 cubic metre of low-strength concrete you will need: 5,13 bags of AfriSam High Strength Cement + 0,67 cubic metres of coarse sand + 0,67 cubic metres stone. Allow an additional 10% of required quantities for wastage.







Batching by bucket

High Strength Cement	Coarse sand	Stone	Approximate yield
			
1 Bucket	4 Buckets	4 Buckets	6 Buckets

Batching by wheelbarrow

High Strength Cement	Coarse sand	Stone	Approximate yield
			
2 Bags (1 = 50 kg)	4 Wheelbarrows	4 Wheelbarrows	0,39 m ³

Quantities per m³ of concrete




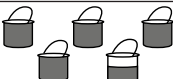
High Strength Cement	Coarse sand	Stone	Approximate yield
			
5,13 Bags (1 = 50 kg)	0,67 m ³	0,67 m ³	1 m ³

Medium-strength concrete





25 MPa

Suitable for reinforced foundations and slabs, light-duty house floors, paths, patios, steps, driveways and garage floors. 1 part AfriSam High Strength Cement + 3 parts coarse sand + 3 parts stone. To make a mix for 1 cubic metre of medium-strength concrete you will need: 6,59 bags AfriSam High Strength Cement + 0,64 cubic metres of coarse sand + 0,64 cubic metres stone. Allow an additional 10% of required quantities for wastage.





Batching by bucket

High Strength Cement	Coarse sand	Stone	Approximate yield
			
1 Bucket	3 Buckets	3 Buckets	4 ¹ / ₂ Buckets

Batching by wheelbarrow

High Strength Cement	Coarse sand	Stone	Approximate yield
			
2 Bags (1 = 50 kg)	3 Wheelbarrows	3 Wheelbarrows	0,3 m ³

Quantities per m³ of concrete





High Strength Cement	Coarse sand	Stone	Approximate yield
			
6,59 Bags (1 = 50 kg)	0,64 m ³	0,64 m ³	1 m ³

High-strength concrete





30 MPa

Suitable for suspended structural beams and slabs, precast items such as flagstones and heavy-duty floors such as workshop floors. 1 part AfriSam High Strength Cement + 2¹/₂ parts coarse sand + 2¹/₂ parts stone. To make a mix for 1 cubic metre of high-strength concrete you will need: 7,7 bags of AfriSam High Strength Cement + 0,63 cubic metres of coarse sand + 0,63 cubic metres stone. Allow an additional 10% of required quantities for wastage.





Batching by bucket

High Strength Cement	Coarse sand	Stone	Approximate yield
			
1 Bucket	2 ¹ / ₂ Buckets	2 ¹ / ₂ Buckets	4 Buckets

Batching by wheelbarrow

High Strength Cement	Coarse sand	Stone	Approximate yield
			
2 Bags (1 = 50 kg)	2 ¹ / ₂ Wheelbarrows	2 ¹ / ₂ Wheelbarrows	0,26 m ³

Quantities per m³ of concrete

High Strength Cement	Coarse sand	Stone	Approximate yield
			
7,7 Bags (1 = 50 kg)	0,63 m ³	0,63 m ³	1 m ³




Note: Specified strength is the resultant strength of the mix at an age of 28 days.

Mixes for mortar


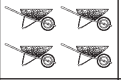

Class 1

Highly stressed masonry incorporating high strength structural units as used in multi-storey loadbearing buildings and walls exposed to severe dampness.




Batching by bucket

High Strength Cement	Building sand	Approximate yield
		
1 Bucket	4 Buckets	3 ² / ₃ Buckets

Batching by wheelbarrow

High Strength Cement	Building sand	Approximate yield
		
2 Bags (1 = 50kg)	4 Wheelbarrows	0,22 m ³




Quantities per m³ of mortar

High Strength Cement	Building sand	Approximate yield
		
9,23 Bags (1 = 50kg)	1,20 m ³	1 m ³




Mix A

Exterior/ Exposed to dampness.
In line with NHBC requirements.




Batching by bucket

High Strength Cement	Building sand	Approximate yield
		
1 Bucket	4 ¹ / ₂ Buckets	3 ² / ₃ Buckets

Batching by wheelbarrow

High Strength Cement	Building sand	Approximate yield
		
2 Bags (1 = 50kg)	4 ¹ / ₂ Wheelbarrows	0,24 m ³




Quantities per m³ of mortar

High Strength Cement	Building sand	Approximate yield
		
8,33 Bags (1 = 50kg)	1,22 m ³	1 m ³




Mix B

Interior/ Dry.
In line with NHBC requirements.




Batching by bucket

High Strength Cement	Building sand	Approximate yield
		
1 Bucket	6 Buckets	4 ² / ₃ Buckets

Batching by wheelbarrow

High Strength Cement	Building sand	Approximate yield
		
2 Bags (1 = 50kg)	6 Wheelbarrows	0,3 m ³

Quantities per m³ of mortar

High Strength Cement	Building sand	Approximate yield
		
6,66 Bags (1 = 50kg)	1,3 m ³	1 m ³

Quantities of popular sizes of masonry units and corresponding mortar requirements

Masonry unit type	Masonry unit size (mm)			Masonry units per m ² (single leaf wall)	Mortar required in m ³	
	Length	Width	Height		Per 1000 units	Per 100m ² of walling
Standard brick	222	106	73	52	0,32	1,66
Maxi brick	290	140	90	34	0,55	1,87
Common blocks	390	90	190	13	0,53	0,69
	390	140	190	13	0,83	1,08
	390	190	190	13	1,12	1,46

Quantities for mix B mortar

Masonry unit type	Masonry unit size (mm)			50 kg bags of High Strength Cement per 1000 units	Cubic metres of building sand per 1000 units
	Length	Width	Height		
Standard brick	222	106	73	2,1	0,4
Maxi brick	290	140	90	3,6	0,7
Common blocks	390	90	190	3,5	0,7
	390	140	190	5,5	1,1
	390	190	190	7,4	1,4

Notes

- The tables are based on exact sizes of solid masonry units with 10 mm thick bedding, 10 mm thick vertical joints and no wastage.
- There are numbers of factors which may influence mortar quantities. The following adjustments should be made:
 - To allow for wastage, increase all mortar mix quantities :
 - by 10% for excellent control on site
 - by 30% for average control on site
 - For hollow units, reduce mortar quantities by:

Width of units, mm	% Reduction
90-110 mm	20
140 mm	30
190-220 mm	40


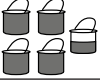

- For units with perforations or holes, increase mortar quantities by 15%.
- For units with frogs with the frog laid face up (as required for structural walls), increase mortar quantities by 15%.

Mixes for plaster




Mix A

Exterior/ Exposed to dampness.
In line with NHBRC requirements.




Batching by bucket

High Strength Cement	Plaster sand	Approximate yield
		
1 Bucket	4½ Buckets	3⅔ Buckets


Batching by wheelbarrow

High Strength Cement	Plaster sand	Approximate yield
		
2 Bags (1 = 50kg)	4½ Wheelbarrows	0,24 m³

Quantities per m³ of plaster

High Strength Cement	Plaster sand	Approximate yield
		
8,33 Bags (1 = 50kg)	1,22 m³	1 m³




Area of plaster per 2 bag mix

High Strength Cement	Plaster thickness	Area of wall (m²)
	10 mm	24
	15 mm	16
	20 mm	12




Mix B

Interior/ Dry.
In line with NHBRC requirements.




Batching by bucket

High Strength Cement	Plaster sand	Approximate yield
		
1 Bucket	6 Buckets	4⅔ Buckets


Batching by wheelbarrow

High Strength Cement	Plaster sand	Approximate yield
		
2 Bags (1 = 50kg)	6 Wheelbarrows	0,3 m³

Quantities per m³ of plaster

High Strength Cement	Plaster sand	Approximate yield
		
6,66 Bags (1 = 50kg)	1,3 m³	1 m³

Area of plaster per 2 bag mix

High Strength Cement	Plaster thickness	Area of wall (m²)
	10 mm	30
	15 mm	20
	20 mm	15

Notes

- Sand, stone and water should be clean.
- Add only enough water to make the mix workable. Too much water weakens the mix.
- Mix until the entire dry mix is the same colour before adding water.
- Stone for concrete should be between 19 and 26 mm in size. For 13,2 mm or 9,5 mm stone, reduce the proportion of stone in the mix by 25%.
- Wheelbarrows used in the illustrations are builders' wheelbarrows with a 65 litre capacity.
- Concrete strengths for the mixes specified may vary ± 5 MPa at an age of 28 days.

Retempering

All mixes should be used up within a maximum of two hours after being mixed and must **never** be retempered by mixing in additional water, as this reduces the resultant strength of the mix.

Curing

After your concrete, mortar and plaster work has been completed, it is essential to protect it from the sun and wind by covering it with a plastic sheet, damp sand or hessian and to keep it moist for a minimum of 7 days.



AfriSam High Strength Cement

Building on experience

AfriSam High Strength Cement is the result of careful research and development by our cement technicians. It is a specially formulated Portland Composite Cement engineered for use in all structural, building and masonry applications. AfriSam High Strength Cement is extremely easy to work with and produces consistently excellent results every time. This consistent quality, versatility and proven strength make it the ideal choice for builders, architects, engineers, contractors and DIY enthusiasts.

AfriSam quality guaranteed

AfriSam stakes its reputation on the consistency of our high-quality products and AfriSam High Strength Cement is no exception. AfriSam's manufacturing facilities are ISO 9001 certified and boast the highest possible Quality Management Systems. AfriSam High Strength Cement fully complies with the SABS EN 197-1 cement specification for common cements. The composition of the cement is constantly monitored and maintained to guarantee high quality performance in the 42,5 N MPA strength class.

Performance

AfriSam High Strength Cement produces durable concrete, mortar and plaster that will remain strong and stable for years. Its early strength is high enough to allow building operations to progress at normal rates, while its long-term strength is consistent with cements in the 42,5 N MPA strength class.

Applications

AfriSam High Strength Cement offers consistent strength, workability and durability, making it perfect for brick and block making, reservoirs, precast operations, structural concrete, plaster and mortar, shotcrete and for use in mining operations.

AfriSam High Strength Cement is not recommended for further on-site blending with extenders such as ground granulated blast furnace slag and fly ash without specialist advice and where high early strength is required for early stripping of formwork and prop removal.

Storage

The best way to store your AfriSam High Strength Cement is in a dry enclosed area, off the floor on a wooden pallet or on plastic sheeting. This will ensure that the bag does not absorb moisture from the floor. Doors and windows should be kept closed to eliminate the air flow.

Availability

AfriSam High Strength Cement is available from AfriSam factories and blending plants as well as those depots which are serviced by these plants. It is also available at reputable builders' merchants in the areas where AfriSam

distributes this product. Please contact AfriSam Cement's Customer Service for the location of your nearest AfriSam Cement stockist.

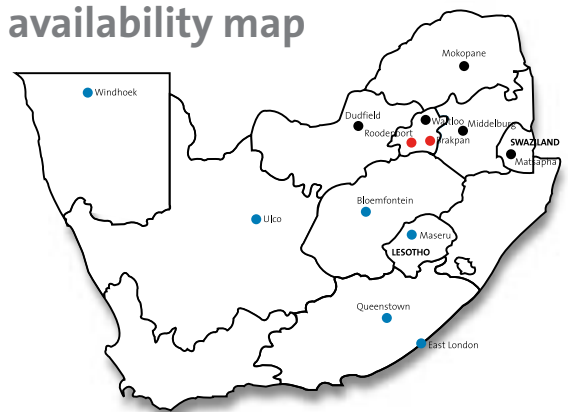
Health and Safety

Health and Safety Occupational exposure limits to cement are recommended in the Occupational Health and Safety Act. In terms of the time weighted average occupational exposure limit, the recommended limit for total inhalable dust is 10 mg/m³ and the respirable recommended limit is 5 mg/m³. Direct skin contact for extended periods can result in severe burns. It is therefore recommended that suitable attire be worn to prevent dust inhalation and direct skin contact. A detailed 'Safety Data Sheet' and 'Guide to the safe use of cement and concrete' is available on request.

Client support

Behind every bag of AfriSam High Strength Cement is AfriSam's unique and highly developed sales support, technical service and supply infrastructure. The purpose of this infrastructure is to ensure that each of our clients can rest assured that every bag is perfect in terms of its quality and consistency. AfriSam also operates a fully equipped laboratory run by qualified and experienced technicians, ready and able to assist with specific requirements. A range of guide brochures for different cement applications are available from stockists of AfriSam Cement or AfriSam sales outlets.

High Strength Cement availability map



High Strength Cement is available from these facilities:

- CEM II A-M (S) 42,5 N
- CEM II A-M (V) 42,5 N
- CEM II A-M (L) 42,5 N

Please note that while every care is taken to ensure the correctness of any advice or information given, AfriSam and our employees incur no liability with regard to the correctness thereof.



Note: Specified strength is the resultant strength of the mix at an age of 28 days.



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