

PPC PRODUCT BROCHURE





PPC is a proudly South African business, founded in 1891. With more than 100 years of experience and a large footprint across Southern Africa, we are able to provide our customers with a range of products and solutions to suit their needs.

Our range of quality cement products ensures the best outcome for any project, no matter how big or small.

All our products comply with SANS 50197, assuring quality performance.



INTRODUCTION

PRODUCTS



SUREBUILD 42,5 N is a premium cement, extended with limestone, fly ash and /or slag for general building and concrete projects



OPC 52,5 N guarantees high early strength for applications in the building, construction, ready-mix, precast and concrete product manufacturing industries



IDM 32,5 is a cost-effective composite cement formulated for general mortar, plaster, concrete and DIY applications



*SUREROAD 32,5 N is a Portland-composite cement that is ideal for the construction of cement-stabilised layers for roads

* For SUREROAD please contact us on 0800 236 368



While we offer a range of products and solutions, this brochure provides guidelines for general building applications for which PPC SUREBUILD 42,5 N and IDM 32,5 are ideally suited.

Mix yields (m^3) per bag, are based on typical proportions for various applications.

To experience the full benefits and most cost effective mixes of quality PPC SUREBUILD 42,5 N or IDM 32,5, always **refer to the specific mix proportions on the back of the bags** for a specific project.

INTRODUCTION



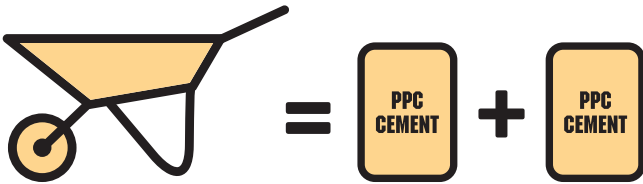
GENERAL TIPS FOR SUCCESSFUL PROJECTS

Cement storage & use

- Use the contents of opened bags as soon as possible. Reseal opened bags or keep them in closed containers for later use
- Lumps in cement indicate that the bag has been exposed to moisture
- If these lumps can be broken easily by hand, the cement may be used but add a little extra cement to each mix
- If the lumps are hard, do not use the cement for building applications
- Cement bags should be stored in a weatherproof shed or container
- Cement bags should be tightly packed, off the floor or on plastic, not more than 12 bags or two pallets high
- Cement bags should be covered with a plastic sheet or tarpaulin
- Cement bags should be stored so as to ensure “first in-first out” use, preferably within two to three months



- Mixes should be small enough to ensure that the whole mix is used within two hours of mixing
- 1 bag of cement has a volume of 33 litres
- 1 builders' wheelbarrow has a volume of 65 litres which is equivalent to TWO bags of cement



1 wheelbarrow (65 litres) = 2 x 50 kg bags of cement

GENERAL TIPS



Mixing

- Use full bags of cement when batching, except for small batches made for less critical work
- Use the recommended mix proportions on the back of the bag
- Use a concrete mixer or manually mix on a dry, clean, non-absorbent surface
- When mixing manually, first mix the cement, sand and water thoroughly and for concrete, mix in the stone last – this saves a lot of effort
- Mix until a uniform colour is achieved
- Use good quality aggregates and potable water
- Add just sufficient water to make a plastic, workable mix
- Do not add too much water – this will reduce the strength



Transporting, placing and compaction of concrete

- Concrete should be transported from the mixer in such a way as to avoid contamination and segregation
- Concrete should be placed as near as possible to its final position
- Concrete must be compacted by hand or with mechanical vibrators to remove all entrapped air

Curing

- Mortar, plaster and concrete gain strength over a period of time when water is present
- Curing is essential and may be done by covering it with plastic sheeting, damp hessian, damp sand, or by spraying it with water regularly to prevent the placed mix from drying out
- If the placed mix is allowed to dry out, it will not reach its potential strength, and may crack
- Cure the mortar, plaster or concrete for at least five days in normal weather and seven days in very cold or very hot weather

GENERAL TIPS



MORTAR & PLASTER

Materials for bricklaying & plastering

CEMENT:

Both PPC SUREBUILD 42,5 N and IDM 32,5 are suitable cements for use in mortars and plasters

SAND:

For building: (bricklaying/mortar/dagha) Use a builders' sand, generally unwashed and preferably free of twigs, roots or other foreign matter
For plaster: Ask your supplier for clean plaster sand. This is generally a washed sand, free of twigs roots or other foreign matter

WATER:

Use clean water - If you can drink it, it is suitable for building

YIELD:

The yield is how much mortar or plaster you will get when you mix all the materials together





Mixing

- Remove any lumps, stones or foreign objects from the sand
- Mix cement and sand together until uniform in colour
- Slowly add clean water while mixing, until it is like a thick paste, yet wet enough to be spread easily with a trowel

IMPORTANT: Mix only as much mortar or plaster as you can use in two hours. Covering of the mix to prevent drying out is recommended. After two hours, if the mix becomes too stiff to be used, it should be discarded and a fresh mix made



Do not add water to a stiff mix to regain workability, as this will reduce the strength

MORTAR & PLASTER





Mortar



The following table shows the typical mortar yield per bag of PPC SUREBUILD 42,5 N or IDM 32,5 cement when mixed according to the mix proportions on the back of the bag.

Class II Mortar (SANS 2001 CM1)	Typical Yield m ³	Number of standard bricks (190 x 90 x 90) that can be laid
	0,150	510
	0,190	650

Plaster

The following tables show the typical plaster yield per bag of PPC SUREBUILD 42,5 N or IDM 32,5 cement when mixed according to the mix proportions on the back of the bag.

Internal Plaster (SANS 2001 EM1)	Typical Yield m ³	Area that can be plastered @ 15 mm thick
	0,170	11 m ²
	0,200	13 m ²

External Plaster (SANS 2001 EM1)	Typical Yield m ³	Area that can be plastered @ 15 mm thick
	0,150	10 m ²
	0,170	11 m ²

MORTAR & PLASTER

GENERAL CONCRETE MIXES

Materials for concrete

CEMENT:

Both PPC SUREBUILD 42,5 N and IDM 32,5 are suitable cements for use in concrete

SAND:

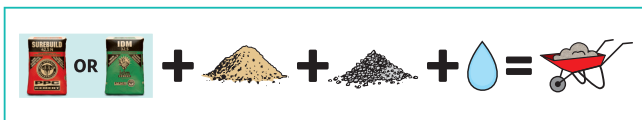
Ask your supplier for clean concrete sand. The sand should be free of twigs, roots or other foreign matter

STONE:

13mm or 19mm stone size is ideal for making concrete

WATER:

Clean water - If you can drink it, it is suitable for making concrete. Only add enough water to obtain a workable, plastic mix. Too much water will weaken the concrete





The secret to strong concrete

Making concrete is easy. There are many concrete projects; foundations, flooring slabs, fish ponds, driveways etc, that the homeowner can confidently tackle using PPC SUREBUILD 42,5 N or IDM 32,5 cement.

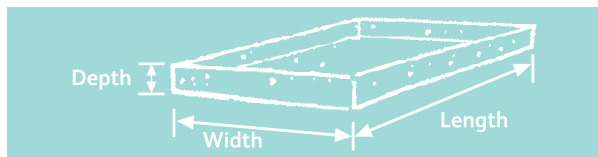
The secret to strong concrete is to use power-packed cement like PPC SUREBUILD 42,5 N or IDM 32,5, and never use too much water.

Calculating how much concrete will be needed

Concrete is always placed into a 'form' or hollow in the ground. To work out how much concrete you need, first measure the volume of the space you need to fill.

1. For flat Slabs, foundations and driveways:

Use a measuring tape to measure the length, width and depth of the volume to be filled and multiply these together to calculate how many cubic meters (m^3) of concrete you will need. For example: length - 4,5 m, width - 4 m, and depth 0,1m ($4,5 \text{ m} \times 4,0 \text{ m} \times 0,1 \text{ m} = 1,8 \text{ m}^3$ concrete will be required.

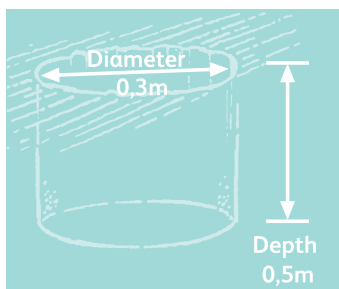


GENERAL CONCRETE MIXES



2. For post holes (cylindrical shapes):

Use a measuring tape to measure the diameter (width) and depth of the hole. Multiply the diameter by the diameter again, then multiply this total by the depth and then by 0,8 to calculate how many cubic meters (m^3) of concrete you will need. For example: Diameter - 0,3 m, Depth - 0,5 m ($0,3 \text{ m} \times 0,3 \text{ m} \times 0,5 \text{ m} \times 0,8$) = 0.036 m^3 concrete will be required.



How to mix concrete

1. Mechanical mixing

- If you use a concrete mixer, the batch size should suit the mixer. Underfilling the mixer wastes time, while overfilling results in spillage and poor mixing
- Measure the quantity of stone and place it into the mixer. Add a little water to wet the stone
- Add the measured quantity of PPC SUREBUILD 42,5 N or IDM 32,5
- Add the measured quantity of sand
- Finally add water, a little at a time, until the concrete is flowable but not wet



2. Manual Mixing

For larger batches:

- Measure out the sand and spread it on a flat, clean, hard surface
- Pour PPC SUREBUILD 42,5 N or IDM 32,5 cement on top of the sand and mix to a uniform colour
- Slowly add water and mix thoroughly. Leave mixing in the stone to last - this saves a lot of effort. The cement, sand and water mixture, once mixed thoroughly, will look wet but will stiffen up as soon as the stone is added. Ensure the stone is mixed throughout the concrete before transporting the concrete
- Mix the concrete close where it will be used
- For small batches: the concrete may be mixed in a wheelbarrow, following the same sequence as above

Placing concrete

- Concrete must be placed within one hour of mixing
- Place the concrete as close to its final position as possible
- If the concrete is being placed on the ground, make sure the ground is compacted and dampened with a spray of water before placing the concrete
- Once placed, spread the concrete evenly with a rake or spade

GENERAL CONCRETE MIXES






- The concrete should be well compacted with a rod, wooden tamper or spade, to remove as much air as possible and making sure that the concrete fills the form or hole completely
- Curing is critical – prevent evaporation of water from the concrete, and once it has stiffened, keep the concrete damp by covering it with plastic sheeting, damp hessian, damp sand, or by spraying it with water regularly. For optimum strength, this curing process should be continued for seven days
- For driveways, keep vehicles off the concrete for at least seven days

REMEMBER: Too much water will reduce the final strength of the concrete.

The following tables show the yield per bag for typical concrete mixes made with PPC SUREBUILD 42,5 N or IDM 32,5 cement when mixed according to the mix proportions on the back of the bag. Both of these products comply with SANS 50197.

To take full advantage of the benefits of using a PPC SUREBUILD 42,5 N or IDM 32,5 cement, **refer to the back of the bag for the specific mix instructions and proportions.**



Medium Strength Concrete 20-25MPa	Typical Yield m³	Typical floor @100mm thick
	0,135	14 m²
	0,165	17 m²
High Strength Concrete 30-35MPa	Typical Yield m³	Typical floor @100mm thick
	0,110	11 m²
	0,140	14 m²

GENERAL CONCRETE MIXES



MAKING BRICKS & BLOCKS ON A SMALL SCALE

Making strong bricks and blocks is easy

For bricks or blocks, both PPC SUREBUILD 42,5 N or IDM 32,5 products are suitable

Materials for brick and block making

CEMENT:

PPC SUREBUILD 42,5 N or IDM 32,5

SAND:

Ask your supplier for clean concrete sand. The sand should be free of twigs, roots or other foreign matter

WATER:

Clean water - If you can drink it, it is suitable for concrete

Making bricks and blocks



Select a site that:

- Is close to your customers
- Is close to your supplier of PPC SUREBUILD 42,5 N or IDM 32,5 and river sand
- Is accessible for delivery trucks if necessary
- Has a level concrete slab on which to make the bricks
- Is big enough to make and cure the number of bricks or blocks produced

Equipment

- A good manual brick or block-making machine
- A 65 litre builders' wheelbarrow to measure the sand
- A spade
- A sieve (this can be a strong piece of galvanised wire mesh with of ± 5 mm square holes) to remove over-sized material and twigs, roots or other foreign matter
- A builders' bucket for measuring the water
- Plastic sheeting for curing

The following table shows the typical yield per bag for brick and block mixes made with PPC SUREBUILD 42,5 N or IDM 32,5 cement when mixed according to the mix proportions on the back of the bag. Both of these products comply with SANS 50197.

Bricks and blocks	Typical Yield m ³	Number of standard stock bricks (190 x 190 x 90) mm
	0,155	100
	0,200	138

MAKING BRICKS & BLOCKS ON A SMALL SCALE



Making brick and block mixes

1. Sieve out lumps, stones, twigs or foreign objects from the sand
2. Measure out the sand and spread on a flat, clean, hard surface such as a metal sheet or a concrete slab
3. Mix PPC SUREBUILD 42,5 N or IDM 32,5 and sand together until uniform in colour
4. Create a hollow in the centre and slowly add clean water while mixing. The mix is correct when it forms a ball when squeezed in your hand (If water runs out between your fingers, too much water has been added)

How to mould the bricks or blocks

- Sweep the slab clean and then wet it
- Fill your brick/block-making mould with the brick/block mortar mixture
- Push the top handles of the machine down to press the mortar into the mould to compact it well. Good compaction increases the strength of your brick/blocks
- Lift the side handles to release the mould
- Lift the mould off the bricks/blocks
- Do not move the bricks/blocks, but cover them immediately with plastic sheeting to keep them damp and to shield them from the sun and wind
- Only after 24 hours can the bricks/blocks be moved to the stacking area and be stockpiled



- The stockpiled bricks/blocks should be covered and kept damp for another seven days to cure and gain strength
- Uncover the bricks/blocks but keep them stored for a further seven days to allow for any shrinkage that might take place (if the bricks/blocks are used before they have cured, they may cause the wall to crack!)

How to test the quality of the product

1. Keep a record of the number of broken or cracked bricks/blocks in each day's production. A large number is usually a sign of a poor mix e.g. too much water, too little cement unsuitable sand or poor compaction
2. After seven days of curing you can test the strength of your bricks/blocks by drying them and knocking two together. If they make a "ringing" sound, it indicates good strength. If they make a dull "thud", it indicates poor strength



HEALTH AND SAFETY IS IMPORTANT

- Pick up bags correctly to avoid back injury
- Don't throw the bag downwards from a height
- Don't drag the bag across the floor
- Avoid contact with eyes, skin and clothing as cement and cement paste are highly alkaline and can cause chemical burns, as well as skin irritation and dermatitis
- Wash skin exposed to wet concrete as soon as possible
- Keep out of reach of children
- Remove and wash any contaminated clothing
- Seek medical advice in cases of serious eye contamination, ingestion or excessive inhalation
- A material safety datasheet is available on request



HEALTH AND SAFETY WARNING



**SAFE DISPOSAL AT AUTHORISED
GENERAL WASTE LANDFILL**

HEALTH & SAFETY IS IMPORTANT



CEMENT, CONCRETE & THE ENVIRONMENT

Tips for using concrete in an environmentally responsible manner.

PPC & IDM use best practices and up-to-date technology to manufacture PPC SUREBUILD 42,5 N and IDM 32,5 in an environmentally responsible manner. The impact of a project on the environment can be minimized by following these pointers:

- Use the correct strength mix to minimise waste
- Mix just enough concrete, mortar or plaster you can place within two hours
- If you are building, make sure you design for optimal energy efficiency
- Cure the concrete properly to get maximum durability
- Do not waste water when cleaning
- Dispose of your paper bags in a responsible manner
- Use local raw materials; this reduces the carbon footprint of the transport component
- Recycle building rubble where possible
- Concrete is the preferred building material for energy-efficient and structurally durable structures



CONTACT INFORMATION

PPC has many sources of information available:



0800 CEMENT / 0800 236 368



contactus@ppc.co.za



www.ppc.co.za



<http://c3.ppc.co.za/>

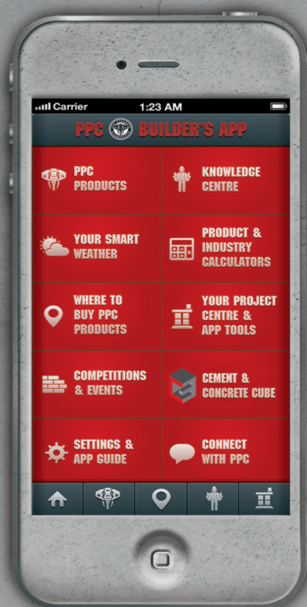


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