



General Purpose Cement





General Purpose Cement

General Purpose Cement is a cost effective, high quality building material. The level of consistency and versatility of GP cement makes it an ideal choice in virtually all construction applications.

Our General Purpose Cement complies with the Type GP requirements specified in Australian Standard AS3972 General purpose and blended Cements.

Benefits of General Purpose Cement

- High versatility allowing use in a wide variety of concrete applications
- Compatible with most admixtures and supplementary cementitious materials

Product applications for General Purpose Cement

General Purpose Cement is ideal for a wide range of applications including:

- Domestic construction such as concrete slabs, driveways and footpaths
- Structural concrete such as pre-stressed slabs, columns and tilt-up walls
- Pavers, blocks, panels and pipes
- Mining applications
- Major engineering and civil projects requiring cement of high quality and consistency
- Specialty formulations such as adhesives, renders, mortars and grouts

General Purpose Cement - an ideal choice in virtually all construction applications.

Where specific properties such as rapid setting or high early strength are required a special purpose cement should be considered.

GP Cement Properties

The following table details the relevant specified requirements of AS3972 and the indicative values achieved.

| Property | | AS3972 - 2010 Type GP | Indicative GP |
|---------------------------------|--------------|-----------------------|---------------|
| Setting Time | Min | 45min | 60-150 min |
| | Max | 6 hrs | 2.0 - 3.5 hrs |
| Soundness | Max | 5 mm | < 3mm |
| SO ₃ | Max | 3.50% | < 2.9% |
| ISO Mortar Compressive Strength | 3 Day (min) | – | 30-42 MPa |
| | 7 Day (min) | 35 MPa | 43-54 MPa |
| | 28 Day (min) | 45 MPa | 54-65 MPa |

All testing is conducted in accordance with the relevant Australian Standard test methods, at a NATA registered laboratory.

Compatibilities

General Purpose Cement is compatible with:

- Admixtures that comply with AS 1478 – Chemical Admixtures for Concrete.
- Fly ashes complying with AS 3582.1 – Supplementary Cementitious Materials for Use with Portland cement: Fly ash.
- Ground granulated blast furnace slags complying with AS3582.2 - Supplementary cementitious materials for use with Portland cement: Slag - ground granulated Iron blast-furnace.
- Amorphous Silica complying with AS3582.3 - Supplementary cementitious materials for use with Portland cement: Amorphous silica.
- Other cements complying with AS3972 - Portland and blended cements.

Caution: Type GP Cement must not be mixed with high alumina cement as this may result in uncontrollable expansion and setting times.

Mix Design

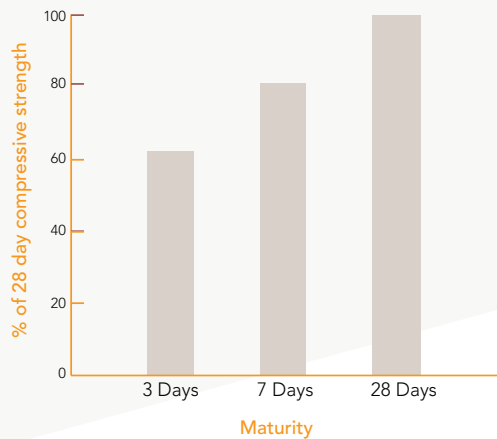
The proportioning of constituent materials in a concrete mix is a complicated matter which can be influenced by many factors. We recommend that trials be conducted with the available materials, to ascertain optimum cement contents for specific classes of concrete. For further guidance on this issue please refer to AS1379 – The specification and manufacture of concrete and AS3600 – Concrete structures.

Concrete Properties

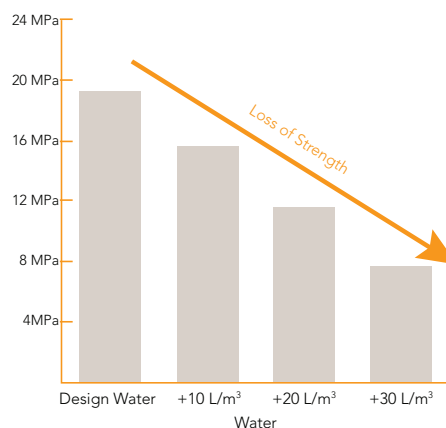
Compressive Strength Development

Strength development in Portland cement concrete is affected by a number of factors such as the physical and chemical properties of the cement, water to cement ratio, admixtures, curing and environmental conditions. The following graph depicts the indicative compressive strength development of Type GP concrete over time.

Concrete Compressive Strength Development



Effect of Excess Water Addition on Concrete Compressive Strength



Curing

A minimum curing period of seven days is recommended for all exposure classifications. Concrete should be maintained in a continually moist condition wherever practical during this time. Water sprays, wet sand or moisture retaining techniques, such as clear polyethylene sheets or curing compounds are recommended. Curing should begin upon the completion of surface finishing or in accordance with manufacturers instructions where proprietary curing compounds are used.

For normal class concrete, curing can produce a compressive strength up to 100% greater than concrete not subjected to curing. Water application or moisture retaining curing is more effective for lower grades of concrete. Curing will also beneficially affect other concrete properties including:

- Reduction in the potential for plastic cracking.
- Improvements in surface quality, durability and impermeability.
- Improvement in abrasion resistance.
- Reduction in the carbonation rate.

Mortar/Render Mix Proportions

General Purpose Cement is suitable for use in brick mortars and wall renders. The following table gives a guide to the proportions (by volume) to be used (Note: This information is a guide only, specific advice for your project should be obtained for the materials you are using.)

| Material | Type GP | Sand | Lime |
|---|---------|------|----------|
| High Durability Mortar (eg retaining walls) | 1 | 3 | 0 - 0.25 |
| Maximum Bond Mortar (eg structural brickwork) | 1 | 4.5 | 0.5 |
| General Purpose Mortar | 1 | 6 | 1 |
| Wall Render | 1 | 3 | 0 |

Admixtures such as air entrainers, thickening agents or plasticisers can be used but should always be used in accordance with the manufacturers recommendations.

For further information

Please contact Cement Australia's Customer Support Services:

Tel: 1300 236 368

Fax: 1800 236 329

Email: 1300cement@cemaust.com.au

Storage, Handling and Safety

The 'shelf life' of Portland cement products is dependent on the storage conditions. It is recommended that Portland cement products be re-tested prior to use if the age of the cement exceeds three months.

Portland cement products are highly alkaline materials and are significantly affected by exposure to water. Full Safety, Storage, Handling and Disposal information is available in the specific product Material Safety Data Sheet available on www.cemaust.com.au

Product Disclaimer

The information contained in this sheet is for general guidance only and should not be relied upon in specific instances. Cement performance results quoted are indicative as cement performance can be heavily influenced by a wide range of factors beyond our control. Users should rely on professional advice according to their particular circumstances. To the extent permissible by law Cement Australia will not be liable for any losses due to reliance on the information in this sheet or for losses due to the misuse of its products.

Cement Australia Pty Limited

ABN 99 001 085 561

12 Station Avenue

Darra Queensland 4076

Tel: 1300 CEMENT (1300 236 368)

www.cementaustralia.com.au