Product datasheet

QUICKLIME

PRODUCT DESCRIPTION

Adelaide Brighton Cement produces Quicklime, conforming to Australian Standard AS 1672.1.

Quicklime is Calcium oxide and is produced at our Angaston works, South Australia. It is low in impurities and possesses a high degree of reactivity making it suitable for use in chemical processes.

Quicklime is a granular product, off-white in colour, and highly reactive with water generating considerable heat during the hydration process.

What is lime?

Quicklime is manufactured by calcining high quality limestone at elevated temperatures, volatilising nearly half its mass as carbon dioxide.

Chemical reaction:

1. Limestone + heat (800°C) = Calcium oxide + Carbon dioxide

   $CaCO_3$ + heat = $CaO + CO_2$

SUPPLY

Quicklime is only available in sealed bulk tankers from the Angaston works, South Australia.

SPECIFICATION

Quicklime is a high Calcium lime and exceeds the minimum specification given in AS 1672.1, Limes for building.

Quicklime is manufactured under a third party certified manufacturing and supply quality assurance system to ISO 9001 (NCS Certification No FS 6041).

APPLICATIONS

Quicklime is one of the most cost effective industrial chemicals available.

Steel industry:

Lime is a flux and removes impurities (silica, phosphorus, sulfur) in refining steel.

Non–ferrous metallurgy:

Lime is used to beneficiate copper ore, produce alumina and magnesia for the manufacture of aluminium and magnesium, extract uranium and recover gold, silver, and other minerals.

Chemical industry:

Lime is used to make such chemicals as sodium alkalis, calcium carbide, calcium hypochlorite, citric acid, and petrochemicals.

The paper industry uses lime as a causticising agent and for bleaching.

Construction:

Limes traditional use in mortar and plaster still flourishes. It is also commonly used in soil stabilisation.

TYPICAL PROPERTIES

Typical chemical composition

Oxide	AS 1672.1	Typical values (%)
SiO_2	-	2.1
Al_2O_3	-	0.6
Fe_2O_3	-	0.5
CaO	-	93
MgO	-	1.1
Loss on ignition	-	2.5
CO_2 (thermogravimetric)	≤5%	1.7
Available lime (CaO)	≥60%	88

Typical physical properties

Test	AS 1672.1	Typical values (%)
Slaking rate	-	Max temperature rise 30°C in 3 minutes
Residue on slaking	≤20% on 600 μm	<0.1% on 600 μm
Specific gravity	-	3.2 – 3.4 t/m^3
Bulk density	-	950 – 1100 kg/m^3
Angle of repose*	-	55°

* The angle of repose for Quicklime varies considerably.

HANDLING AND STORAGE

Quicklime is classified as a granular material and lends itself to pneumatic and mechanical conveyor systems.

Due to its affinity with water, Quicklime should be stored in a dry waterproof enclosure (e.g. conventional steel or concrete bin).

Ingress of moisture can occur due to rain, liquid spillage (on or around the product) or a high humidity climate. Such exposure will degrade the performance of the product.

QUICKLIME

SAFETY INFORMATION

Quicklime is caustic so workers handling the product must be adequately equipped to avoid burns. Protection from Quicklime burns is serious, particularly in hot weather when workers perspire freely.

Due to Quicklime heat of hydration, care should be taken to avoid accidental contact with moisture or chemicals possessing water of crystallisation, which could cause excessive heat generation leading to combustion of flammable products in close proximity.

For safety information refer to the safety datasheet for Quicklime.

ALKALI NEUTRALISATION CHART

The below graph may be used to determine the weights of alkalis required to neutralise a given weight of any of the acids indicated.

Since the graph is based on theoretically pure acids and alkalis, appropriate corrections should be made when applying this data.

The weight of 100% acid = weight of dilute acid x the % concentration of acid present. A similar equation applies for alkalis.

CONTACT POINTS

For further information contact the Sales and Marketing department at:

Adelaide Brighton Cement Ltd
ABN 96 007 870 199
62 Elder Road
BIRKENHEAD SA 5015

Telephone: 08 8300 0300
Website: www.adelaidebrighton.com.au