

MINERAL WOOL

INTRODUCTION

This TECHnote deals with the manufacture, properties and safety issues related to the use of mineral wool.

MINERAL WOOL: DESCRIPTION AND MANUFACTURE

In Australia two classes of mineral wool are produced, rock wool and glass wool. NATSPEC uses *mineral wool* as a generic term for these products which are also known by names such as: glass wool, fibre glass, fiberglass, glass fibre, and rockwool.

Rock wool

- Is made in a cupola furnace, usually coke fired.
- Is composed of basalts, metallurgical slags and lime, and unlike glass wool, does not contain boron or significant amounts of sodium.
- Has higher melting points and duty temperatures (up to 750°C) than glass wool, favouring it for fire resistant situations and high temperature insulation applications.
- Has a higher density than glass wool for the same thermal performance (R-value). This higher density tends to enhance its acoustic properties making it more suitable for applications that require improved sound transmission loss.

Glass wool

- Is made in a cupola furnace, either gas fired or electrically heated by passing current directly through the melting glass.
- Is high in sodium and boron which reduce viscosity, allowing the use of more efficient fiberising techniques than rock wool.
- Is usually limited to applications below 250°C but has significantly better thermal resistance than rock wool for the same density.
- As its fibres are longer and finer, it is preferred in applications that require a flexible product.

HEALTH ISSUES

Mineral wools may cause temporary irritation and discomfort to the skin, nose, throat and upper respiratory tract, particularly when being installed overhead. Basic protective equipment such as gloves, long sleeve shirt, mask and goggles should provide adequate protection to minimise any irritation.

Mineral wool is classified as synthetic mineral fibre and regulated by statutory work, health and safety provisions in most states and territories.

Since 2001, only fibred-bio-soluble glass wool and rock wool have been manufactured in Australia. Bio-soluble mineral wool fibre is eliminated by the biological function of the lung. They are not listed as a hazardous material in the Safe Work Australia Hazardous Chemical Information System (HCIS).

Australian products are identified by the ICANZ (Insulation Council of Australia and New Zealand) FBS-1 label, a third-party mark of conformity. Imported products may have alternative third-party marks of conformity to bio-solubility requirements, e.g. EUCEB (European Certification Board for mineral wool products) trademark. Imported glass wool materials that do not comply with this bio-solubility requirement remain listed on the HCIS.

For safe handling and disposal guidelines refer to product labelling, manufacturer's Safety Data Sheets (SDS).

NATSPEC PROVISIONS

NATSPEC worksections require that mineral wool products be delivered to site in packaging labelled with a third-party mark of conformity indicating the product materials are fibre bio-soluble and not listed as hazardous on the HCIS.

Glass wool and rock wool packaging labels



FBS-1 Glass wool symbol



FBS-1 Rock wool symbol

Relevant Publications

Industry Code of Practice for the Safe Use of Glass Wool and Rock Wool

(now withdrawn by)

The Insulation Council of Australia and New Zealand

icanz.org.au

Synthetic mineral fibres: Guide to handling refractory ceramic fibres

Safe Work Australia

www.safeworkaustralia.gov.au/guide-to-handling-refractory-ceramic-fibres

Code of Practice for the safe use of synthetic mineral fibres

Safe Work NSW

www.safework.nsw.gov.au/Safe-use-of-synthetic-mineral-fibres-Code-of-practice

Relevant Websites

Safe Work Australia

Hazardous Chemical Information System

hcis.safeworkaustralia.gov.au

Relevant Worksections

0411 Waterproofing – external and tanking

0471 Thermal insulation and pliable membranes

0472 Acoustic insulation

0710 Mechanical services tanks, vessels and heat exchangers

0724 Air handling plant - combined

0725 Air handling plant - built up

0726 Air handling plant - minor

0744 Ductwork insulation

0752 Mechanical piping insulation

0823 Cold and heated water