

crete pumping

# TEREFIL®

Advanced engineered light-weight  
fill for geotechnical applications.

Fast | Economical | Structural

Leaders in Advanced Ground  
Engineering and Asset  
Preservation Technologies

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## TEREFIL®

Advanced Lightweight Fill for  
Engineering Applications

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## Terefil® is an advanced structural lightweight polymer modified cementitious based fill material

Mainmark's proprietary Terefil is an advanced engineered fill material providing an excellent solution when granular fills or aggregate material options are too heavy, site access is limited, or project schedules are extremely tight.

Terefil is highly flowable, easily placed, and does not require compaction. It will fill voids and can be pumped for distances up to 1000 metres.

Terefil contains a uniformly distributed cell structure encapsulated by cementitious materials creating an engineered, low density solution used across a wide range of civil, infrastructure, construction and mining projects.

Terefil can be designed to meet the project specific density and strength requirements.

Compared to traditional fills, Terefil technology has made significant advancements with polymer modified cell structure stability. The technology incorporated in the production of Terefil has resulted in increased material stability and enabled greater distances of pumping and placement. Improved internal strength allows greater thickness of Terefil to be placed, significantly reducing construction placement time.

When a lightweight, cost-effective fill material is required, Terefil provides the best option.

### FEATURES

### BENEFITS

<b>Lightweight</b>	Helping to reduce pressure on founding substrates, retaining walls, bridge approaches and slip planes.
<b>Flowable and self-levelling</b>	Terefil is able to completely fill annular spaces, and mass fill large voids (such as tanks, pipes, sink holes and abandoned mines) not leaving a void across the top of the space.
<b>Rapid installation</b>	Terefil can be placed at greater than 200m <sup>3</sup> per day with up to 5 times fewer heavy vehicle movements required on site.
<b>Cost-effective</b>	Reduced transportation of material, reduced energy and water costs all provide significant cost savings.
<b>Quality controlled</b>	Providing the customer with a reliable, consistent product. Terefil density is measured by sampling the product as it is placed and strength testing can be undertaken in the lab at 7, 14 or 28 days or as required.
<b>Environmentally inert and low carbon footprint</b>	Terefil requires less raw material to be transported to site, reducing traffic congestion and fuel use.

## Terefil® is time-efficient and cost-effective

Terefil is produced onsite, utilising Mainmark's custom built processing equipment. The Terefil solution transforms one single premix grout truck of raw material into the equivalent of up to four premix trucks of traditional grout or fill; reducing the number of truck movements, lowering transportation costs, site traffic and fuel use.

Terefil is available as a permeable or impermeable mix, to suit a range of applications. Alternate mix designs, such as fly ash cements, can be adopted to meet specific project requirements and can also be produced to be sulphate resistant. Terefil is used to solve a wide variety of challenges in the geotechnical, construction and mining industries.

## INDUSTRIES & APPLICATIONS

### Civil and Infrastructure

- Mass fill for voids and sink holes
- Decommissioning underground fuel tanks, culverts, pipes and tunnels
- Service trenches, retaining walls and manhole backfilling
- Annulus filling of culverts, remedial works, or for pipe upgrades
- Landslip repair backfilling

### Mining and Resources

- Mass fill for large voids, mine shafts and abandoned mines
- Decommissioning culverts and tunnels

### Construction

- Lightweight building raft, in soft compressible or liquefiable soils
- Permeable sub-grade for roads, runways and bridges
- Load reducing engineered fill placed over underground structures and services
- Retaining walls and wing wall backfilling



Terefil® can be produced with permeable or impermeable cell structures to suit project requirements.

## TEREFIL® PROPERTIES

Terefil is typically provided in these ranges:

- Density 400 – 1200 Kg/m<sup>3</sup>
- Strength 0.5 – 5 MPa

Mainmark can provide specific mix design solutions to match project requirements within and beyond this range. The density and strength are matched to the specific job requirements to deliver the required engineered outcomes.



Terefil® is an engineered lightweight fill with a uniformly distributed cell structure.

## Stormwater Culvert Decommissioning



Diona Civil Engineering sought an appropriate solution for decommissioning ageing stormwater culverts and pipes located in a residential area of Mayfield, a suburb in Newcastle, NSW, prior to installing a new stormwater drainage system.

Mainmark was required to decommission the culverts and pipes without compromising the surrounding area or damaging the redundant structures. It was also important that the remediation process did not disrupt local residents or impact the road infrastructure.

Approximately 990m<sup>3</sup> of Terefil was supplied and placed into the affected culverts and pipes across the entire project area, delivering an extremely cost-effective solution with minimal disruption to the local residential area, and without compromising project timelines or outcomes. The alternative approach was using a standard high flow concrete fill material but that would be too heavy and likely to compromise the integrity of the old culverts and road above.

The senior project engineer for Diona said: *“Mainmark did a great job on the Terefil filling of the redundant stormwater culvert and pipes system in Mayfield. The crew were very efficient and very helpful to work with.”*



Abandoned pipe fill



Back of retaining wall fill



Lightweight building raft

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