

SO MANY ADVANTAGES!!...

SUPER LIGHT IN WEIGHT... AND CAN BE PUMPED A VERY LONG WAY

Benefil can be conveniently pumped up to 150 m. If necessary, all plant, equipment and materials can be craned or forklifted - or even airlifted to remote locations.



Hydrocell, a product sharing many properties with Benefil, offers major advantages for use in roof gardens. Being so light it is easy to place and reduces loads significantly by replacing the sand filter layer. It also provides great insulation. Hydrocell is used as a landscaping substrate to promote growth by holding water, air and nutrients for root systems.



WHAT IS BENEFIL?

- 👍 A unique, pre-expanded structural resin that is super light in weight.
- 👍 It is produced on-site from a liquid base - slowly or at up to 36 cubic metres per hour!
- 👍 It can be poured, pumped or injected into holes, voids and interstitial spaces - upwards, downwards or laterally over long distances.
- 👍 Pre-expanded before placement and with a short gel time, it will displace residual liquids and can be applied under water.
- 👍 There is no heat generated and no electricity is required.
- 👍 Not a liquid, not a solid, it flows only under applied pressure - until it gels and begins to set hard. It will not run away.
- 👍 Benefil is environmentally friendly - solvent free, non-toxic, inert and non-flammable. It is also recyclable or can be compacted to one tenth the volume and disposed of in landfill.
- 👍 For Quality Assurance it is always produced and installed by our experienced technicians with accurate control.
- 👍 Fast and readily applied, it allows economical repairs with minimal disruption.

TECHNICAL INFORMATION

Benefil is produced on site from a liquid base amino-plast resin. Compressed air is used in an expansion process, before a hardener then coats the individual cells.

The resultant cellular matrix quickly gels, then hardens by chemical reaction. Long-netted polymer threads with cross-link couplings are formed, transforming the thixotropic material into one solid body which adopts the form of the cavity being filled. There is no expansion pressure. Reaction is not exothermic.

Base liquid concentrate, equipment and an air compressor are transported to site by one truck. Very long hoses can be run out to portable mixing equipment and, if remote from the truck, there is absolutely no noise at the fill point. On completion there is nothing to clean away.

Densities can be varied, from a dry weight of just 12 kg/m³ to over 70 kg/m³ to achieve compressive strength in accord with load requirements. Benefil is not intended to withstand point loading or abrasion.

Amino-plast resins are environmentally friendly, being biodegradable in horticultural applications and sunlight. Benefil's associated products, Hydrocell and Fytofoam are used extensively in all manner of horticultural and landscaping applications. Acting as a buffer material, they retain water until saturated, (60% of volume), then water passes through.

In typical engineering applications Benefil will not decompose and is resistant to hydrocarbons, solvents and other chemicals. Life expectancies are quoted at up to 150 years. The product has already been proven for over 20 years in Europe.

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MULTI-PURPOSE, SUPER-LIGHT-WEIGHT ENGINEERING FILLER / GROUT

Can be poured, pumped or injected into holes, voids and interstitial spaces - upwards, downwards or laterally over long distances

- ✓ Harmless to the environment
- ✓ Site access problems alleviated
- ✓ Minimal disruption
- ✓ Economical

VOID FILING

PIPELINES

INSURANCE

SUNKEN FLOORS

FUEL TANKS

SEAWALLS



BENEFIL...

SO MANY APPLICATIONS!...



DECOMMISSIONING UNDERGROUND TANKS

In less than two hours disused fuel tanks are made safe to authorities' requirements. Benefil absorbs any residual hydro-carbons making tanks safe from explosion and adds little appreciable weight. So tanks can later be removed, transported whole and cut up safely. Clean Benefil can be recycled or used as landfill.

Safe: No heat, no electricity required and residual hydrocarbons are absorbed by the Benefil

PIPELINES

Expanded Benefil can be induced to travel up to 100 metres. It is unique for filling pipelines and conduits. Residual fluids are forced ahead and expelled.

An abandoned pipeline can be 100% filled, even if only one end is accessible. Uphill or downhill, it makes no difference - it won't run out!

When used to fill the interstitial (annular) space formed by relining, the new 'slipline' will not collapse nor float when being installed. Soil loss due to 'infiltration' can be corrected by filling resultant voids from above.

If fuel lines under airport pavements need to be decommissioned, Benefil is the answer.



Benefil encapsulates a washaway section and restores support to the ground above



Pipelines inaccessible at one end are easily filled uphill or downhill



Benefil in the space between the original tunnel and the new lining pipe

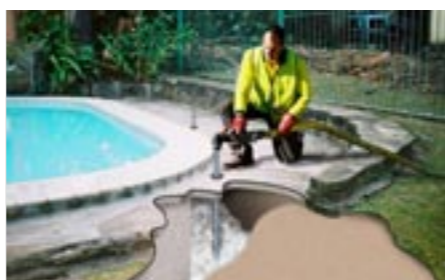
RELEVELLING FLOORS AND DRIVEWAYS

Injected under sunken concrete floors or driveways, Benefil firstly fills any voids and then, with even pressure, raises the concrete back to its correct position. The process is carefully controlled and guided by laser. Settlement of small buildings can also be corrected.

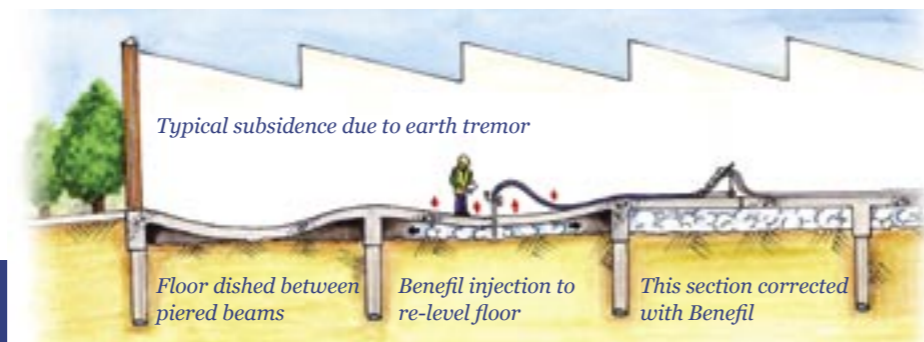
Floors and other structures threatened by erosion (e.g. flood damage or large washout caused by a broken water pipe) can be quickly stabilised, re-supported and re-levelled. Lost soils are replaced by Benefil. Usually no need to vacate premises. Most jobs are done in a day!



Washaways, compaction and subsidence frequently cause voids beneath factory floors



Swimming pool surrounds often lose support



SEAWALLS

Behind seawalls, Benefil displaces water to correct scouring or the loss of fines due to tidal 'lag'. Compared to cement grout which can flow away and pollute and later simply funnel water elsewhere, Benefil self contains: it encapsulates rubble, floats and later allows filtered passage of water.



'Spearing' behind seawalls to replace lost 'fines'. Benefil encapsulates rocks and fills voids



EARTH LEVELS

Seeping water erodes clay cores, creating water paths that increase over time. Such paths and voids, once identified, can be plugged by injecting concentrated Benefil.

Cracks in dams due to clay shrinkage in drought conditions can also be sealed.



Sealing leaks in canal banks, levees and dams

RETAINING WALLS AND CULVERTS

Cavities behind retaining walls and under culverts can be filled, even if remote from a road. Benefil base liquid resins can be pumped a long way to the portable expansion equipment. Injection can be laterally or vertically. Water will filter through.



Voids filled and rocks encapsulated

BACKFILLING

Benefil is useful for distant and hard-to-get-at places. The ready flow ensures a complete fill, followed by a quick set. By filling and supporting without exerting hydrostatic pressure, it makes ideal backfill for installation of in-ground fibreglass pools - and it's safe for nearby plants and grass.



New fibreglass pools may be filled with water immediately or as soon as convenient

MASSIVE VOIDS

Shafts, access tunnels and wash-aways are readily filled. Benefil requires pushing and does not flow, so it can be mounded up and often does not need containment. Completeness and lightness of fill can also be important. It can be removed and recycled to re-open access, if later required.



Filling a massive washaway beneath a road on a NSW South Coast roadway



Such an access tunnel can be re-opened later, if required

SO MANY BENEFITS!

- ✓ **Application is fast... with minimal interruption to site activities**
- ✓ **Relatively easy site access... and can be pumped a long way**
- ✓ **Economical material and process... offering potential savings**
- ✓ **Residual liquids are displaced by Benefil**
- ✓ **Adds negligible weight to already stressed areas**
- ✓ **Clean, environmentally friendly and easily disposable**

THINK OF THE POSSIBILITIES!...