

## Reduce your carbon footprint with this post-mix alternative to concrete

- Less than **2kg** of TECHNO-CRETE® can replace **60kg** of concrete post-mix and **20kg** of water
- Significant reduction in your project costs
- Dramatic reduction in CO<sub>2</sub> emissions over concrete
- Reduction in the risk of personal injury from manual handling
- Manufactured from recycled raw materials
- Unaffected by ground water or chemical ingress
- Unaffected by ground or air temperatures below zero
- Life expectancy of over **50 years**

### Cost savings

On transportation costs alone, there are tremendous savings to be made. A recent fencing project overseas involving the installation of 10,000 posts over a 40km run needed 45 trucks to deliver the required concrete post-mix and 200,000 litres of water to the site. The same project would use just one truck load of TECHNO-CRETE® to fulfil the same requirement. Once on site, there are no vehicle movements needed whatsoever. Using TECHNO-CRETE® reduces labour, transport and material costs if used throughout your project, as well as ensuring huge savings on CO<sub>2</sub> emissions.

### User-friendly in all weathers

TECHNO-CRETE® can be used in all inclement weather conditions, enabling work sites to run normally. During winter, TECHNO-CRETE® was being used for the installation of all types of posts with ground and air temperatures ranging from +2 to -5°C. Using concrete post-mix at these temperatures would seriously weaken the mix and render it useless. TECHNO-CRETE® is increasingly being specified and approved for use across the rail network, in the UK and mainland Europe, where usability in cold and sub-zero conditions gives the user a major advantage and allows their works to continue regardless of temperature. Covering the surface of TECHNO-CRETE® with soil or stone from the excavated hole is recommended to prevent any UV degradation.

### Safety

In a recent COSHH assessment by a Tier 1 contractor run through Sypol, TECHNO-CRETE® was deemed to be harmless when used with standard PPE, and wearing the Nitril gloves provided in the pack. TECHNO-CRETE® emits no harmful chemicals apart from a very small amount of CO<sub>2</sub> when the exothermic reaction takes place once mixed. It is recommended that a Method Statement and Risk Assessment is carried out to suit the place and conditions of your project.



## Technical analysis

Concrete post-mix works by virtue of mass: it is the mass of product that holds posts in place. TECHNO-CRETE® uses skin friction with the sleeve or the surrounding ground. We recommend that foundations for posts using TECHNO-CRETE® are smaller in diameter and typically deeper. Therefore, according to BS1722-12 : 2016, a 2.4m-high steel fence panel should have a post embedded 1200mm into the ground in a 450mm diameter hole. So, the volume of the hole to fill with concrete post-mix would be  $\Pi r^2 h = \Pi \times (0.225)^2 \times 1.2 = 0.19 \text{ m}^3$ . This would be equivalent to 18 bags of concrete post-mix. If you used TECHNO-CRETE® for the same hole we would recommend a sleeved hole size of 225mm diameter x 900mm deep, which would use 2 bags of TECHNO-CRETE® or, if within 3 metres of the track, a sleeved hole size of 300mm x 900mm which would use three bags. Using TECHNO-CRETE® would also reduce excavation costs as digging at 900mm deep is much easier than at 1200mm.



Structural analysis of our fencing product TouchSAFE™ embedded in TECHNO-CRETE® in various scenarios indicated that the most severe combination of loads considered were wind load plus dead load plus passing train speeds of up to 125mph. The below table compares each product, concrete post-mix v TECHNO-CRETE® to install TouchSAFE™ fencing. The concrete installation is based around the requirements of BS1722-12:2016, and using TECHNO-CRETE® for your installation complies with the industry standard for both concrete foundations and fencing.

	Units	In concrete	In TECHNO-CRETE®	In TECHNO-CRETE®
<b>Fence height</b>	Centimetres	250	250	250
<b>Panel height</b>	Centimetres	240	240	240
<b>Post length</b>	Centimetres	360	365	330
<b>Post XSA (10 X 10)</b>	Square centimetres	100	100	100
<b>Hole diameter</b>	Centimetres	45	30	22.5
<b>Embedment depth</b>	Centimetres	120	125	90
<b>Volume to fill</b>	Cubic centimetres	178929	75893	26799
<b>Post mix/hole</b>	Kg	358	6	3.6

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