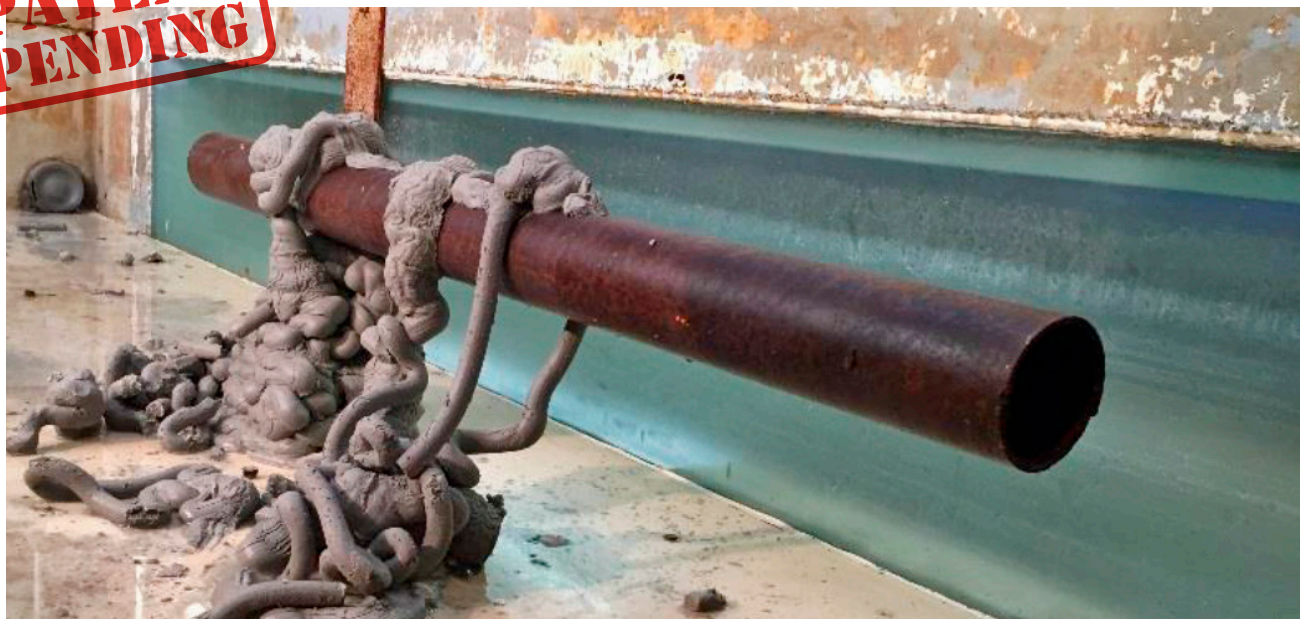


BUOYCRETE

A GAME CHANGING NEUTRALLY BUOYANT CONCRETE MIX

PATENT PENDING



FEATURES

Buoycrete is a 'neutrally buoyant', non-dissolvable concrete mix. Buoycrete enables underwater concrete (repair) operations without the use of expensive hard formworks. This new work-method opens up a wide array of possible application areas and markets, especially since application equipment, mixing equipment and curing characteristics are similar to normal cement mixtures.

Currently, there are no comparable light weight cement mixtures available on the market. The Buoycrete technology and work method are protected by patent rights NL 2018969, EP18731218.6, US16/616,114 and CA3,064,705.

Besides this new work method, the neutral buoyancy also enables concrete reinforcement under water without adding extra weight to existing (underwater) structures

TESTED CHARACTERISTICS

Light weight (1,000 - 1,200 kg/m³)

UCS (>35 MPa)

ITS (>2 MPa)

Elasticity Modulus (5 < E < 6 Gpa)

Superior workability (pumpable)

No separation/wash-out

Good adhesion

Lower building costs (time)

Enhanced form freedom

BENEFITS

TECHNICAL

Because of the neutral buoyancy, the slurry will not sink or float and will settle by its internal cohesion. This allows for fast and flexible adjusting of the concrete shape underwater before Buoycrete cures. Thick layers can be applied without danger of sagging (saves expensive diving hours and opens new work methods for emergency repair operation) without, or with minimal use of formwork.

VALUE

The high slurry pressures that arise when pouring regular concrete in a hard formwork are not apparent with Buoycrete under water. Thus, inflatable, flexible formworks can be used to form predefined (complex) concrete shapes (material like geotextiles or a plastic wrapping). When a complete formwork is inflated (filled with Buoycrete), the predefined shape will be instantly apparent (see pictures).

TESTED CONDITIONS

Demonstration tests were carried out at the Boskalis hydrolab in December 2016 to show the capabilities of the work method and the basic Buoycrete mixture. Subsequently, the UCS and ITS values were tested as well as the E modulus and other characteristics in our own QRS laboratory.

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APPLICATION ASPECTS

Buoycrete and its new work method can make a difference in various underwater maintenance and repair projects for quay walls, wooden piles and other civil works.

Buoycrete with or without flexible formworks enables reinforcement and stabilization of piles without the use of hard formworks.

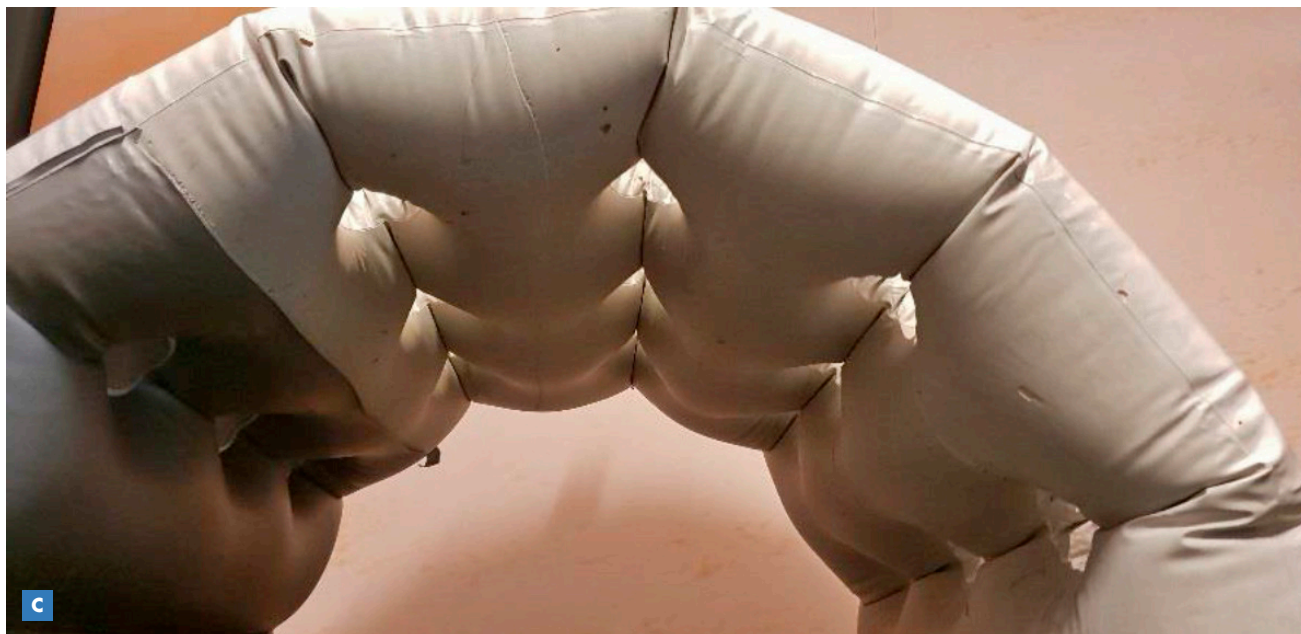
Architects, designers and builders of civil constructions, floating structures and architectural eyecatchers can enjoy enhanced form freedom with the inflatable technique.

Existing constructions like shipwrecks or Unexploded Ordnance (UXO) can be stabilized before a salvage operation.

Leaking deposits on the seabed can be packed with Buoycrete (Chemical warfare, UXO, other waste)

Large structures can be constructed on site without drainage of the building site

Large civil works can be constructed on site without the use of expensive cranes with the inflatable technique.



- A** Buoycrete (underwater) printing demo
- B** Buoycrete (underwater) printing demo
- C** Buoycrete inflatable demo

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