

NovoCrete[®]

Soil stabilization technology

Innovative solutions for infrastructure!

long lasting - high load bearing - economical



About NovoCrete®

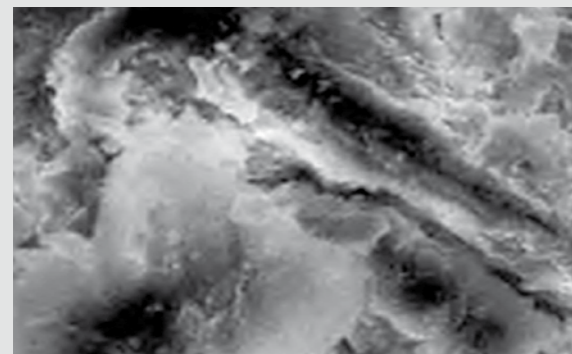
NovoCrete® is a white powder made from 100% mineral components containing alkaline and earth alkaline constituents. NovoCrete® is used as a cement additive mixture in "type 1, type 2" Portland cement. NovoCrete® combined with Portland cement and an optimal water content increases the crystalline formations during the cement hydration process, resulting in greater tensile strength and an improved modulus of elasticity compared to non-modified cement. NovoCrete® neutralises pH levels, and provides a higher degree of water impermeability. NovoCrete® is an environmentally friendly mineral and is 100% recyclable.

Product advantages

- > Reduction of costs for earth excavation
- > Reduction of transports needed to landfill sites
- > Reduction of purchases of materials for base layer and anti-frost layer
- > Reduction of supplies of filling materials
- > Reduction of top coats
- > Reduction of costs for repairs
- > Reduction of maintenance costs
- > No anti-capillary layers needed
- > Reduction of required settlement periods
- > Possibility of avoiding depth foundations
- > Immobilization of hazardous materials without disposal and landfill charges
- > Stabilization and immobilization possible in one procedure

NovoCrete® effectiveness

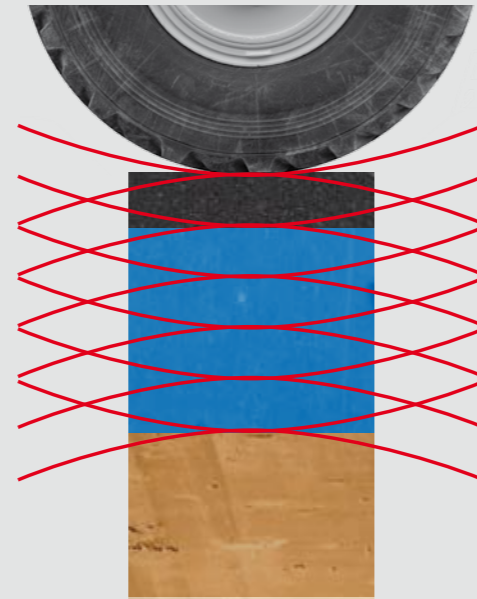
Cement: open pore structure



Cement with NovoCrete®: closed dense structure



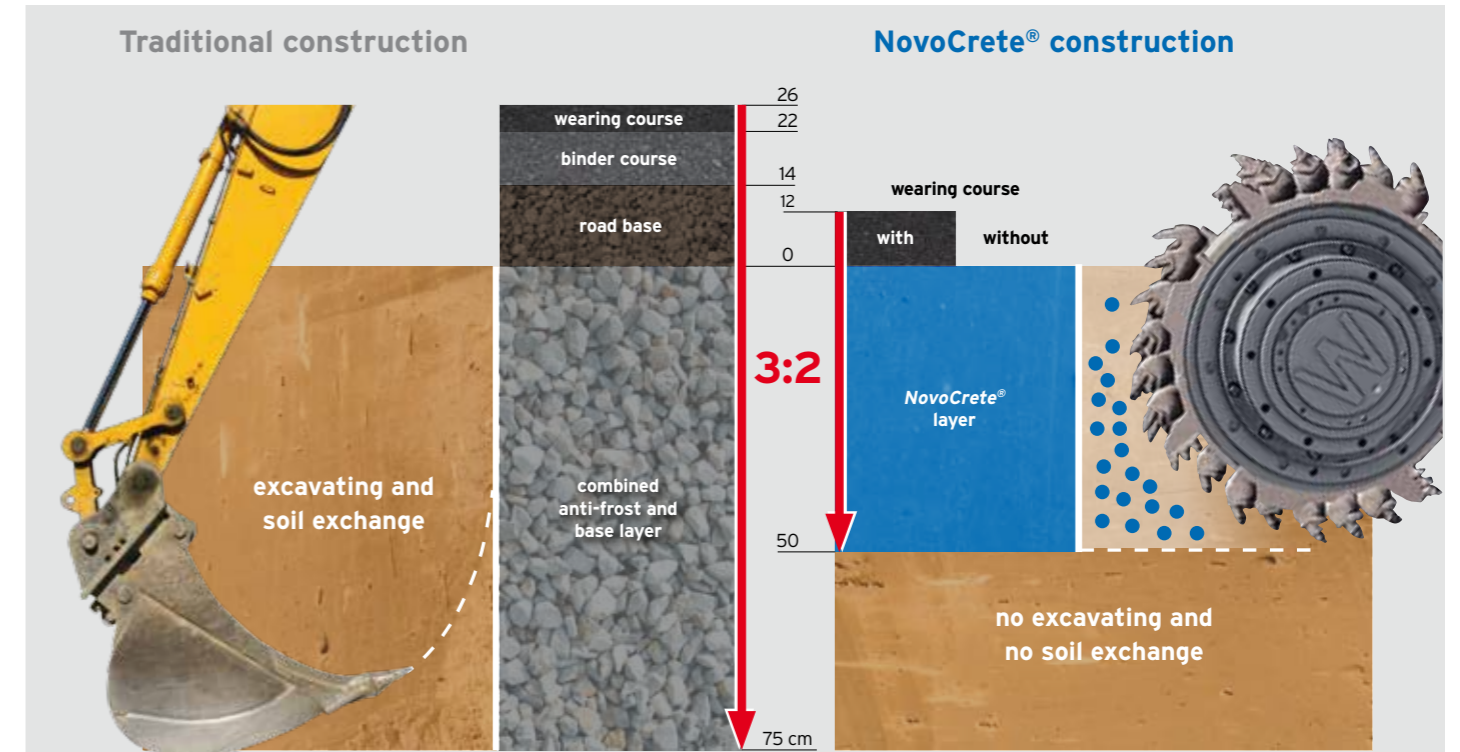
NovoCrete® flexibility



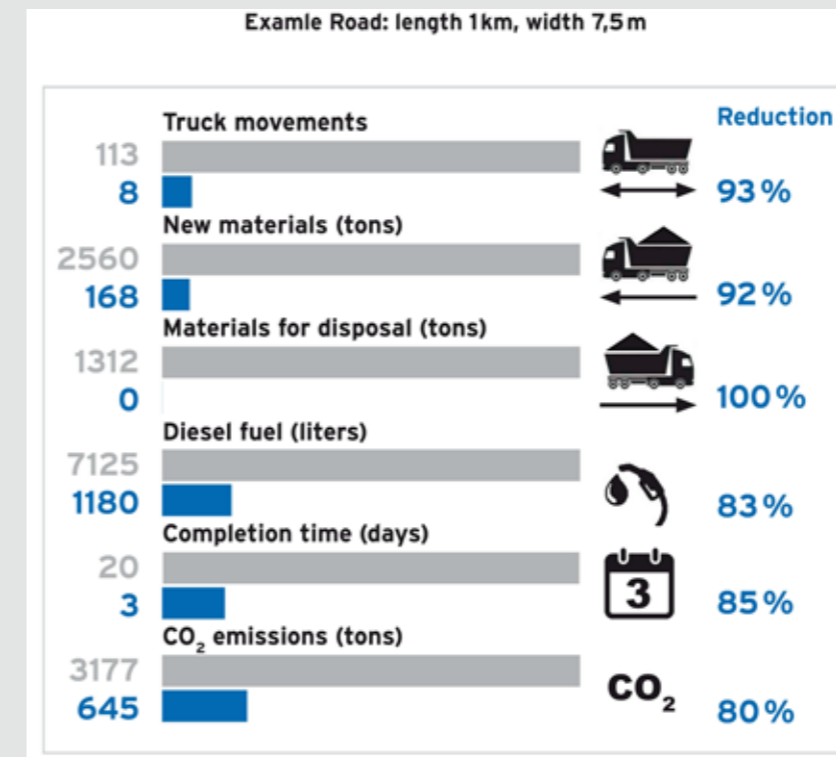
NovoCrete® impermeability



The difference - 3:2



Possible savings - conventional construction vs. NovoCrete®



Product properties

Processing and result

- > High load and bearing capacity
- > Very resistant and durable
- > Reduced formation of cracks
- > Reduction of settlement periods
- > Impermeable, leak-proof surfaces
- > Increased salt and acid resistance
- > Processing possible up to -6° C
- > Can be used for virtually any soil
- > Immobilization of hazardous substances

Ecology

- > Purely mineral components
- > Completely recyclable
- > Use of materials available on-site
- > Lower strain on the environment as a result of considerably reduced transport
- > Natural surfaces
- > No periods required for settlement
- > As a result of building time reduction, we achieve the reduction of construction traffic and impact on general traffic (diversions, queues ...)
- > Groundwater protection

Procedure steps

- > Milling of old asphalt layers
- > Up to 10 cm of the old asphalt material can be mixed together with the cement/NovoCrete®-mixture

- > Milling of the mixed layer material with the stone crusher to a grain size < 50 mm

- > Specify cement/NovoCrete® mixture depending on soil type
- > Mix cement with NovoCrete® ratio, distribution with spreader unit

- > Mixing of cement/NovoCrete® together with soil by using a cold recycler up to a milling depth of 50 cm

- > Dynamic and/or static compaction of the fine level by using a steel drum roller (between 10 and 20 tons)

- > Precise grade level for surface
- > Post-profiling with grader (laser controlled if required)

- > Irrigation of the base layer during stabilization and after compaction to avoid evaporation

- > After 24 hours the asphalt layers (or other protection layers) can be installed



Quality assurance

Preliminary inspection

- > Feasibility studies
- > Sample taking
- > Laboratory studies of frost resistance, stability and water management characteristics etc.

Project support

- > Monitoring and control of the construction process and compliance with the requirements from the preliminary examination
- > Taking and analyzing of material samples
- > Closing reports for the projects

Project follow-up

- > Regular monitoring of finalized areas
- > Visual evaluation
- > Sample taking and testing



Areas of use

- > Road and motorway construction
 - > Footpaths, cycle paths, forest paths and agricultural roads
 - > Access routes for the oil, gas and wood industries
 - > Establishment of base layers under hall floors
 - > Taxiways and parking areas
 - > Railway tracks
 - > Tunnel and sewage system construction
 - > General foundations
 - > Parking, container storage points, logistics centres
- > Harbour premises and wharves
 - > Storage areas for wood, metal, etc.
 - > Biogas plants
 - > Biogas storage areas, chaff storage
 - > Embankment stabilization
 - > Slope reinforcements, grouting
 - > Dam reinforcements
 - > Hard shoulder compression
 - > Landfill sites
 - > Replacement of depth foundations

Current reference projects (extract)



Highway in Turkey



Intra-urban roads in Germany



Railway tracks in Turkey



Agricultural paths in Germany



Civic amenity sites in Germany



Container harbour in Netherlands



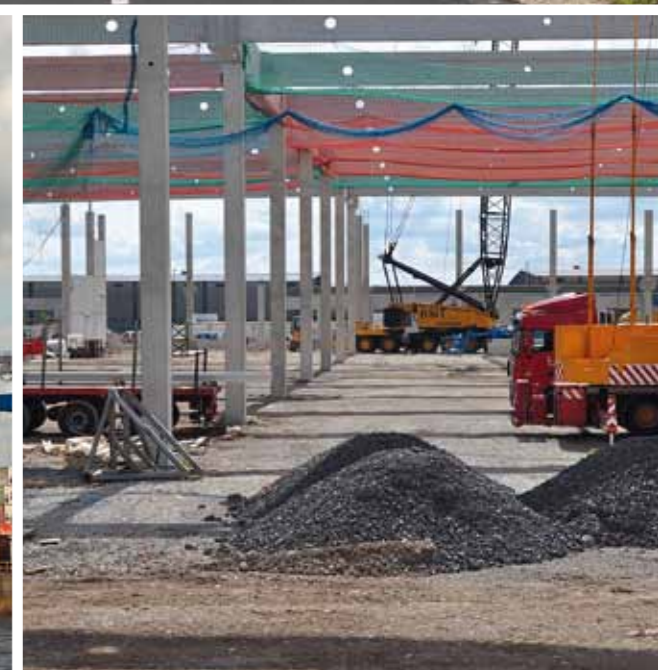
Wind farms in Germany



Foundations in Germany



Road shoulders in Germany



NovoCrete®

Soil stabilization technology

Decisive facts:

- faster construction progress
- high load capacity
- durable
- water impermeable, frost-resistant
- suitable for almost all soil types
- no maintenance required
- environmentally friendly

www.novocrete.com



OPiS AG

OPIS AG

Emmersbergstrasse 33
CH 8200 Schaffhausen
Switzerland
Phone +41 52 511 79 20
Fax +41 52 511 79 29
info@opis.ch
www.opis.ch