NovoCrete®

Soil stabilization technology

Innovative solutions for infrastructure!

long lasting – high load bearing – economical

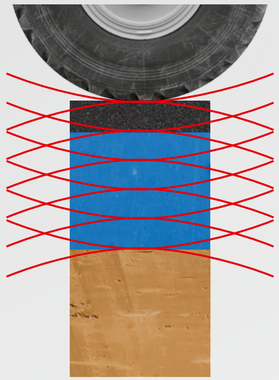
About NovoCrete®

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.

Clay, silt and sand-type soils can be stabilized using NovoCrete®. We can provide solutions even for soil types with a proportion of organic matter up to 15 % or for soils with a higher salt content.

The stabilized layers generate a very high tensile strength which allows the absorption of vibration from heavy trucks and equipment. These layers achieve a “elasticity” that allows the vibratory movement.

NovoCrete® flexibility

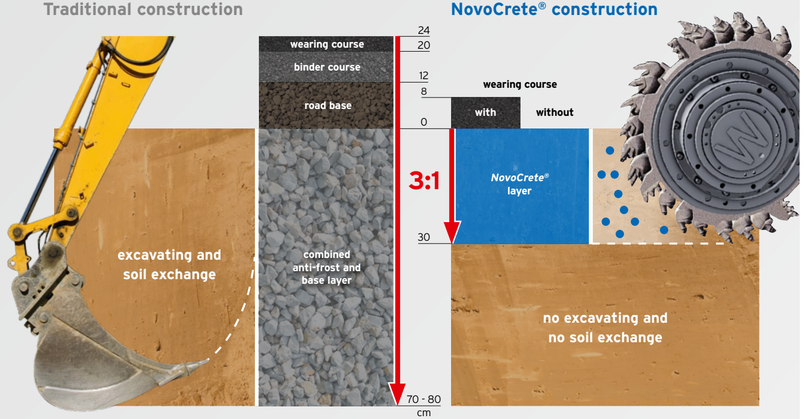


NovoCrete® impermeability

The difference – 3:1

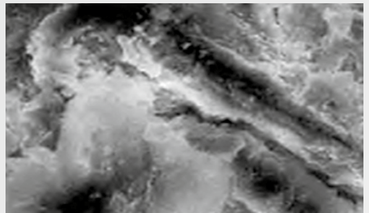
Traditional construction

NovoCrete® construction



NovoCrete® effectiveness

Cement: open pore structure



Cement with NovoCrete®: closed dense structure

Product advantages

- Reduction of costs and time expenditure 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 (after prior static inspection and if foundation conditions are favourable)
- Immobilization of hazardous materials without disposal and landfill charges
- Stabilization and immobilization possible in one procedure

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
- Alternative to concrete technology

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

Quality

Quality assurance
- Geotechnical support using static plate tests according to DIN 18134 and using dynamic plate tests as well as falling weight equipment
- Removal of drilling cores – compression strength tests, etc.

Removal of drilling cores – Compression strength tests, etc.

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

- Cracking of the old layer material
- Big stones come to the surface

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

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

- Spreading of NovoCrete® in a very low dosage (generally 2 % calculated from the amount of cement) by using an attached spreading 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 8 and 12 tons)

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

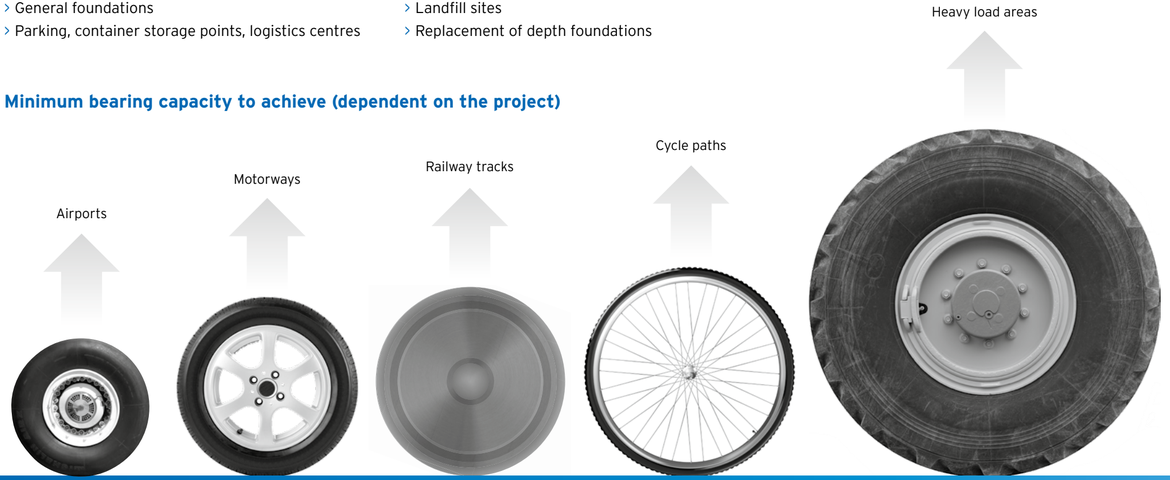
- Irrigation of the base layer during stabilization and after compaction to avoid evaporation

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

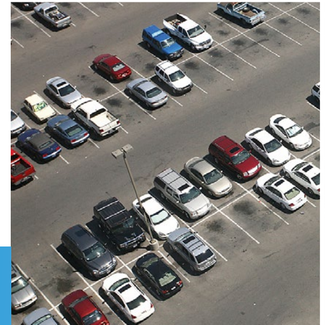
Areas of use

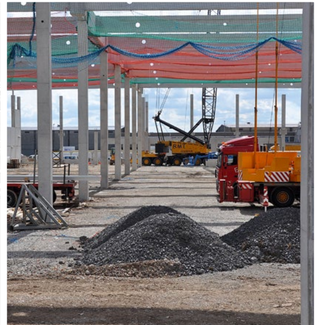
- Road and motorway construction
- Footpaths, cycle paths, forest paths and agricultural roads
- Access routes for the oil, gas and wood industries
- Establishment of base layers under hall floors
- Taxiways and parking areas
- Railway tracks
- Tunnel and sewage system construction
- General foundations
- 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

Minimum bearing capacity to achieve (dependent on the project)



PCN xx/A-D/W-Z/R+F | 120-180 MN/m² | min. 140 MN/m² | min. 100 MN/m² | min. 160 MN/m²





NovoCrete®

Soil stabilization technology

Decisive facts: Fast solutions, heavy load capacity, high durability, water-impermeable, frost resistant, adaptable to most soil types, virtually no maintenance, environmentally friendly!

www.novocrete.com

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

GERMAN TECHNOLOGY