CONSOLID TOPICAL
CONSOLID UK

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You know ahead what you get in the field:
The CONSOLED SYSTEM was developed as a new way of soil stabilisation for roads... but how far reach the results?

The great security in respect of effectiveness of the CONSOLID SYSTEM makes failures in the field impossible, but …

You know the story - when for the a stabilisation of soil embankments we looked for the best possibility of stabilising them, the tests in the laboratory as well as in the field wore not at all satisfactory. This led to a research period of more than 2 years, searching for soil stabilisation methods, because already at that time, in 1963 – 40 years ago – it was obvious that soil stabilisation would become a MUST in road construction. There had to be something around in the world at that time which should allow upgrading soils to risk-free material. There was nothing around, however – we checked more than 200 products or materials in use since the early years of 1900, but the result of the investigation was frustrating – nothing existed that could be recommended as a really reliably working soil stabiliser. More than 90% of the tested products were waste materials from different sources of industries, to be buried in the roads to avoid costly disposal. And the few, which worked sometimes, were too limited in respect of the kinds of suitable soils, were too costly or poisonous.

This experience led to the development of the CONSOLID SYSTEM.
ROADS had been the targets for this development. At first we had to secure a stable basis for our own flexible asphalt coating. This was done with a special highly flexible asphalt emulsion, which allowed already at this early stage to use the HD (Heavy Duty) effect to be incorporated into the performance of the asphalt resin, yielding lower viscosity in cold and higher viscosity in warm/hot state.
Due to the poor research results for reliable stabilising products, we had from the beginning to respect a full catalogue of required properties:

- The CONSOLID SYSTEM should not be a binding system. Binders or glues can neverwork satisfactorily due to physical problems. It is impossible to apply the correct quantity of binder to the ever-changing specific surface of a soil, which is an essential supposition for a – possibly – positive result.

- The CONSOLID SYSTEM should not become a system on the basis of chemical reactions. In view of the fact that there exist more than 20'000 different types of soil, it would be impossible to find a chemical reactor for them; an adjustment to the chemistry of the soil would be impossible.
- Fighting the softening effect of water with water-repelling chemicals, making the soil waterproof, was no solution. Once dry, the soil would lose adhesion, fall to dust, and the dust would never again moisten but float away on the water, despite the fact that the specific weight of the soil is 2 and more times higher than water.
- The CONSOLID SYSTEM had to work with any kind of soil, not only with a limited selection of them. It should be easy in its application, safe to human beings, nature and the environment reliable, and show convincingly already in laboratory tests ahead of an application the degree of improvement to be expected in order to avoid any failures in the field.

All these aims had to be incorporated into the products of the CONSOLID SYSTEM and step by step they have been realised in the 13 years of R&D work, until we could say that we are able to control 100% of all soil types from all over the world. Meanwhile more than 8'000 soil samples from 80 countries have proved that we have achieved our goal: the desired 100% performance in a permanent and lasting way. Then soil stabilisation for roads developed fast into other fields of earthworks due to the overwhelming effectiveness of the system.

SEEPAGE, the drainage of water through soil, causes great problems there where it is undesired. In **artificial lakes, ponds, irrigation channels,** the loss of water generates existential problems. The water, which leaks away, is urgently needed for the aims of the project. In **landfills** seeping effluents may get straight into the ground water if there is no impervious barrier. But also embankments for roads and railways may require impervious layers of soil to get protection from water erosion during floods.

- It is the CONSOLID SYSTEM which allows to prepare soil mixes which are permanently impervious. Such soil mixes can be treated "in place" but also much more accurately and always of the same quality "in plant". The size of the layer can respect any local demand and make absolutely sure that no water will seep through.
- Avoiding seepage leads at the same time to a full control of the capillarity of the treated soil. The treated soil will not be saturated by capillary rise of water and retain in this way the dry compressive strength to a high degree.
- The effectiveness that leads to imperviously treated soil can also be used very successfully to immobilise effluents from polluted soils. Treating them in combination with in-situ soils or covering and closing them in by layers of impervious soil, the carrier for the pollution – water – will have no chance to leach out these polluting contents. Covered by impervious soils, such immobilised material can be very well used as filling material even in dams and dikes. With the CONSOLID treatment it is secured that no leaching is possible.
- And most important for the practice – all these traits can easily be seen and demonstrated already in the soil laboratory in an absolutely reliable way, rendering the use in the field risk-free.Therefore, wherever water is causing stability problems, the CONSOLID SYSTEM can offer ahighly effective solution to all these problems. Come back to us if you need technical assistance.

LANDFILLS are increasingly becoming a serious problem if it is not made absolutely sure, that they will not cause pollution in the area. Used on more than 1 Mio m_2 only in Hungary, the CONSOLID SYSTEM has proved its excellence also in this application field.

HOUSING is again becoming a popular field of application. For soil bricks – only air-dried – is vital that they remain free of water as far as possible. The buildings made from such soil bricks not only have to withstand the weathering but also the softening by capillary rise of water which would otherwise destroy the compressive strength of the brick.

- Brick-making creates for the local people the possibility of helping themselves, and it will be easy for any government to supply them with well performing hand brick presses, as shown as an example in the following.
- Brick making on the site creates also jobs for local masons and offers to the people the possibility of designing their house as they like and can afford.

It is worthwhile to think about this opportunity. It will enable to substantially ease the housing problems with low investments.

Here is the example of a soil brick machine, which could do the job very well:

In Brazil, SAHARA manufactures a range of hand operated soil brick machines which allow to produce soil bricks with holes and interlocking rings, which makes the mason work much easier. Simple in construction and low in price, this equipment can be afforded from everybody and allow the production of high quality soil bricks, when the soil is properly treated with the CONSOLID SYSTEM.

Weight: 150 kg (model with mould for soil bricks of 250 x 125 mm
Production Capacity: 150 to 200 bricks per hour, using three workers

Material Consumption: 1 m_3 of cohesive soil mixed with 0.8 lt CONSOLID and 40 kgs SOLIDRY gives approx. 1'000 soil bricks of high quality
Brick Consumption: Depending on the manner of laying per m_2: 58 to 64 pieces:
Accessories: One set to accompany each machine.