



Soil concrete introduction

T.GSC Soil Concrete

Local soil + T.GSC + T.GSC#101 + Cement

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GT-11-00204



Changing the architecture culture,
Eco-friendly advanced material

Green New Technology

Utilizing (T.GSC) to solidify local soil technology

The new method of road construction : T-GSC solidifier + T-GSC powder + soil



T&G TECHNOLOGY GLOBAL CO.,LTD
주식회사 티엔지

NSC NATURAL SOIL CONCRETE CO.,LTD
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Greetings

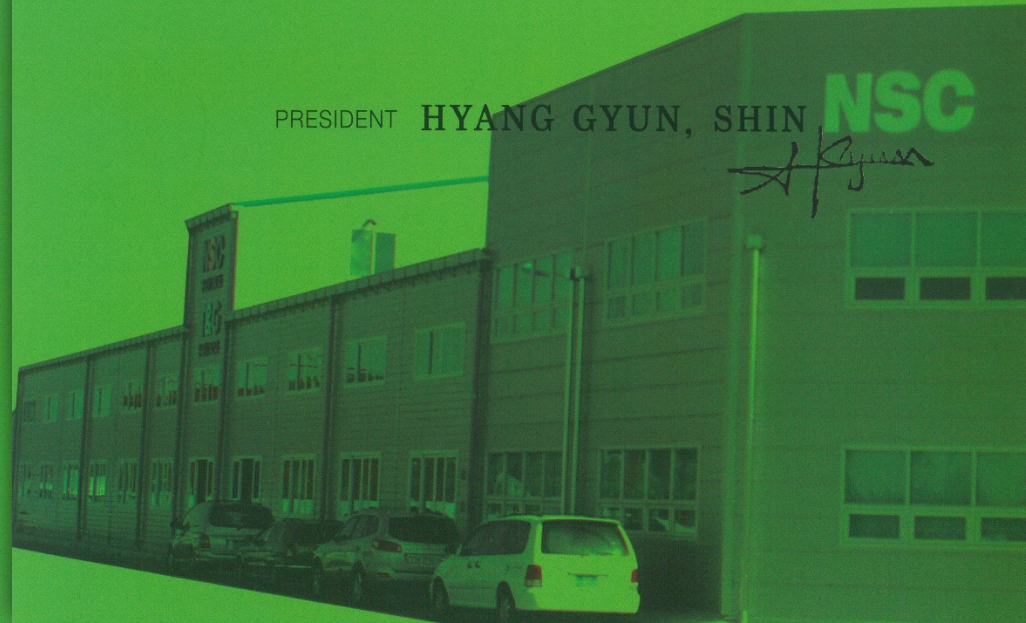


Company Introduce

We have been producing and developing the eco-friendly solidifier (T-GSC) since 2001. Our goal is preserving the environment and handing over better environment to descendants. We can reduce the usage of cement about 70% by applying the T-GSC, so it can be the revolution for construction field. And T&G Ltd. , NSC Ltd. also take the lead of eco-friendly energy such as sunlight, the velocity of the wind, LED and so on.

PRESIDENT HYANG GYUN, SHIN

NSC
Hyang Gyun, Shin



Application in Construction

Range of Construction

Environment-friendly material

Reducing the cost of road construction

Improvement the quality of soil and Prevention the environmental pollution

Concretize the weak pondside

• Soil road

• Farm waterway

• Walkway

• Exclusive bike road

• Alternate the support layer of road

• Farm road

• Shore protection block and all sorts of structure

• Artificial fishing reef

• All kind of parking lot

• Solidifying all sorts of sludge(solid waste)

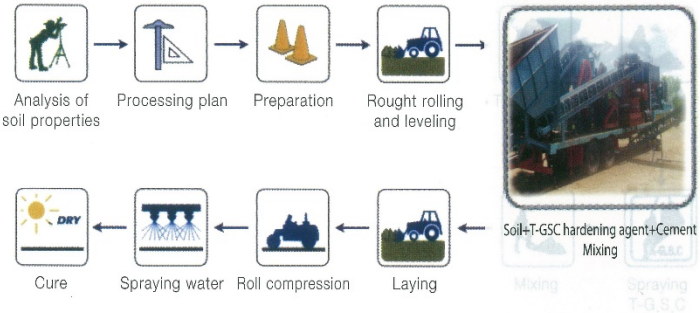
Instances of Environment-friendly "Soil" road construction



The method the quality improvement construction by T.GSC

T.GSC

Processing Procedure



T.GSC

Effect of T.GSC

- Removal of organic active components
- Bonding of soil particles
- Prevention of cracks
- Water soluble
- Anti-pollution effect
- Frost resistant effect
- Earthquake-proof effect
- Economical construction cost





Product feature

Natural Soil Recycling Technology · Environment-friendly Soil Hardening Agent

Adapting the soil's nature, and strengthen the foundation we finally complete the long-term bearing power. T.GSC is foundation reinforcing material that absorb the Soil-cement method of construction's merit and complement the fault. Because it consists of inorganic-metal element, it can withdraw the environmental pollution. Also, it harden in any water and restrain the aging process.

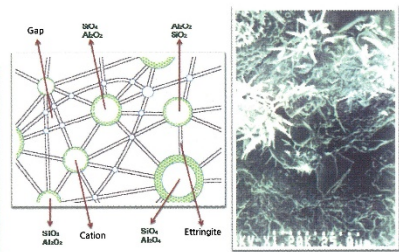
If adding the T.GSC an aqueous solution to soil, it absorbs to free state Ca ion in soil particle so, eliminates the organic active ingredients. As a result adhesive strength of cement and particle of soil's intensity are increase. Also, intensity increases as time goes by, and improved soil makes one rock-forming.

Method of construction uses the soil at the field, so it is useless such as the cost of sand, gravel. And there is no convey-management which leads environmental pollution. Moreover, it has simple method and short cultivation term that can lessen the period of construction and total construction cost.

Compressive strength and tensile strength have increased about 20~30% than before, and improved soil also increased as the special quality and time of procedure. And high water-proofing, strong enough to bear freezing and high temperature. It never influence to nature because outer-layer's water and infiltration water's PH is neutrality.



T.GSC Powder



Combination structure of Solidity, High Intensity (concrete) compound

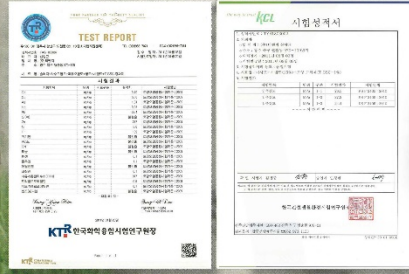


An Outline of technology

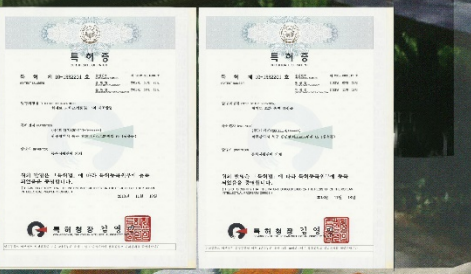
Special permission & Registration status



Detection og the toxic substance for T.GSC



T.GSC status of Special permission



Certificate of Green Technology



Application produce



- 1981. 08 - 1st prize of National knew technology invention fair 2003
- 1982. 06 - A citation from Korea creativity development office
- 1982. 09 - A citation from Korea invention patent association
- 1982. 10 - 1st prize of America national invention & knew technology fair
- 1983. 05 - Industry medal from president in Invention day
- 1993. 03 - Set to practicalize research development
- 1993. 05 - Set to union research with Daichi laboratory in Japan
- 1993. 07 - Separate with Daichi laboratory
- 1993. 08 - Set to Single research : Invention patent application (No.16484)
- 1993. 09 - Sludge solidify test execution for Busan sewage treatment area
- 1993. 10 - Supplement construction for weak pondside for Busan Eulseukdo
- 1994. 08 - Exhibition of knew technology in Korea comprehensive Environment industry exhibition
- 1994. 08 - Exhibition of knew technology in Ulsan Environment industry exhibition
- 1996. 03 - Modernization construction of Jeonbuk Kimje Dongjin-Nongjo' s farm waterway establishing
- 1997. 04 - Invention patent application notice No.97-6719 (Composition of soil solidify)
- 1997. 08 - Exhibition Construction for dredging deposits of Mokpo airport airstrip construction
- 1999. 05 - Success in concretize of dredging waste from river and sewer
- 1999. 07 - Success in solidify& reinforce of dredging waste from Gyung-gi Gwangju Gyungan river
- 1999. 10 - Invention patent application (99-0045787) : Promoting of soil solidify and its composition
- 2000. 03 - Farm road construction of Gyung-nam Changwon (Outer layer)
- 2001 - Alternate construction of support layer using the actual spot soil (Indonesia)
- Supplement construction of Industrial complex' s weak pondside (Malaysia)
- 2002 - Construction of Bong-moo park' s plaza and promenade (Dae-gu, Dong-gu)
- Road construction alternated support layer (Malaysia)
- Promenade construction of Sinam park, Dooryu park (Dae-gu, Suseong-gu)
- Promenade construction of Dae-gu World cup stadium' s small park
- Road construction alternated support layer (Chana)
- Outer layer construction of pavement nearest inhabitants' playground (Dae-gu, Buk-gu)
- Exhibition construction of weak pondside supplement construction (Philippines) etc.
- 2003 - Establishing the production corporation in Gyung-buk, Seong-ju (International environmental development Ltd.)
- Road construction nearest Pam farm (Malaysia)
- Alternate construction of support layer using the actual spot soil (Harbin China)
- Road construction alternated support layer (Philippines)
- Slip road construction for school with field soil (Harbin Chana)
- 2004 - Establishment of single promotion in Harbin, China (Harbin Seonghwan science Technique development Co.,Ltd)
- Construction of school playground (outer layer) (Chinese Korean 1 middle school)
- Supplement construction of weak pondside in factory site (Malaysia)
- Construction of slip road and Condominium parking lot (Jeonnam, Goo-re)
- 2005 - Supple and reclaim construction of weak pondside with 1,188,000m² (Malaysia) etc.
- 2006 - Alternate construction of support layer using the actual spot soil (Indonesia)
- Road construction alternated support layer and outer layer(Bangladesh)
- Supplement construction of weak pondside - foundation work of oil tank (Malaysia / Petro knot)
- 2007 - Exhibition construction for support layer of road construction (Myanmar)
- Pavement work for promenade and all kind of playground (Gwang-ju city development construction 1,2 section)
- Support layer construction for country road (Younggoo, Liaoning, China)
- Accepted the Technology test the road construction of alternated the support layer held by the Ministry of Transportation, China
- Convention with the Ministry of Transportation, China for technology
- Change the firm name and move the head office (NSC Ltd. Gwang-ju)
- Promote construction of auto camp in Song-ho beach, Hae-nam
- Park promenade construction in Ok-am 2, Mok-po
- 2008 - Sunlight roadlamp, LED, Introduction of pyrolysis application technique
- Foundation Establishment (T&G Ltd.)
- Move in Cheom-dan industrial estate
- = Chinese patent
- Songyuan City, Jilin Province, China, Jung-gu, road construction, trading house
- 2 difference (K-GSC. formulations and T.GSC) Order
- 2009
- 2010



- 2011 - Cho Hyun ecological park ramp, Shandong Province, China
Subbase construction (K-GSC and topical formulations and T.GSC apply)
Green Technology Certification
Utilizing (T.GSC) to solidify local soil technology
Always lingering, Jiangsu, China
Subbase construction (K-GSC and topical formulations and T.GSC apply) Order
Certified green professional company
- 2012 - China Anhui Bengbu 3G Bush subbase reinforcement of soft ground
plant site construction (K-GSC method and apply T.GSC solidifying agent) Order
- 2013 - Jeollanam-do Boseong create an ecological park trail construction construction business
Urban Development of Mongolia, Ulan Bad Lassi T.GSC method applied to construction projects
- 2014 - Tajikistan's premium class, Ltd. joint venture with a local.
Tajikistan brick machine delivery.
Road test laid Tajikistan.



TECHNOLOGY & GLOBAL CO., LTD



Agitator



Agitator





Local soil stabilization and solidification treatment technology



www.tng.or.kr



www.knsc.or.kr



Technical introduction

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SOIL HARDENER FOR SOIL CONCRET AND SOIL BRICKS

By utilizing (T.GSC) to solidify local soil technology

The Soil Hardener [T.GSC] for SOIL CONCRETE is new solidification material of local soil for utilizing Road Construction and Producing Soil Bricks for building house, parking lot and walkway.

General Introduction of Soil Hardener

- Korean Patent
- ECO Friendly Certificate.: Echo-Green Product Certificate issued by Korean & Chinese Government.
- Soil Road Construction (mainly base level work by soil concrete)
 For constructed the New Soil Road Construction at China, Mongolia, Malaysia, CST countries and other countries.
- Walkway
- Farm road
- Exclusive bike road
- All kind of parking lots
- Artificial fishing reef
- Economical construction : save cost at least 20% than cement concrete
- ☞ Road construction processing procedure: Analysis of soil properties > Processing Plan > Preparation > Rough rolling and leveling > Mixing Soil+ Hardener + cement > Laying > Roll compression > Spraying water > Cure
- Soil Brick
- ☞ producing soil bricks for walk road, wall panel, tiles for building house.
 The soil brick house at Korea, China, Laos, Bangladesh, African countries and etc.



Effect of Soil Hardener

- Removal of organic active components
- Bonding of soil particles such any general soil, mud, sludge, contaminated industrial waste and etc. by Hardening, Encapsulation, Solidification & Neutralizing
- Prevention of cracks
- Water soluble
- Anti-pollution effect
- Frost resistant effect
- Economical construction cost



Technical Information

Environmental ECO- Friendly product T.GSC technology



Application Scope (Detail) ;

- Sub-Base of Road Construction
- Walkway, Side walkway, Bicycle path, Packing lot, Ground
- General Road
- Farm Road, Waterway of farm, Conversion to farm land
- Filled-up land for residential wastes
- Sub-base construction for underground pipeline and storage tank
- Solidification work for sediment of resident sewage in the river and sea or reclamation work
- Sub-base work for stadium, golf field and cart road
- Structure work for weak ground
- Stable work for weak ground
- Basic work for water way and lakeside way
- Apply to solidify at the site for sub-base of road using unsuitable material such as mud, soft ground soil and other materials Using sub-base. It will not occur second contamination from such materials.



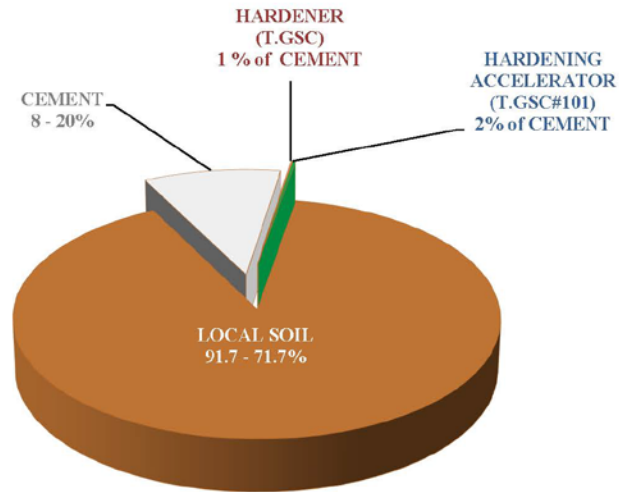
Characteristics of Local Soil Concrete and Soil Brick

- **Environmental ECO Friendly product**
 It will be kept natural condition continuously as environmental eco-friendly product by using local soil directly. That will be kept to stability emotion and higher ability for soundproof, protection against cold and heat than cement concrete and brick.
- **Simple work** : It is much stronger with long-life due to utilizing local soil against aggregate such as sand and gravel.
- **Back to the nature without waste** : It is Eco friendly products as back to natural soil without treatment process over (8MPa) against cement bricks
- **Expression hardening and Expression color** : The Soil Brick keeps enough strength as like cement brick. And it can direct environmental combination color (Red, Yellow, Blue and combination mixture) .
- **The required thickness of T.GSC brick** : The thickness must be determined according to work load and enough strength and also considering economic feasibility.



MATERIAL MIXTURE RATIO OF SOIL CONCRETE AND BRICK

**SOIL CONCRETE , BRICKS
 MATERIAL MIXTURE**



MATERIAL MIXTURE RATIO 1CBM

LOCAL SOIL (71.7-91.7%) + CEMENT(8-20%) + HARDENER TGS (1% of CEMENT)
 + HARDENER ACCELERATOR TSG #101 (2% of CEMENT) + WATER (PROPER Q'TY)

**INITIAL STAGE WORK : ENTERING ROAD
 IN KALIMANTHAN COAL MIN, INDONESIA 2002**



ROAD CONSTRUCTION IN CHINA 2003



To be continued Technical information and performance record in the detail information....

T-GSC EQUIPMENT (ROAD CONSTRUCTION)

MIXER (Trailer)



STONE SEPARATOR



To be continued in detail information ...

PACKAGE



Hardening Accelerator Liquid
(export size 1,000 Kg)



T.G.S.C Hardener (20Kg)



PROCESSING PROCEDURE (Road Construction)



(ANALYSIS OF SOIL PROPERTIES)



(REINFORCEMENT SOFT GROUND)



(PRIMARY PRESSING)



(PLAT OPERATION)



(PREPARATION)



(MIXING SOIL WITH HARDENER & CEMENT)





(PRESSING)



(TRANSPOTATION)



(WATER SPRAY)



(COVERING BY VYNIL SHEET)



(COMPLETED UP TO SURFACE BY T-GSC)



(COMPLETED UP TO SUB-BASE BY T-GSC)



GROUND AND PARKING LOT (SURFACE WORK)



WALKWAY (SURFACE WORKED BY T-GSC)

The technical date, certificates, and other more detail will be followed.....

Domestic and foreign construction results

NO	MOON/YEAR	Construction	Ordering organization	Remark
1	1996.03	Farm road and waterway construction.(30,000M2)	Dongjin Nongjo	Jeonbuk Kimje
2	1997.08	Strengthening the runway dredged soil(6,600M2)	Mokpo Airport	Halla Engineering & Construction
3	1999.07	Strengthening and Keian River dredging sediment	Gwangju, Gyeonggi	Environmental Management Corporation
4	2000.04	Kyungnam Changwon farm road construction(800M)	Agricultural & Rural Infrastructure Corporation	
5	2001.08	Phoenix Garden parking lot construction work(1,600M2)		Naju, Jeonnam
6	2001.10	Barn and approach road construction of Korean beef(20,000M2)	Livestock farming corporation Yong Ho	Chonnam Yeongam
7	2001.11	Local soil Sub base alternative test construction	Lim beulran Hui Zhao	Indonesia
8	2001.12	Industrial soft ground reinforcement work test construction	Kampong AATIN	Malaysia
9	2002.01	Factory site preparation and approach road construction(21,000M2)	Seohyun ready-mixed concrete	Gyeongnam Tongyeong
10	2002.02	Gimhae, Gyeongnam nongro construction	Agricultural & Rural Infrastructure Corporation	

Domestic and foreign construction results

NO	MOON/YEAR	Construction	Ordering organization	Remark
11	2002.03	Bongmu Park Square and walk the road(10,000M2)	Daegu donggucheong	Daegu
12	2002.03	Road construction subbase alternative construction(4Km)	MERDEA DALACE	MALAYSIA kuching
13	2002.04	Sin Am walking through park road(5,000M2)	Dong-gu Office	Daegu
14	2002.04	DuRyu walking through park road(7,000M2)	Dalseo-gu Office	Daegu
15	2002.05	World Cup vest-pocket park walking road(1,200M2)	SuSeong-gu Office	Daegu
16	2002.05	Alternative test subbase construction road construction construction	Harbin Bureau	China
17	2002.06	Stroll around the city residents playground road(2,000M2)	Buk-gu Office	Daegu
18	2002.08	Walking through park road(10,000)	Chuncheon-si	Gangwon-do
19	2002.09	Doll road local soil paving work(3,000M2)	Harbin Bureau	China
20	2002.10	Parking Corporation(990M2)		Gimhae
21	2002.10	Soft Ground Reinforcement test construction	Friday	Philippines
22	2002.10	Golf Driving Range within the road and parking lot construction(1500M2)		Daegu
23	2003.07	Palm plantations around road construction(8Km)	KimBo	KUCHUNG SARAWAK MALAYSIA
24	2003.07	Local soil subbase alternative construction(600M)	Harbin Nangang Bureau	China
25	2003.08	Local soil subbase alternative construction(3.3Km)	SIBU SARAWAK B.D.D	MALAYSIA

Domestic and foreign construction results

NO	MOON/YEAR	Construction	Ordering organization	Remark
26	2003.09	Local Land Use Hongcheng Elementary School access road construction(2.5km)	Harbin Bureau	China
27	2003.10	Local soil subbase alternative construction(1.1Km)	Harbin Bureau	China
28	2004.06	Local soil subbase alternative construction(600M)	Harbin Bureau	China
29	2004.08	Local soil subbase alternative construction(2.6km)	Harbin Bureau	China
30	2004.10	Playground construction work for school(12,000M2)	Harbin No. 1 Middle Korean-Chinese	China
31	2004.11	Soft Ground Reinforcement plant site(3,300M2)	Rembrandt Hui Zhou	MALAYSIA
32	2004.12	Condominium parking lot and access road(12,000M2)	Province Silver	Chonnam Gurye
33	2005.03	Power Housing construction access road and parking lot(10,000M2)		Hwasun
34	2005.04	Andong Hahoe Village Paving(21,000)M2	AnDong-Si	AnDong-Si
35	2005.05	Local soil subbase alternative construction(700M)	Kuala Lumpur City	MALAYSIA
36	2005.07	River gombak soft ground reinforcement work(7.1Km)	Kuala Lumpur City	MALAYSIA
37	2005.09	Karachi Golf Club Parking composition(15,00M2)	Mix siseu	Pakistan
38	2005.10	Alternative highway subbase construction(4.2Km)	Sarawak	MALAYSIA
39	2006.4	Access roads and cart road paving work(23,000M2)	AnSan CC	China
40	2006.6	Rural road paving work(1.6Km)	Soga tungu	China

Domestic and foreign construction results

NO	MOON/YEAR	Construction	Ordering organization	Remark
41	2006.9	Road construction(6Km)	Takashi Bureau	Bangladesh
42	2006.12	Oil tank storage facilities based on soft ground reinforcement work(450M3)	Petro	MALAYSIA
43	2007.1	Road construction, construction testing	Plenty Diamond Corporation	Myanmar
44	2007.3	Industrial Park Access Road Paving(800M)	Manyung borough	China
45	2007.4	Rural road paving work(4.5Km)	Exhibition Bureau merit board	China
46	2007.6	Walking roads and playgrounds Paving(9,000M2)	Urban Development Corporation	Kwang-Ju
47	2007.7	Subbase construction as alternative testing & Country Package	Liaoning permanent city	China
48	2007.10	Walking the road paving and various game room(3,500M2)	Liaoning permanent city	Kwang-Ju
49	2008.4	Haenam songhori Beach auto camping creation construction	Haenam County	Haenam
50	2008.6	Mokpo District 2 okam walking through park road construction	The Housing Corporation	Mokpo
51	2010.6	Songyuan City, Jilin Province People's Republic of China Trade home Gu Road construction	Songyuan City	China
52	2011.5	People's Republic of China Shandong Johyun ecological park access road construction		China
53	2012.12	Prime Minister Sejong City cop walking the road	Hyundai Engineering & Construction	Sejong City
54	2013.3	Walking road construction composition Daegu Gyeongbuk Institute of Science and Technology	Hyundai Engineering & Construction	DaiGu
55	2013.4	Jeollanam-do Boseong County Ecological Park tour road construction projects create construction	Boseong County Office	Boseong
56	2014.5	Tajikistan Hisor main article reusi access road construction	Article reusi	Tajikistan

Domestic and foreign construction results



Harbin, China Malaysia soft soil reinforcement Eco-friendly car park Golf cart road



Agricultural irrigation Walking Road Airstrip Walking Road



Walking Road Walking Road Sidewalk



Alleys Parking lot Walking Road



Bicycle road Bicycle road Access roads

Domestic and foreign construction results



Ningbo Xiangshan mightily to take Songyuan City, Jilin Province, China



Songyuan City, Jilin Province, China Xiangshan take songhang price



Malaysia subbase and the surface layer (Bintulu)



Indonesia Coal Mine Access Road (kkarimantu)



Yanbian Korean Autonomous Prefecture in Jilin Province, China (Yanji Park)