



흙 고화제(T.GSC)를 이용한 현지토 고형화 기술

제 GT-11-00204

MSDS Report

T.GSC Soil Concrete

현지토 + T.GSC +T.GSC#101 + 시멘트

2014. 02.



주식회사 티엔지

Head office | 970-109 Wolchul-dong, Buk-gu, Gwangju, Korea

Tel. +82. 10. 3644. 6000 Fax. +82. 62. 443. 6001

e-mail. t-gsc@hotmail.com / knsc@knsc.co.kr

CEO. Hyang Gyun- Shin

Copyright © T&G Co.,Ltd All Rights Reserved

130-7, Cheon-ri, Ihdong-myeon, Cheoin-gu, Yongin-city, Gyeonggi-do, Korea / +82-31-337-3701 / www.msdskorea.com

- Client : SerimTotal Co., Ltd.
- Product name : T-GSC
- Request date and number : January 03, 2011, No. 2012-03-01-001
- Test Results

MSDS(T-GSC)

Items	Results	Test Standards
State	Solid (Powder) at 20 ℃	With reference to * KHMSCA
Flash Point(Closed Cup)	No flash occurred under 110 ℃	KS M ISO 3679 : 2003 Rapid equilibrium method
Autoignition Temperature	No spontaneous combustion under 500 ℃	ASTM E659(1978) : 2005
Melting Range	> 300 ℃	KS M 1071-1 : 2007
pH	7.5 ~ 8.5 * Sample : H ₂ O = 1 : 5(1/1)	With reference to KS I ISO 10390 : 2005
Density	1.100 at 20 ℃	KS M 0602 : 2005
Water Solubility	Insoluble at 20 ℃	With reference to KHMSCA
Burning Rate Test	Did not ignite. * Hazard Criteria : > 2.2 mm/s	** UN TDG Test N.1
Spontaneous Combustion Test	No spontaneous combustion at 20 ℃	UN TDG Test N.2
Water Contact Test	No water reaction hazard at 20 ℃ - Rate of gas emission = 0 L/kg·h	UN TDG Test N.5
Pressure Vessel Test	No self-reaction hazard - No rupture of the 0.6 MPa disc of the vessel * orifice range = (0.6 ~ 9.0) mm	UN TDG Test E.3

* KHMSCA : Korea Hazardous Materials Safety Control Act.

** UN TDG : UN Recommendations on the Transport of Dangerous Goods - Tests and Criteria.

- Note : 1. These are the results tested with the sample provided by the above mentioned client.
2. This certificate cannot be used for advertisement, administrative litigation or lawsuit.

January 05, 2012

Technical Manager : Vincent Park.

130-7, Cheon-ri, Ihdong-myeon, Cheoin-gu, Yongin-city, Gyeonggi-do, Korea / +82-31-337-3701 / www.msdskorea.com

- Client : SerimTotal Co., Ltd.
- Product name : T-GSC #101
- Request date and number : January 03, 2011, No. 2012-03-01-002
- Test Results

MSDS(T-GSC#-101)

Items	Results	Test Standards
State	Solid (Powder) at 20 ℃	With reference to * KHMSCA
Flash Point(Closed Cup)	No flash occurred under 110 ℃	KS M ISO 3679 : 2003 Rapid equilibrium method
Autoignition Temperature	No spontaneous combustion under 500 ℃	ASTM E659(1978) : 2005
Melting Range	> 300 ℃	KS M 1071-1 : 2007
pH	7.5 ~ 8.5 * Sample : H ₂ O = 1 : 5(1/1)	With reference to KS I ISO 10390 : 2005
Density	1.100 at 20 ℃	KS M 0602 : 2005
Water Solubility	Insoluble at 20 ℃	With reference to KHMSCA
Burning Rate Test	Did not ignite. * Hazard Criteria : > 2.2 mm/s	** UN TDG Test N.1
Spontaneous Combustion Test	No spontaneous combustion at 20 ℃	UN TDG Test N.2
Water Contact Test	No water reaction hazard at 20 ℃ - Rate of gas emission = 0 L/kg·h	UN TDG Test N.5
Pressure Vessel Test	No self-reaction hazard - No rupture of the 0.6 MPa disc of the vessel * orifice range = (0.6 ~ 9.0) mm	UN TDG Test E.3

* KHMSCA : Korea Hazardous Materials Safety Control Act.

** UN TDG : UN Recommendations on the Transport of Dangerous Goods - Tests and Criteria.

- Note : 1. These are the results tested with the sample provided by the above mentioned client.
2. This certificate cannot be used for advertisement, administrative litigation or lawsuit.

January 05, 2012

Technical Manager : Vincent Park.

Material Safety Data Sheet

1. PRODUCT AND COMPANY INFORMATION

Product name : T. GSC
Company : T&G Co., Ltd.
Address : # 970-109 Wolchul-dong, Buk-gu, Gwangju, Republic of Korea
Telephone : +82 62 974 1001
Fax : +82 62 367 9500
E-mail : t-gsc@hotmail.com

Recommended use of the chemical and restrictions on use

Recommended use : Construction Material

Restrictions on use : No data available

2. HAZARDS IDENTIFICATION

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Physical hazard : Not applicable

Health hazard : Eye Irritation - Category 2

Environment hazard : Not applicable

Label elements including precautionary statements

Symbol



Signal word : Warning

Hazard statements H319 Causes serious eye damage

Precautionary statements

Prevention P264 Wash thoroughly after handling.
 P280 Wear Protective gloves/protective clothing/eye protection/face protection.
Response P305+P351+P338 If in eyes : Rinse cautiously with water for several minutes.
 Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313 If eye irritation persists : Get medical advice/attention.

Storage Not applicable

Disposal Not applicable

NFPA Rating

Health : 1 Flammability : 0 Reactivity : 0 Water reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS No.	EINECS No.	Conc. %
Potassium chloride	7447-40-7	231-211-8	35 % ~ 45 %
Calcium chloride	10035-04-8	No data available from ESIS	5 % ~ 10 %
Magnesium hydroxide	1309-42-8	215-170-3	< 3 %
Sodium chloride	7647-14-5	231-598-3	15 % ~ 20 %
Magnesium chloride	7791-18-6	No data available from ESIS	20 % ~ 30 %
Etc.	-	-	< 10 %

4. FIRST AID MEASURES

In case of eye contact

Flush eyes with water.

In case of skin contact

Wash off with soap and plenty of water.

If inhaled

If breathed in, move person into fresh air.

If not breathing, give artificial respiration.

If swallowed

Never give anything by mouth to an unconscious person.

Potential health effects

Ingestion : May be harmful if swallowed.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point : No flash occurred under 110 °C (Rapid equilibrium method)

Autoignition temperature : No spontaneous combustion under 500 °C

Burning rate : Did not ignite. (UN TDG test & criteria - Test N1)

Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical, carbon dioxide

Specific hazards arising from the chemical

No data available

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid breathing vapors, mist or gas.

Environmental precautions

Don't dispose the product into drainages.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust.

7. HANDLING AND STORAGE

Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Stable under general condition.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Components with workplace control parameter

KOSHA : No data available

US ACGIH : No data available

Appropriate engineering controls : Ventilation

Personal protective equipment

Respiratory protection : Particle cartridge respirator

Hand protection : Protective gloves

Eye protection : Protective goggles

Skin and body protection : General working clothes

9. PHYSICAL AND CHEMICAL PROPERTIES

State : Solid at 20 °C

Appearance form : Powder

pH : 7.5 ~ 8.5 at 20 °C ※ Sample : H₂O = 1 : 5 (V/V)

Flash point : No flash occurred under 110 °C (Rapid equilibrium method)

Autoignition temperature : No spontaneous combustion under 500 °C

Water solubility : Insoluble at 20 °C

Density(apparent) : 1.100 at 20 °C

Flammability

Burning rate : Did not ignite. ※ UN TDG test & criteria - Test N1

Explosive properties

No self-reaction hazard ※ UN TDG test & criteria - Test E3

Melting range : > 300 °C

Boiling point (Initial) : No data available

Oxidizing properties : No data available

Evaporation rate : No data available

Vapour pressure : No data available

Decomposition temperature : No data available

Partition coefficient (n-octanol/water) : No data available

Viscosity : No data available

Lower explosion limit : No data available

Upper explosion limit : No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under general condition.

Conditions to avoid

Avoid dust formation.

Materials to avoid

Strong acids

Hazardous decomposition products

No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 : rat > 2,600 mg/kg ※ from IUCLID

Skin LD50 : rabbit > 3,000 mg/kg

Inhalation LC50 : No data available

Skin irritation : No data available

Eye irritation

Irritation ※ from IUCLID

Respiratory or skin sensitization : No data available

Germ cell mutagenicity : No data available

Carcinogenicity

Not classifiable ※ from CCDC

Reproductive toxicity

Not classifiable ※ from CCDC

Specific target organ toxicity - single exposure (GHS) : No data available

Specific target organ toxicity - repeated exposure (GHS) : No data available

Aspiration hazard : No data available

12. ECOLOGICAL INFORMATION

Toxicity

Fish LC50 : > 10,000 mg/L (96 hrs) ※ from IUCLID

Crustacean EC50 : > 30,000 mg/L (48 hrs)

Algae EC50 : > 22,000 mg/L (96 hrs)

Persistence and degradability : No data available

Bioaccumulative potential : No data available

Mobility in soil : No data available

Other adverse effects : No data available

13. DISPOSAL CONSIDERATIONS

Disposal consideration

Observe all environmental regulation.

Disposal precaution : No data available

14. TRANSPORT INFORMATION

UN TDG : Not dangerous goods

IMDG : Not dangerous goods

IATA : Not dangerous goods

Marine pollution : Not applicable

Special precaution

Fire EmS Guide (Recommendation) : F-A

Spillage EmS Guide (Recommendation) : Not dangerous goods

15. REGULATORY INFORMATION

Korea Industrial Safety and Health Act (GHS)

Eye Irritation - Category 2

Korea Hazardous Materials Safety Control Act : Not hazardous material

Korea Toxic Chemicals Control Act : Not toxic chemical

Korea Persistent Organic Pollutants Control Act : Not applicable

US OSHA Hazard : Eye Irritation - Category 2

16. OTHER INFORMATION

Issued Date : 2012. 01. 05

Revision No. : 0

Revision Date : 2012. 01. 05

References

- GHS Classification :

Korea MSDS Testing Lab Certificate (Report No. 2012-03-01-001), IUCLID, EC ESIS

- Physical and chemical properties : Korea MSDS Testing Lab Certificate

- Transport information : Korea MSDS Testing Lab Certificate

- Toxic & ecological information : OECD SIDS, IUCLID, US NLM, IARC, EC ESIS

※ Hazards Testing and Classification

Korea MSDS Testing Laboratory

Address : # 130-7, Cheon-ri, Ihdong-myeon, Cheoin-gu, Yongin-city, Gyeonggi-do, Korea

Web site : www.msdkorea.com

Telephone : +82 31 337 3701 / 3702

This MSDS is composed in line with The Korea Occupational Safety and Health Act Article 41 to protect the health of the employees, and for documentation.

This MSDS is composed with reference to documents and criteria provided by KOSHA.

- End -

T&G Co., Ltd.

Material Safety Data Sheet

1. PRODUCT AND COMPANY INFORMATION

Product name : T. GSC #101
Company : T&G Co., Ltd.
Address : # 970-109 Wolchul-dong, Buk-gu, Gwangju, Republic of Korea
Telephone : +82 62 974 1001
Fax : +82 62 367 9500
E-mail : t-gsc@hotmail.com

Recommended use of the chemical and restrictions on use

Recommended use : Construction Material
Restrictions on use : No data available

2. HAZARDS IDENTIFICATION

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Physical hazard : Not applicable
Health hazard : Eye Irritation - Category 2
Environment hazard : Not applicable

Label elements including precautionary statements

Symbol  **Signal word** : Warning

Hazard statements H319 Causes serious eye damage

Precautionary statements

Prevention P264 Wash thoroughly after handling.
P280 Wear Protective gloves/protective clothing/eye protection/face protection.
Response P305+P351+P338 If in eyes : Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists : Get medical advice/attention.
Storage Not applicable
Disposal Not applicable

NPPA Rating

Health : 1 Flammability : 0 Reactivity : 0 Water reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS No.	EINECS No.	Conc. %
Potassium chloride	7447-40-7	231-211-8	30 % ~ 40 %
Calcium chloride	10035-04-8	No data available from ESIS	5 % ~ 15 %
Magnesium hydroxide	1309-42-3	215-170-3	< 3 %
Sodium chloride	7647-14-5	231-598-3	15 % ~ 20 %
Magnesium chloride	7791-18-6	No data available from ESIS	5 % ~ 10 %
Water	7732-18-5	231-791-2	15 % ~ 25 %
Etc.	-	-	< 10 %

4. FIRST AID MEASURES

In case of eye contact

Flush eyes with water.

In case of skin contact

Wash off with soap and plenty of water.

If inhaled

If breathed in, move person into fresh air.

If not breathing, give artificial respiration.

If swallowed

Never give anything by mouth to an unconscious person.

Potential health effects

Ingestion : May be harmful if swallowed.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point : No flash occurred under 110 °C (Rapid equilibrium method)

Autoignition temperature : No spontaneous combustion under 500 °C

Burning rate : Did not ignite. (UN TDG test & criteria - Test N1)

Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical, carbon dioxide

Specific hazards arising from the chemical

No data available

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid breathing vapors, mist or gas.

Environmental precautions

Don't dispose the product into drainages.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust.

7. HANDLING AND STORAGE

Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Stable under general condition.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Components with workplace control parameter

KOSHA : No data available

US ACGIH : No data available

Appropriate engineering controls : Ventilation

Personal protective equipment

Respiratory protection : Particle cartridge respirator

Hand protection : Protective gloves

Eye protection : Protective goggles

Skin and body protection : General working clothes

9. PHYSICAL AND CHEMICAL PROPERTIES

State : Solid at 20 °C

Appearance form : Powder

pH : 7.5 ~ 8.5 at 20 °C * Sample : H₂O = 1 : 6 (1/1)

Flash point : No flash occurred under 110 °C (Rapid equilibrium method)

Autoignition temperature : No spontaneous combustion under 500 °C

Water solubility : Insoluble at 20 °C

Density(apparent) : 1.321 at 20 °C

Flammability

Burning rate : Did not ignite. * UN TDG test & criteria - Test N1

Explosive properties

No self-reaction hazard * UN TDG test & criteria - Test E3

Melting range : > 300 °C

Boiling point (Initial) : No data available

Oxidizing properties : No data available

Evaporation rate : No data available

Vapour pressure : No data available

Decomposition temperature : No data available

Partition coefficient (n-octanol/water) : No data available

Viscosity : No data available

Lower explosion limit : No data available

Upper explosion limit : No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under general condition.

Conditions to avoid

Avoid dust formation.

Materials to avoid

Strong acids

Hazardous decomposition products

No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 : rat > 2,800 mg/kg * from IUCLID

Skin LD50 : rabbit > 3,200 mg/kg

Inhalation LC50 : No data available

Skin irritation : No data available

Eye irritation

Irritation * from IUCLID

Respiratory or skin sensitization : No data available

Germ cell mutagenicity : No data available

Carcinogenicity

Not classifiable * from CCDC

Reproductive toxicity

Not classifiable * from CCDC

Specific target organ toxicity - single exposure (GHS) : No data available

Specific target organ toxicity - repeated exposure (GHS) : No data available

Aspiration hazard : No data available

12. ECOLOGICAL INFORMATION

Toxicity

Fish LC50 : > 12,000 mg/L (96 hrs) * from IUCLID

Crustacean EC50 : > 32,000 mg/L (48 hrs)

Algae EC50 : > 24,000 mg/L (96 hrs)

Persistence and degradability : No data available

Bioaccumulative potential : No data available

Mobility in soil : No data available

Other adverse effects : No data available

13. DISPOSAL CONSIDERATIONS

Disposal consideration

Observe all environmental regulation.

Disposal precaution : No data available

14. TRANSPORT INFORMATION

UN TDG : Not dangerous goods

IMDG : Not dangerous goods

IATA : Not dangerous goods

Marine pollution : Not applicable

Special precaution

Fire EmS Guide (Recommendation) : F-A

Spillage EmS Guide (Recommendation) : Not dangerous goods

15. REGULATORY INFORMATION

Korea Industrial Safety and Health Act (GHS)

Eye Irritation - Category 2

Korea Hazardous Materials Safety Control Act : Not hazardous material

Korea Toxic Chemicals Control Act : Not toxic chemical

Korea Persistent Organic Pollutants Control Act : Not applicable

US OSHA Hazard : Eye Irritation - Category 2

16. OTHER INFORMATION

Issued Date : 2012. 01. 05

Revision No. : 0

Revision Date : 2012. 01. 05

References

- GHS Classification :

Korea MSDS Testing Lab Certificate (Report No. 2012-03-01-002), IUCLID, EC ESIS

- Physical and chemical properties : Korea MSDS Testing Lab Certificate

- Transport information : Korea MSDS Testing Lab Certificate

- Toxic & ecological information : OECD SIDS, IUCLID, US NLM, IARC, EC ESIS

*** Hazards Testing and Classification**

Korea MSDS Testing Laboratory

Address : # 130-7, Cheon-ri, Ihdong-myeon, Cheoin-gu, Yongin-city, Gyeonggi-do, Korea

Web site : www.msdskorea.com

Telephone : +82 31 337 3701 / 3702

This MSDS is composed in line with The Korea Occupational Safety and Health Act Article 41 to protect the health of the employees, and for documentation.

This MSDS is composed with reference to documents and criteria provided by KOSHA.

- End -

T&G Co., Ltd with You!



Head office | 970-109 Wolchul-dong, Buk-gu, Gwangju, Korea
TEL +82.10. 3644. 6000 FAX +82.62. 443. 6001 E-mail t-gsc@hotmail.com

CEO. Hyang Gyun- Shin

Copyright © T&G Co.,Ltd All Rights Reserved



T&G Co.,Ltd