



Material Safety Data Sheet

MSDS No. : 01-20131118-0100E

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

- 1.1. Product Identifier : Super Safe Mat
- 1.2. Identification of the supplier
- | | |
|------------------------|--|
| Name | ERGOTECH Co., Ltd. |
| Address | 292-2, Sinhyeon-ri, Opo-eup, Gwangju-si, Gyeonggi-do, Korea. |
| Emergency phone number | + 82 31 717 3261 |
| Fax | + 82 31 717 3271 |
- 1.3. Recommended use of the chemical and restriction on use
- | | |
|--------------------|-------------------|
| Recommended use | Nonslip mat |
| Restriction on use | No data available |

2. HAZARDS IDENTIFICATION

2.1. GHS classification of the substance/mixture and any national or regional

GHS classification Not applicable

Any national or regional Not applicable

2.2. GHS label elements, including precautionary statements

2.2.1. Symbols

No data available

2.2.2. Signal word No data available

2.2.3. Hazard statements No data available

2.2.4. Precautionary statements

Prevention No data available

Response No data available

Storage No data available

Disposal No data available

2.3. Other hazards which do not result in classification

NFPA

5-ETHYLIDENE-2-NORBORNENE, POLYMER WITH ETHENE AND 1-PROPENE	- Health : 1
	- Fire : 1
	- Reaction : 0
KAOLIN	- Health : 1
	- Fire : 0
	- Reaction : 0
NATURAL RUBBER	- Health : 1
	- Fire : 1
	- Reaction : 0
STYRENE-BUTADIENE RUBBER	- Health : 1
	- Fire : 1
	- Reaction : 0



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HYDROXYLAPATITE	- Health : 1 - Fire : 0 - Reaction : 0
STEARIC ACID	- Health : 1 - Fire : 1 - Reaction : 0
COPPER POLYCHLOROPHTHALOCYANINE GREEN	- Health : 1 - Fire : 1 - Reaction : 0
COPPER PHTHALOCYANINE BLUE	- Health : 1 - Fire : 1 - Reaction : 0
DIPHENYLGUANIDINE	- Health : 3 - Fire : 1 - Reaction : 0
QUARTZ	- Health : 1 - Fire : 0 - Reaction : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition	Synonyms(Common name)	Identification Number	Concentration
5-ETHYLIDENE-2-NORBORNENE, POLYMER WITH ETHENE AND 1-PROPENE	Bicyclo(2.2.1)hept-2-ene, 5-ethylidene-, polymer with ethene and 1-propene	CAS No. 25038-36-2	52.7 %
KAOLIN	BOLUS ALBA	CAS No. 1332-58-7	18.8 %
NATURAL RUBBER	NAFKA KRISTALGOM	CAS No. 9006-04-6	16.0 %
STYRENE-BUTADIENE RUBBER	Benzene, ethenyl-, polymer with 1,3-butadiene	CAS No. 9003-55-8	11.0 %
HYDROXYLAPATITE	HYDROXYLAPATITE (CA5(OH)(PO4)3)	CAS No. 1306-06-5	0.9 %
STEARIC ACID	1-HEPTADECANECARBOXYLIC ACID	CAS No. 57-11-4	0.3 %
Pigment	COPPER POLYCHLOROPHTHALOCYANINE GREEN	CAS No. 1328-53-6	0.2 %
	COPPER PHTHALOCYANINE BLUE	CAS No. 147-14-8	



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DIPHENYLGUANIDINE	1,3-DIPHENYLGUANIDINE	CAS No.	102-06-7	0.07 %
QUARTZ	SiO ₂	CAS No.	14808-60-7	<* 0.019 %

* '<' means 'Less than.'

4. FIRST-AID MEASURES

4.1. Eye contact

- If eye irritation persists : Get medical advice/attention.
- IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

4.2. Skin contact

- Get medical advice/attention if you feel unwell.
- Take off contaminated clothing and wash it before reuse.

4.3. Inhalation

- Get medical advice/attention if you feel unwell.
- IF INHALED : Remove person to fresh air and keep comfortable for breathing.

4.4. Ingestion

- Get medical advice/attention if you feel unwell.
- Rinse the mouth.

4.5. Indication of immediate medical attention and special treatment needed

- Notify to medical team or managers, and do appropriate measures.

5. FIRE-FIGHTING MEASURES

5.1. Suitable (and unsuitable) extinguishing media

- Small/normal fire : Alcohol-resistant foam, dry chemical, carbon dioxide, dry sand
- Large fire : Water spray/fog, fire fighting foam
- Extinguishment by smothering : Dry sand or soil
- Unsuitable extinguishing media : High-pressure water

5.2. Specific hazards arising from the chemical

- Irritation or toxic gases may be occurred in fire-emergency.

5.3. Special precautions for fire-fighters

- Rescuers need to note the personal protective equipment.
- Leave the area and extinguish fire in safe range.
- If not danger, remove containers.
- Extinguish fire in maximum range or use automatic fire apparatus.
- Cool containers exposed to fire with water.
- Leave from tanks if high-sounds or discolorations are found in power-operated relief valve.

5.4. Special protective equipment for fire-fighters

- Chemical resisted equipment for fire-fighter.

6. ACCIDENTAL RELEASE MEASURES



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- 6.1. Personal precautions, protective equipment and emergency procedures
 - Cleaning up immediately, and follow the precaution.
 - Remove all ignition sources.
 - If not danger, stop to leak.
 - Notice the avoid conditions and materials.
- 6.2. Environmental precautions
 - Do not let products flow in waterway, drain basement, and sealed room.
- 6.3. Methods and materials for containment and cleaning up
 - Clean up with cleaner and water.

7. HANDLING AND STORAGE

- 7.1. Precautions for safe handling
 - Notice the avoid conditions and materials.
 - Notice the engineering management and personal protection.
 - Avoid breathing dust/fume/mist/vapours.
 - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 Protective equipment : General eye protection.
- 7.2. Conditions for safe storage, including any incompatibilities
 - Notice the avoid conditions and materials.
 - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 Storage temperature : Room-temperature

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

KAOLIN	The regulation of Korea	- TWA : 10 mg/m ³
	ACGIH	- TWA : 2 mg/m ³
	Biological limit values	No data available
NATURAL RUBBER	The regulation of Korea	No data available
	ACGIH	- TWA : 0.001 mg/m ³
	Biological limit values	No data available
QUARTZ	The regulation of Korea	- TWA : 0.05 mg/m ³ Silica, crystalline(inhaled fume)
	ACGIH	- TWA : 0.025 mg/m ³
	Biological limit values	No data available

8.2. Appropriate engineering controls

- Keep air level under exposure standard with the engineering management such as process isolation and local ventilation.

8.3. Individual protection measures (personal protective equipment)

Respiratory protection	- Chemical resisted respiratory protection
Eye protection	No data available



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Hand protection	No data available
Skin and body protection	No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Appearance

Physical state	Solid at 20 °C
Color	Blue or green

9.2. Odor

Rubber

9.3. Odor threshold

No data available

9.4. pH

No data available

9.5. Melting point/freezing point

No data available

9.6. Initial boiling point and boiling range

No data available

9.7. Flash point

No data available

9.8. Evaporation rate

No data available

9.9. Flammability(solid, gas)

No data available

9.10. Upper flammability or explosive limits

No data available

9.11. Lower flammability or explosive limits

No data available

9.12. Vapour pressure

No data available

9.13. Vapour density

No data available

9.14. Relative density

1.21 (Water = 1)

9.15. Solubility

No data available

9.16. Partition coefficient : n-octanol/water

No data available

9.17. Auto-ignition temperature

No data available

9.18. Decomposition temperature

No data available

9.19. Viscosity

No data available

9.20. Molecular weight

No data available

10. STABILITY AND REACTIVITY

10.1. Chemical stability and possibility of hazardous reactions

- Stable in room-temperature and normal-pressure.
- Can not be ignited easily.
- Irritation, corrosive or toxic gases may be occurred in fire-emergency.

10.2. Conditions to avoid

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.

10.3. Incompatible materials

- Combustible materials
- Reducing materials

10.4. Hazardous decomposition products



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- Irritation, corrosive or toxic gases may be occurred in fire-emergency.

11. TOXICOLOGICAL INFORMATION

11.1. Information on the likely routes of exposure

5-ETHYLIDENE-2-NORBORNENE POLYMER WITH ETHENE AND 1-PROPENE	- In single exposure, may be occurred burns. - In single exposure, may be occurred physical irritation.
KAOLIN	- Irritation, chest pain, difficulty in breathing, lung abnormality, constipation.
NATURAL RUBBER	- Irritation, vomit, gastroenteric trouble.
HYDROXYLAPATITE	- In single exposure, May be occurred irritation.
STEARIC ACID	- Irritation, difficulty in breathing, skin-irritation.
COPPER POLYCHLOROPHTHALO CYANINE GREEN	- In single exposure, irritation. - In single exposure, light-irritation.
COPPER PHTHALOCYANINE BLUE	- Irritation. - Allergy.
QUARTZ	- May be occurred irritation.

11.2. Health hazards information

11.2.1. Acute toxicity

HYDROXYLAPATITE	- Oral : LD50 > 25 350 mg/kg Rat - Dermal : No data available - Inhalation : No data available
STEARIC ACID	- Oral : LD50 4 600 mg/kg Rat * Source : NLM;HSDB - Dermal : LD50 > 5 000 mg/kg Rabbit * Source : NLM;ChemIDplus,RTECS - Inhalation : No data available
COPPER POLYCHLOROPH THALOCYANINE GREEN	- Oral : LD50 > 3 000 mg/kg Rat * Source : IUCLID - Dermal : No data available - Inhalation : No data available
COPPER PHTHALOCY ANINE BLUE	- Oral : LD50 > 6 400 mg/kg Rat (BASF test) * Source : IUCLID - Dermal : No data available - Inhalation : No data available

11.2.2. Skin corrosion/irritation

STEARIC ACID	- Skin-irritation in solid. * Source : NLM,TOMES
COPPER POLYCHLOROPH THALOCYANINE GREEN	- Draize Test : non-irritation. * Source : IUCLID



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COPPER PHTHALOCYANINE - Non-irritation.
ANILINE BLUE * Source : Draize test EU IUCLID

11.2.3. Eye damage/irritation

STYRENE-BUTADIENE RUBBER - rabbit(STANDARD DRAIZE TEST)/light-irritation (Mild, 500 mg/24 h)
* Source : RTECS

STEARIC ACID - Solid/eye-irritation.
* Source : NLM:HSDB

COPPER POLYCHLOROPHANE - Non-irritation - Draize Test.
THALOCYANINE GREEN * Source : IUCLID

COPPER PHTHALOCYANINE - Non-irritation.
ANILINE BLUE * Source : BASF-Test EU IUCLID

11.2.4. Sensitization - Respiratory

No data available

11.2.5. Sensitization - Skin

STEARIC ACID - 116 humans/RIPT : non-irritation and non-sensitization.
* Source : NLM:HSDB

COPPER POLYCHLOROPHANE - Guinea Pig/non-irritation.
THALOCYANINE GREEN * Source : IUCLID

COPPER PHTHALOCYANINE - human/patch test : non-sensitization.
ANILINE BLUE

11.2.6. Germ cell mutagenicity

STEARIC ACID - Ames test (Salmonella typhimurium), Rec-assay, DNA effects (bacterial DNA repair) : negative.
* Source : NTP DBS, NLM:CCRIS, GENETOX

COPPER POLYCHLOROPHANE - Ames test : negative
THALOCYANINE GREEN * Source : IUCLID

COPPER PHTHALOCYANINE - Reverse mutation test : negative, salmonella reproduction,
ANILINE BLUE I strains:TA98, TA100, TA102, TA97, Chromosome aberration test : negative, China hamster.
* Source : OECD SIDS(1993)

QUARTZ - in vivo Reverse mutation test : negative, Chromosome aberration test : negative, Micronucleus test : positive.

11.2.7. Carcinogenicity

STYRENE-BUTADIENE RUBBER - IARC : Group 3

STEARIC ACID - ACGIH : A4

QUARTZ - Ministry of Labor : 1A
- IARC : Group 1 (Silica, crystalline(inhaled in the form of quartz or cristobalite from occupational sources))



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- ACGIH : A2
- NTP : K (Silica, Crystalline (Respirable Size))

11.2.8. Toxic to reproduction

COPPER PHTHALOCYANINE - Rat(Parental) 1 000 mg/kg/day Reserve test.
ANILINE BLUE * Source : OECD SIDS(1993)

11.2.9. Specific target organ toxicity (Single exposure)

QUARTZ - Effect to respiratory system.

11.2.10. Specific target organ toxicity (Repeated exposure)

COPPER POLYCHLOROPHthalocyanine GREEN - Reported to Specific target organ toxicity (Repeated exposure).
* Source : IUCLID

COPPER PHTHALOCYANINE - Reported to Specific target organ toxicity (Repeated exposure).
ANILINE BLUE * Source : Chemical Report submitted by the Ministry of Health and Welfare, OECD SIDS(1993)

11.2.11. Aspiration Hazard

STEARIC ACID - May be occurred pneumonia.
* Source : NLM:HSDB

11.3. Other adverse effects

No data available

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

COPPER POLYCHLOROPHthalocyanine GREEN - Fish : LC50 355.6 mg/L 96 h *Salmo gairdneri*
* Source : SIDS
- Crustacean : EC50 153.6 mg/L *Daphnia magna*
* Source : SIDS
- Algae : No data available

COPPER PHTHALOCYANINE - Fish : LC50 \geq 100 mg/L 48 h
ANILINE BLUE * Source : OECD TG 203
- Crustacean : No data available
- Algae : No data available

12.2. Persistence and degradability

STEARIC ACID - Persistence : log Kow 8.23
* Source : NLM:ChemIDplus

COPPER POLYCHLOROPHthalocyanine GREEN - Persistence : log Kow 17.4
* Source : SIDS

COPPER PHTHALOCYANINE - Persistence : log Kow 6.60
ANILINE BLUE

12.3. Bioaccumulative potential



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STEARIC ACID - Bioconcentration : BCF 10
* Source : NLM;HSOB
- Biodegradability : Non-biodegradability
* Source : NLM;HSOB

COPPER POLYCHLOROPH - Bioconcentration : BCF 2.1
THALOCYANINE GREEN * Source : SIDS

COPPER PHTHALOCY - Bioconcentration : BCF (0.33 ~ 11)
ANINE BLUE * Source : OECD 305C, IUCLID
- Biodegradability : < 1 (%) 28 day
* Source : IUCLID

12.4. Mobility in soil No data available

12.5. Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1. Methods of disposal

- Follow federal, state and local regulations.

13.2. Caution of disposal

- Consider the notice in regulations.

14. TRANSPORT INFORMATION

14.1. IMDG Code

NATURAL RUBBER - UN No. 1345
- RUBBER SCRAP powdered or granulated, not exceeding 840 microns and rubber content exceeding 45% or RUBBER SHODDY powdered or granulated, not exceeding 840 microns and rubber content exceeding 45 %
- Classification. 4.1
- Packing Group : II
- Environmentally hazardous substance : No data available
- Precautions in fire-emergency : F-A
- Precautions in exposure : S-1

14.2. Other transport regulations

DRG No data available
RID No data available
ADR No data available
AND No data available

14.3. Special precautions which a user needs to be aware of, or needs to comply with
No data available

15. REGULATORY INFORMATION

15.1. Korea Industrial Safety and Health Act



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KAOLIN	- Exposure standard Material
COPPER POLYCHLOROPHTHALO CYANINE GREEN	- Exposure standard Material
QUARTZ	- Working environment measurement (per 6 months) - Material for special health care (per 24 months) - Exposure standard Material

15.2. Korea Toxic Chemicals Control Act No data available

15.3. Korea Hazardous Materials Safety Control Act No data available

15.4. Korea Wastes Control Act

5-ETHYLIDENE-2-NORBORNENE
, POLYMER WITH ETHENE AND
1-PROPENE - Designated waste

KAOLIN - Designated waste

STEARIC ACID - Designated waste

COPPER POLYCHLOROPHTHALO
CYANINE GREEN - Designated waste

COPPER PHTHALOCYANINE
BLUE - Designated waste

15.5. Other internal and foreign acts

No data available

16. OTHER INFORMATION

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Reference

- GHS Classification : Korea MSDS Testing Laboratory's Test Certificate, OECD SIDS, IUCLID, US NLM, IARC, etc.
- Physical and chemical properties : Korea MSDS Testing Laboratory's Test Certificate
- Toxic Classification : OECD SIDS, IUCLID, US NLM, IARC, etc.
- Transport information : Korea MSDS Testing Laboratory's Test Certificate

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I2CA International Institute of Conformity Assessment



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- 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 -