

SAFETY DATA SHEET

Version 1.2

Creation Date 03/20/2017

Revision Date: 11/16/2018

1: PRODUCT AND COMPANY IDENTIFICATION

Product Identifiers

Product Name : TerraNu Calcium
Product Number : n/a
Brand : TerraNu
CAS-No. : n/a

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : fertilizer, soil amendment

Manufacturer

Company : Manufactured exclusively by TerraNu in Fair Oaks, IN for
Midwestern BioAg
918 Deming Way, Suite 200, Madison WI 53717
Telephone : +1 800-327-6012
Fax : +1 608-437-4984

Emergency Telephone Number

Emergency Phone # : +1 800-327-6012 (Monday-Friday, 8:00am – 5:00pm Central Time)

2: HAZARDS IDENTIFICATION

Classification of the substance in accordance with 29 CFR (OSHA HCS)

Acute toxicity, oral – category 5
Eye irritation – category 2a
Specific target organ toxicity, single exposure; Respiratory tract irritation – category 3

GHS Label elements, including precautionary statements

Pictogram(s) :  Signal word(s) : Warning

Hazard statement(s) :
H303 - May be harmful if swallowed
H320 - May cause skin and eye irritation
H333 - May be harmful if inhaled
H335 - May cause respiratory irritation

Precautionary statement(s):

P102 - Keep out of reach of children.

P103 - Read label before use

P305+P351+P338, P337+P313 - IF IN EYES Rinse cautiously with water for several minutes Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists Get medical advice/attention.

P261 - Avoid breathing dust

P304+P340, 312 - IF INHALED Remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice if you feel unwell.

Hazards not otherwise classified (HNOC) or covered by GHS

This product contains measurable quantities of acid soluble silicon. The form of this silicon is unknown at this time. It is possible that there exists sufficient quantities of silicon in the form of crystalline silica to represent a respiratory hazard. It is recommended that appropriate PPE be used and that care is taken to minimize powdering or dust generation.

3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixtures

Chemical characterization: mixture

Description: mixture of substances listed below with nonhazardous additions

Ingredients classified as hazardous by the GHS and are present above their cut-off levels:		
CAS #	Description	%
none	Anaerobically digested manure (bio-solids, dried microbes)	80-90%
10101-41-4	Calcium Sulfate	10-20%
12179-04-3	Sodium Tetraborate Pentahydrate	.05-1%

All compositions are on a dry-weight basis unless otherwise noted. This Safety Data Sheet is not a guarantee of product specification or NPK values. NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

Additional Information:

Trace metals and volatile organics can be detected in quantities less than 1.0%, most at less than 0.1%. These components and any potentially pathogenic agents are of a sufficiently low quantity to allow this product to meet US EPA 40CFR Part 503 Class A Exceptional Quality biosolid requirements and the NOB processed manure standard.

4: FIRST AID MEASURES

General Advice: Wear appropriate PPE and exercise good hygiene practices after handling this product.

Inhalation (acute): If symptomatic, move to fresh air. Get medical attention if any discomfort occurs.

Individuals with lung diseases (e.g. bronchitis, emphysema, pulmonary diseases) may be aggravated by exposure to dust.

Skin Contact: Wash skin with soap and water. Should dermal irritation or sensation occur, seek medical attention.

Eye Contact: Do not rub eyes. Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion: Rinse mouth thoroughly if dust is ingested. Get medical attention if any discomfort occurs.

Most important symptoms and effects, both acute and delayed

Inhalation (chronic) - This product may contain respirable crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, a seriously disabling and fatal lung disease. Risk of injury depends on duration and level of exposure.

5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Use fire-extinguishing media appropriate for the surrounding fire.

Special hazards arising from the substance or mixture:

At high temperatures, this type of fertilizer can give off undefined fumes. Fine dust dispersion in air may form an explosive mixture. Use of TEFC electrical equipment is advised to aid in control of dust-caused explosions. Bulk material exposed to excess moisture may generate heat upon storage and could lead to a fire hazard.

Advice for firefighters

Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow general fire precautions indicated in the workplace.

Further Information

Becomes slippery when wet, guard against falls.

6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

None required. If excessive dust is generated, recommend using dust mask, respirator, or other appropriate PPE to minimize inhalation.

Environmental precautions

Do not allow to enter sewers, drains, surface or ground water.

Methods and materials for containment and clean up

Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Ensure that disposal is in compliance with local, state or federal regulations.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7: HANDLING AND STORAGE

Precautions for safe handling

Avoid generation, spreading, and breathing dust. Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wash after handling. Do not contaminate water by disposal of equipment wash waters. Do not allow to become wet during storage.

Conditions for safe storage, including incompatibilities Store in a cool, dry area out of reach of children and animals. Keep dry. Exposure to excess moisture may generate unpleasant odors, heat, and could lead to a fire hazard. If there is moisture intrusion, spread and dry the material, ensuring that it is cool when returned to storage.

Further information

Some coprophagic canines (fecal eating dogs) may be attracted by the odor of the manure matrix and transfer their fecal attraction to TerraNu fertilizers. If a large amount of TerraNu fertilizers are consumed, seek veterinary advice.

Specific end use(s)

No further relevant information available.

8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control Parameters

The product is not known to contain any relevant quantities of materials, chemical or biological, with critical values that have to be monitored at the workplace. However, this product contains measurable quantities of acid soluble silicon. The form of this silicon is unknown at this time. It is possible that there exists sufficient quantities of silicon in the form of crystalline silica to represent a respiratory hazard. It is recommended that appropriate PPE be used at all times and that care is taken to minimize powdering or dust generation.

Exposure Controls

Appropriate engineering controls – Provide general ventilation in processing and storage. Provide local exhaust if necessary to reduce dust levels below acceptable limits.

General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing and wash before reuse.
- Wash hands after handling material, before breaks, before eating, drinking, and/or smoking, and at the end of work.
- Avoid contact with the eyes and skin.

Personal protective equipment:

- Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), and approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2
- Protection of hands: Protective gloves recommended
- Eye protection: Tightly sealed goggles
- Skin protection: No skin protection is ordinary required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	white to light brown/grey granules
Physical State	solid
Form	granules
Color	white to light brown/grey
Odor	earthy
Odor threshold	not determined
pH	slightly acidic (9 parts water, 1 part TerraNu)
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	none
Evaporation rate	not determined
Flammability (solid, gas)	not determined
Ignition Temperature	not determined

Decomposition temperature	not determined
Explosion Limits	
Lower	not determined
Upper	not determined
Vapor pressure	not applicable
Vapor density	not applicable
Relative density	not determined
Solubility(ies);	
Partition coefficient: n-octanol/water	not determined
Viscosity	not applicable
Other information	
Bulk density	35-45 lb/cubic foot

SECTION 10: STABILITY AND REACTIVITY

Reactivity

No further relevant information available

Chemical stability

Stable under normal conditions

Thermal decomposition/conditions to be avoided

No decomposition if used according to specifications

Possibility of hazardous reactions

No dangerous reactions known

Conditions to avoid

Excessive heat; absorbs moisture in areas with high humidity

Incompatible materials

Strong acids, strong bases, and oxidizing agents

Hazardous decomposition products.

Expected to emit the same types of toxic smoke as would be released during combustion of other organic materials

11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute Toxicity: No information available

Primary Irritant effect:

On the skin:	irritation of skin and mucous membranes
In the eye:	irritating effect, may cause serious eye irritation

Delayed and chronic effects:

Inhalation (chronic) - This product may contain crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, a seriously disabling and fatal lung disease. Risk of injury depends on duration and level of exposure.

Additional toxicological information

As a recycled manure-derived product, TerraNu has have the potential to contain various metals, volatile and semi volatile organic compounds, as well as trace amounts of other substances (e.g pesticides, furans).

As with manure, pathogens may present a risk. In response, the U.S. Environmental Protection Agency has established pathogen limits. To destroy pathogens, TerraNu is heated to 180° F and dried to a moisture content of less than 10%, which ensures compliance with the applicable limits (40 CFR 503.32(a)(7)).

Carcinogenic categories

IARC (International Agency for Research on Cancer): none of the ingredients are listed

NTP (National Toxicology Program, 508 rule): none of the ingredients are listed

12: ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behavior in environmental systems: No further relevant information available

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

General notes:

Do not allow product to reach ground water, water course or sewage system. Potentially harmful to aquatic organisms

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13: DISPOSAL CONSIDERATIONS

Waste treatment methods:

Recommendation: Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Material is a fertilizer and should be used as such. Keep out of any body of water. Ensure that disposal is in compliance with local, state or federal regulations. Bulk wetted material may generate heat upon storage.

Uncleaned packaging: Recommendation: Disposal must be made according to official regulations.

14: TRANSPORT INFORMATION

This section is not mandated under HCS 29 CFR 1910.1200(g)

15: REGULATORY INFORMATION

This section is not mandated under HCS 29 CFR 1910.1200(g)

16. OTHER INFORMATION

The product is classified and labeled in accordance with the Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012.

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

Date of preparation: 03/20/2017

Revision Date: 11/16/2018

SAFETY DATA SHEET

Version 1.2

Creation Date 02/20/2017

Revision Date: 11/16/2018

1: PRODUCT AND COMPANY IDENTIFICATION

Product Identifiers

Product Name : TerraNu Ignite 6-10-8 Fertilizer
Product Number : n/a
Brand : TerraNu
CAS-No. : n/a

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : fertilizer, soil amendment

Manufacturer

Company : Manufactured exclusively by TerraNu in Fair Oaks, IN for
Midwestern BioAg
918 Deming Way, Suite 200, Madison WI 53717
Telephone : +1 800-327-6012
Fax : +1 608-437-4984

Emergency Telephone Number

Emergency Phone # : +1 800-327-6012 (Monday-Friday, 8:00am – 5:00pm Central Time)

2: HAZARDS IDENTIFICATION

Classification of the substance in accordance with 29 CFR (OSHA HCS)

Acute toxicity, oral – category 5
Eye irritation – category 2a
Specific target organ toxicity, single exposure; Respiratory tract irritation – category 3

GHS Label elements, including precautionary statements

Pictogram(s) :  Signal word(s) : Warning

Hazard statement(s) :
H303 - May be harmful if swallowed
H320 - May cause skin and eye irritation
H333 - May be harmful if inhaled
H335 - May cause respiratory irritation

Precautionary statement(s):

P102 - Keep out of reach of children.

P103 - Read label before use

P305+P351+P338, P337+P313 - IF IN EYES Rinse cautiously with water for several minutes Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists Get medical advice/attention.

P261 - Avoid breathing dust

P304+P340, 312 - IF INHALED Remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice if you feel unwell.

Hazards not otherwise classified (HNOC) or covered by GHS

This product contains measurable quantities of acid soluble silicon. The form of this silicon is unknown at this time. It is possible that there exists sufficient quantities of silicon in the form of crystalline silica to represent a respiratory hazard. It is recommended that appropriate PPE be used and that care is taken to minimize powdering or dust generation.

3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixtures

Chemical characterization: mixture

Description: mixture of substances listed below with nonhazardous additions

Ingredients classified as hazardous by the GHS and are present above their cut-off levels:		
CAS #	Description	%
none	Anaerobically digested manure (bio-solids, dried microbes)	30-70%
7783-20-2	Ammonium sulfate	10-20%
7722-76-1	Monoammonium phosphate	15-25%
7778-80-5	Sulfate of potash	10-15%
14977-37-8	Potassium magnesium sulfate	3-10%
471-34-1	Calcium Carbonate	2-10%
12179-04-3	Sodium tetraborate pentahydrate	0.1-2%
7446-19-7	Zinc sulfate	0.1-2%
10634-96-5	Manganese sulfate monohydrate	0.1-2%
7758-99-8	Copper Sulfate	0.1-2%

All compositions are on a dry-weight basis unless otherwise noted. This Safety Data Sheet is not a guarantee of product specification or NPK values. NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

Additional Information:

Trace metals and volatile organics can be detected in quantities less than 1.0%, most at less than 0.1%. These components and any potentially pathogenic agents are of a sufficiently low quantity to allow this product to meet US EPA 40CFR Part 503 Class A Exceptional Quality biosolid requirements and the NOB processed manure standard.

4: FIRST AID MEASURES

General Advice: Wear appropriate PPE and exercise good hygiene practices after handling this product.

Inhalation (acute): If symptomatic, move to fresh air. Get medical attention if any discomfort occurs.

Individuals with lung diseases (e.g. bronchitis, emphysema, pulmonary diseases) may be aggravated by exposure to dust.

Skin Contact: Wash skin with soap and water. Should dermal irritation or sensation occur, seek medical attention.

Eye Contact: Do not rub eyes. Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion: Rinse mouth thoroughly if dust is ingested. Get medical attention if any discomfort occurs.

Most important symptoms and effects, both acute and delayed

Inhalation (chronic) - This product may contain respirable crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, a seriously disabling and fatal lung disease. Risk of injury depends on duration and level of exposure.

5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Use fire-extinguishing media appropriate for the surrounding fire.

Special hazards arising from the substance or mixture:

At high temperatures, this type of fertilizer can give off undefined fumes. Fine dust dispersion in air may form an explosive mixture. Use of TEFC electrical equipment is advised to aid in control of dust-caused explosions. Bulk material exposed to excess moisture may generate heat upon storage and could lead to a fire hazard.

Advice for firefighters

Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow general fire precautions indicated in the workplace.

Further Information

Becomes slippery when wet, guard against falls.

6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

None required. If excessive dust is generated, recommend using dust mask, respirator, or other appropriate PPE to minimize inhalation.

Environmental precautions

Do not allow to enter sewers, drains, surface or ground water.

Methods and materials for containment and clean up

Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Ensure that disposal is in compliance with local, state or federal regulations.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7: HANDLING AND STORAGE

Precautions for safe handling

Avoid generation, spreading, and breathing dust. Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wash after handling. Do not contaminate water by disposal of equipment wash waters. Do not allow to become wet during storage.

Conditions for safe storage, including incompatibilities

Store in a cool, dry area out of reach of children and animals. Keep dry. Exposure to excess moisture may generate unpleasant odors, heat, and could lead to a fire hazard. If there is moisture intrusion, spread and dry the material, ensuring that it is cool when returned to storage.

Further information

Some coprophagic canines (fecal eating dogs) may be attracted by the odor of the manure matrix and transfer their fecal attraction to TerraNu fertilizers. If a large amount of TerraNu fertilizers are consumed, seek veterinary advice.

Specific end use(s)

No further relevant information available.

8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control Parameters

The product is not known to contain any relevant quantities of materials, chemical or biological, with critical values that have to be monitored at the workplace. However, this product contains measurable quantities of acid soluble silicon. The form of this silicon is unknown at this time. It is possible that there exists sufficient quantities of silicon in the form of crystalline silica to represent a respiratory hazard. It is recommended that appropriate PPE be used at all times and that care is taken to minimize powdering or dust generation.

Exposure Controls

Appropriate engineering controls – Provide general ventilation in processing and storage. Provide local exhaust if necessary to reduce dust levels below acceptable limits.

General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing and wash before reuse.
- Wash hands after handling material, before breaks, before eating, drinking, and/or smoking, and at the end of work.
- Avoid contact with the eyes and skin.

Personal protective equipment:

- Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), and approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2
- Protection of hands: Protective gloves recommended
- Eye protection: Tightly sealed goggles

- Skin protection: No skin protection is ordinary required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	white to light brown/grey granules
Physical State	solid
Form	granules
Color	white to light brown/grey
Odor	earthy
Odor threshold	not determined
pH	slightly acidic (9 parts water, 1 part TerraNu)
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	none
Evaporation rate	not determined
Flammability (solid, gas)	not determined
Ignition Temperature	not determined
Decomposition temperature	not determined
Explosion Limits	
Lower	not determined
Upper	not determined
Vapor pressure	not applicable
Vapor density	not applicable
Relative density	not determined
Solubility(ies);	
Partition coefficient: n-octanol/water	not determined
Viscosity	not applicable
Other information	
Bulk density	35-45 lb/cubic foot

SECTION 10: STABILITY AND REACTIVITY

Reactivity

No further relevant information available

Chemical stability

Stable under normal conditions

Thermal decomposition/conditions to be avoided

No decomposition if used according to specifications

Possibility of hazardous reactions

No dangerous reactions known

Conditions to avoid

Excessive heat; absorbs moisture in areas with high humidity

Incompatible materials

Strong acids, strong bases, and oxidizing agents

Hazardous decomposition products.

Expected to emit the same types of toxic smoke as would be released during combustion of other organic materials

11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute Toxicity: No information available

Primary Irritant effect:

On the skin: irritation of skin and mucous membranes

In the eye: irritating effect, may cause serious eye irritation

Delayed and chronic effects:

Inhalation (chronic) - This product may contain crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, a seriously disabling and fatal lung disease. Risk of injury depends on duration and level of exposure.

Additional toxicological information

As a recycled manure-derived product, TerraNu has have the potential to contain various metals, volatile and semi volatile organic compounds, as well as trace amounts of other substances (e.g pesticides, furans).

As with manure, pathogens may present a risk. In response, the U.S. Environmental Protection Agency has established pathogen limits. To destroy pathogens, TerraNu is heated to 180° F and dried to a moisture content of less than 10%, which ensures compliance with the applicable limits (40 CFR 503.32(a)(7)).

Carcinogenic categories

IARC (International Agency for Research on Cancer): none of the ingredients are listed

NTP (National Toxicology Program, 508 rule): none of the ingredients are listed

12: ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behavior in environmental systems: No further relevant information available

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

General notes:

Do not allow product to reach ground water, water course or sewage system. Potentially harmful to aquatic organisms

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13: DISPOSAL CONSIDERATIONS

Waste treatment methods:

Recommendation: Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Material is a fertilizer and should be used as such. Keep out of any body of water. Ensure that disposal is in compliance with local, state or federal regulations. Bulk wetted material may generate heat upon storage.

Uncleaned packaging: Recommendation: Disposal must be made according to official regulations.

14: TRANSPORT INFORMATION

This section is not mandated under HCS 29 CFR 1910.1200(g)

15: REGULATORY INFORMATION

This section is not mandated under HCS 29 CFR 1910.1200(g)

16. OTHER INFORMATION

The product is classified and labeled in accordance with the Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012.

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

Date of preparation: 02/20/2017 **Revision Date:** 11/16/2018

SAFETY DATA SHEET

Version 1.1

Creation Date 03/20/2017

Revision Date: 11/16/2018

1: PRODUCT AND COMPANY IDENTIFICATION

Product Identifiers

Product Name : TerraNu MicroPack 3-3-3
Product Number : n/a
Brand : TerraNu
CAS-No. : n/a

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : fertilizer, soil amendment

Manufacturer

Company : Manufactured exclusively by TerraNu in Fair Oaks, IN for
Midwestern BioAg
918 Deming Way, Suite 101, Madison WI 53717
Telephone : +1 800-327-6012
Fax : +1 608-437-4984

Emergency Telephone Number

Emergency Phone # : +1 800-327-6012 (Monday-Friday, 8:00am – 5:00pm Central Time)

2: HAZARDS IDENTIFICATION

Classification of the substance in accordance with 29 CFR (OSHA HCS)

Acute toxicity, oral – category 5
Eye irritation – category 2a
Specific target organ toxicity, single exposure; Respiratory tract irritation – category 3

GHS Label elements, including precautionary statements

Pictogram(s) :  Signal word(s) : Warning

Hazard statement(s) :
H303 - May be harmful if swallowed
H320 - May cause skin and eye irritation
H333- May be harmful if inhaled
H335 - May cause respiratory irritation

Precautionary statement(s):

P102 - Keep out of reach of children.

P103 - Read label before use

P305+P351+P338, P337+P313 - IF IN EYES Rinse cautiously with water for several minutes Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists Get medical advice/attention.

P261 - Avoid breathing dust

P304+P340, 312 - IF INHALED Remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice if you feel unwell.

Hazards not otherwise classified (HNOC) or covered by GHS

This product contains measurable quantities of acid soluble silicon. The form of this silicon is unknown at this time. It is possible that there exists sufficient quantities of silicon in the form of crystalline silica to represent a respiratory hazard. It is recommended that appropriate PPE be used and that care is taken to minimize powdering or dust generation.

3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixtures

Chemical characterization: mixture

Description: mixture of substances listed below with nonhazardous additions

Ingredients classified as hazardous by the GHS and are present above their cut-off levels:		
CAS #	Description	%
none	Anaerobically digested manure (bio-solids, dried microbes)	30-70%
14977-37-8	Potassium Magnesium Sulfate	10-20%
7783-20-2	Ammonium Sulfate	1-10%
7446-19-7	Zinc Sulfate	0.1-5%
12179-04-3	Sodium Tetraborate Pentahydrate	0.1-4%
10634-96-5	Manganese Sulfate Monohydrate	0.1-2%
7722-76-1	Monoammonium Phosphate	0.1-2%
7728-99-8	Copper Sulfate	0.1-2%
17375-41-6	Ferrous Sulfate	0.1-2%
471-34-1	Calcium Carbonate	0.1-2%

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Additional Information:

Trace metals and volatile organics can be detected in quantities less than 1.0%, most at less than 0.1%. These components and any potentially pathogenic agents are of a sufficiently low quantity to allow this product to meet US EPA 40CFR Part 503 Class A Exceptional Quality biosolid requirements and the NOB processed manure standard.

4: FIRST AID MEASURES

General Advice: Wear appropriate PPE and exercise good hygiene practices after handling this product.

Inhalation (acute): If symptomatic, move to fresh air. Get medical attention if any discomfort occurs. Individuals with lung diseases (e.g. bronchitis, emphysema, pulmonary diseases) may be aggravated by exposure to dust.

Skin Contact: Wash skin with soap and water. Should dermal irritation or sensation occur, seek medical attention.

Eye Contact: Do not rub eyes. Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion: Rinse mouth thoroughly if dust is ingested. Get medical attention if any discomfort occurs.

Most important symptoms and effects, both acute and delayed

Inhalation (chronic) - This product may contain respirable crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, a seriously disabling and fatal lung disease. Risk of injury depends on duration and level of exposure.

5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Use fire-extinguishing media appropriate for the surrounding fire.

Special hazards arising from the substance or mixture:

At high temperatures, this type of fertilizer can give off undefined fumes. Fine dust dispersion in air may form an explosive mixture. Use of TEFC electrical equipment is advised to aid in control of dust-caused explosions. Bulk material exposed to excess moisture may generate heat upon storage and could lead to a fire hazard.

Advice for firefighters

Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow general fire precautions indicated in the workplace.

Further Information

Becomes slippery when wet, guard against falls.

6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

None required. If excessive dust is generated, recommend using dust mask, respirator, or other appropriate PPE to minimize inhalation.

Environmental precautions

Do not allow to enter sewers, drains, surface or ground water.

Methods and materials for containment and clean up

Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Ensure that disposal is in compliance with local, state or federal regulations.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7: HANDLING AND STORAGE

Precautions for safe handling

Avoid generation, spreading, and breathing dust. Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wash after handling. Do not contaminate water by disposal of equipment wash waters. Do not allow to become wet during storage.

Conditions for safe storage, including incompatibilities

Store in a cool, dry area out of reach of children and animals. Keep dry. Exposure to excess moisture may generate unpleasant odors, heat, and could lead to a fire hazard. If there is moisture intrusion, spread and dry the material, ensuring that it is cool when returned to storage.

Further information

Some coprophagic canines (fecal eating dogs) may be attracted by the odor of the manure matrix and transfer their fecal attraction to TerraNu fertilizers. If a large amount of TerraNu fertilizers are consumed, seek veterinary advice.

Specific end use(s)

No further relevant information available.

8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control Parameters

The product is not known to contain any relevant quantities of materials, chemical or biological, with critical values that have to be monitored at the workplace. However, this product contains measurable quantities of acid soluble silicon. The form of this silicon is unknown at this time. It is possible that there exists sufficient quantities of silicon in the form of crystalline silica to represent a respiratory hazard. It is recommended that appropriate PPE be used at all times and that care is taken to minimize powdering or dust generation.

Exposure Controls

Appropriate engineering controls – Provide general ventilation in processing and storage. Provide local exhaust if necessary to reduce dust levels below acceptable limits.

General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing and wash before reuse.
- Wash hands after handling material, before breaks, before eating, drinking, and/or smoking, and at the end of work.
- Avoid contact with the eyes and skin.

Personal protective equipment:

- Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), and approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2
- Protection of hands: Protective gloves recommended
- Eye protection: Tightly sealed goggles
- Skin protection: No skin protection is ordinary required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	white to light brown/grey granules
Physical State	solid
Form	granules
Color	white to light brown/grey
Odor	earthy
Odor threshold	not determined
pH	slightly acidic (9 parts water, 1 part TerraNu)
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	none
Evaporation rate	not determined
Flammability (solid, gas)	not determined
Ignition Temperature	not determined
Decomposition temperature	not determined
Explosion Limits	
Lower	not determined
Upper	not determined
Vapor pressure	not applicable
Vapor density	not applicable
Relative density	not determined
Solubility(ies);	
Partition coefficient: n-octanol/water	not determined
Viscosity	not applicable
Other information	
Bulk density	35-45 lb/cubic foot

SECTION 10: STABILITY AND REACTIVITY

Reactivity

No further relevant information available

Chemical stability

Stable under normal conditions

Thermal decomposition/conditions to be avoided

No decomposition if used according to specifications

Possibility of hazardous reactions

No dangerous reactions known

Conditions to avoid

Excessive heat; excessive moisture; absorbs moisture in areas with high humidity

Incompatible materials

Strong acids, strong bases, and oxidizing agents

Hazardous decomposition products.

Expected to emit the same types of toxic smoke as would be released during combustion of other organic materials

11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute Toxicity: No information available

Primary Irritant effect:

On the skin: irritation of skin and mucous membranes

In the eye: irritating effect, may cause serious eye irritation

Delayed and chronic effects:

Inhalation (chronic) - This product may contain crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, a seriously disabling and fatal lung disease. Risk of injury depends on duration and level of exposure.

Additional toxicological information

As a recycled manure-derived product, TerraNu has have the potential to contain various metals, volatile and semi volatile organic compounds, as well as trace amounts of other substances (e.g pesticides, furans).

As with manure, pathogens may present a risk. In response, the U.S. Environmental Protection Agency has established pathogen limits. To destroy pathogens, TerraNu is heated to 180° F and dried to a moisture content of less than 10%, which ensures compliance with the applicable limits (40 CFR 503.32(a)(7)).

Carcinogenic categories

IARC (International Agency for Research on Cancer): none of the ingredients are listed

NTP (National Toxicology Program, 508 rule): none of the ingredients are listed

12: ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behavior in environmental systems: No further relevant information available

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

General notes:

Do not allow product to reach ground water, water course or sewage system. Potentially harmful to aquatic organisms

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13: DISPOSAL CONSIDERATIONS

Waste treatment methods:

Recommendation: Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Material is a fertilizer and should be used as such. Keep out of any body of water. Ensure that disposal is in compliance with local, state or federal regulations. Bulk wetted material may generate heat upon storage.

Uncleaned packaging: Recommendation: Disposal must be made according to official regulations.

14: TRANSPORT INFORMATION

This section is not mandated under HCS 29 CFR 1910.1200(g)

15: REGULATORY INFORMATION

This section is not mandated under HCS 29 CFR 1910.1200(g)

16. OTHER INFORMATION

The product is classified and labeled in accordance with the Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012.

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

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