

1. Identification

| | |
|---|--|
| Product identifier | Vitality |
| Other means of identification | |
| Synonyms | Hydrated Lime, Calcitic Hydrated Lime, Lime, Slaked Lime, Lime Putty, Lime Slurry, Milk of Lime, Calcium Hydroxide |
| Intended use | Neutralization, flocculation, stabilization, absorption |
| Restrictions on use | None known. |
| Details of the supplier of the safety data sheet | |
| Company Name | AG Technologies, LLC |
| Company Address | 1111 S. Carnahan Rd. King Hill, ID 83633 |
| Company Phone Number | (208) 859-7740 |
| EMERGENCY PHONE NUMBER: | CHEMTREC: 1-800-424-9300 |

2. Hazard(s) identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.1 Classification of the substance or mixture

| | |
|-----------------------------------|------------|
| Skin Corrosion/Irritation: | Category 2 |
| Eye Damage/Irritation: | Category 1 |
| Carcinogenicity: | Category 1 |

2.2 Label elements



Hazard symbol:

Signal word:

Hazard statements:

DANGER

H315 - Causes skin irritation.

H318 - Causes serious eye damage.

H350 - May cause cancer through inhalation.

Precautionary statements

Prevention:

P280 – Wear protective gloves/protective clothing/eye protection.

P264 – Wash thoroughly after handling.

P201 – Obtain special instructions before use.

P202 – Do not handle until all safety precautions have been read and understood.

Response:

P308+P313 – If exposed or concerned: Get medical attention.

P305+P351+P338+P310 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a Poison Center or doctor.

P302+P352+P362+P364 – IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

P332+P313 – If skin irritation occurs: Get medical attention.

Storage:

P405 – Store locked up.

Disposal:

P501 – Dispose of contents/container according to state and local authorities.

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2.3 Other hazards

None known.

3. Composition/information on ingredients

Mixture

| Chemical Name | CAS Number | Weight % |
|----------------------------|------------|----------|
| Calcium Hydroxide | 1305-62-0 | 90-100 |
| Crystalline silica, quartz | 14808-60-7 | 0.0001-1 |

Crystalline silica has been found in some products at or above detection level 0.1%. Concentration is dependent upon limestone source.

4. First aid measures

4.1. Description of first aid measures

| | |
|-----------------------------------|--|
| Eye contact | Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician. Get medical attention immediately. Call a poison center or physician. |
| Inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Skin contact | Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Ingestion | Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Protection of first-aiders | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |

4.2. Most important symptoms and effects, both acute and delayed

Potential acute health effects: Causes serious eye damage. May cause cancer if inhaled. Causes skin irritation.

Over-exposure signs/symptoms: Eye contact: Adverse symptoms may include pain, watering, and redness.

Inhalation: Adverse symptoms may include respiratory tract irritation, coughing, and burning sensation.

Skin contact: Adverse symptoms may include pain or irritation, redness, and blistering may occur.

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Ingestion: Adverse symptoms may include burning sensation, abdominal cramps and pain, and vomiting.

4.3 Indication of immediate medical attention and special treatment needed

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:

None known.

5.2 Specific hazards arising from the substance or mixture

No specific fire or explosion hazard.

Hazardous thermal decomposition products: None.

5.3 Special protective equipment for firefighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

5.4 Special protective actions for firefighters

No special measures are required.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:

No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

6.1. Environmental precautions

Avoid discharge into drains, sewers, water courses or onto the ground. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.2. Methods and materials for containment and cleaning up

Spills: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

7.1. Precautions for safe handling

Protective measures:

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Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene:

Do not eat, drink or smoke in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

7.2. Conditions for safe storage, including any incompatibilities

Store in original, tightly closed container only. Keep away from incompatible materials (see Section 10). Store in a cool, dry, well-ventilated area and protect from direct sunlight. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls and personal protection

8.1. Control parameters

Occupational exposure limits:

| Ingredient name | Exposure limits |
|---------------------------------------|---|
| Calcium Hydroxide | ACGIH TLV (United States, 3/2016). TWA: 5 mg/m ³ 8 hours. NIOSH REL (United States, 10/2013). TWA: 5 mg/m ³ 10 hours. OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust MSHA PEL TWA 8/40 hours: 5 mg/m ³ |
| Crystalline silica, respirable powder | OSHA PEL Z3 (United States, 6/2016). TWA: 250 mppcf 8 hours. Form: Respirable TWA: 10 mg/m ³ 8 hours. Form: Respirable TWA: 5 mg/m ³ Form: Respirable fraction TWA: 15 mg/m ³ Form: Total dust NIOSH REL (United States, 10/2013). TWA: 0.05 mg/m ³ 10 hours. Form: Respirable dust TWA: 5 mg/m ³ Form: Respirable fraction TWA: 10 mg/m ³ Form: Total dust OSHA PEL (United States, 6/2016). TWA: 50 µg/m ³ 8 hours. Form: Respirable dust ACGIH TLV (United States, 3/2016). TWA: 0.025 mg/m ³ 8 hours. Form: Respirable fraction MSHA PEL TWA 8/40 hours: 30 mg/m ³ /(%SiO ₂)+2 mg/m ³ Form: Total dust 10 mg/m ³ /(%SiO ₂)+2 mg/m ³ Form: Respirable dust |

8.2. Appropriate engineering control

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Engineering controls may be required to control the primary or secondary risks associated with this product.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

8.3 Individual protection measures, such as personal protective equipment

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

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Skin protection:

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Other: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Wear an appropriate NIOSH approved respirator if concentration levels exceed the safe exposure limits.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and chemical properties

Appearance

| | |
|---|----------------------------|
| Physical state | Solid |
| Form | Fine powder |
| Color | White |
| Odor | Sweet, soil like odor |
| Odor threshold | Not available |
| pH | 12.45 [Sat. soln.] at 25°C |
| Melting point | Not available |
| Boiling point | Not available |
| Flash point | Not applicable |
| Evaporation rate | Not available |
| Flammability (solid, gas) | Not available |
| Upper/lower flammability or explosive limits | |
| Flammability limit – lower (%) | Not available |
| Flammability limit – upper (%) | Not available |
| Explosive limit – lower (%) | Not available |
| Explosive limit – upper (%) | Not available |
| Vapor pressure | Not available |
| Vapor density | Not available |
| Relative density | 2.3 to 2.4 |
| Solubility (water) | 0.165 g/100 g at 20°C |
| Partition coefficient n-octanol/water | Not available |
| Auto-ignition temperature | Not available |
| Decomposition temperature | 540°C (1004°F) |
| Viscosity | Not available |

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10. Stability and reactivity

- 10.1. Reactivity:** No specific test data related to reactivity available for this product or its ingredients.
- 10.2. Chemical stability:** Material is stable under normal conditions.
- 10.3. Possibility of hazardous reactions:** No dangerous reactions known under normal conditions of use.
- 10.4. Conditions to avoid:** Contact with incompatible materials, e.g. water acids, reactive fluoridated compounds, reactive brominated compounds, reactive powdered metals, organic acid anhydrides, nitro-organic compounds, reactive phosphorous compounds, interhalogenated compounds.
- 10.5. Incompatible materials:** Oxidizing materials and acids.
- 10.6. Hazardous decomposition products:** None.

11. Toxicological information

Information on toxicological effects

Acute toxicity

| PRODUCT/INGREDIENT NAME | RESULT | SPECIES | DOSE | EXPOSURE |
|-------------------------|-----------|---------|------------|----------|
| Calcium Hydroxide | LD50 Oral | Rat | 7340 mg/kg | - |

Irritation/Corrosion

| PRODUCT/INGREDIENT NAME | RESULT | SPECIES | SCORE | EXPOSURE | OBSERVATION |
|-------------------------|------------------------|---------|-------|----------|-------------|
| Calcium Hydroxide | Eyes – Severe irritant | Rabbit | - | 10 mg | - |

Sensitization: No data available.

Mutagenicity: No data available.

Carcinogenicity:

| PRODUCT/INGREDIENT NAME | OSHA | IARC | NTP | ACGIH | EPA | NIOSH |
|---------------------------------------|------|------|--------------------------------|-------|-----|-------|
| Crystalline silica, respirable powder | - | 1 | Known to be a human carcinogen | A2 | - | + |

Reproductive toxicity: No data available.

Teratogenicity: No data available.

Specific target organ toxicity (single exposure)

| NAME | CATEGORY | ROUTE OF EXPOSURE | TARGET ORGANS |
|-------------------|------------|-------------------|------------------------------|
| Calcium Hydroxide | Category 3 | Not applicable | Respiratory tract irritation |

Specific target organ toxicity (repeated exposure)

| NAME | CATEGORY | ROUTE OF EXPOSURE | TARGET ORGANS |
|---------------------------------------|------------|-------------------|-------------------|
| Crystalline silica, respirable powder | Category 1 | Inhalation | Respiratory tract |

Aspiration hazard: No data available.

Information on likely routes of exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

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Potential acute health effects:

- Eye contact:** Causes serious eye damage.
Inhalation: May cause respiratory irritation.
Skin contact: Causes skin irritation.
Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics:

- Eye contact:** Adverse symptoms may include pain, watering, and redness
Inhalation: Adverse symptoms may include respiratory tract irritation, coughing, and burning sensation.
Skin contact: Adverse symptoms may include pain or irritation, redness, and blistering may occur.
Ingestion: Adverse symptoms may include burning sensation, abdominal cramps and pain, and vomiting.

Delayed and immediate effects and also chronic effects from short and long term exposure:

- Short term exposure:** No known significant effects or critical hazards.
Long term exposure: No known significant effects or critical hazards.

Potential chronic health effects:

- General:** Causes damage to organs through prolonged or repeated exposure.
Carcinogenicity: May cause cancer if inhaled. Risk of cancer depends on duration and level of exposure.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity

- Acute toxicity estimates:** There is no data available.

12. Ecological information

12.1. Ecotoxicity:

| PRODUCT/INGREDIENT NAME | RESULT | SPECIES | EXPOSURE |
|-------------------------|--|--|----------|
| Calcium Hydroxide | Acute LC50 33884.4 µg/L Fresh water | Fish – Clarias gariepinus – Fingerling | 96 hours |

12.2. Persistence and degradability: No data available.

12.3. Bioaccumulative potential: No data available.

12.4. Mobility in soil: Not available.

12.5. Other adverse effects: No known significant effects or critical hazards.

13. Disposal considerations

13.1. Waste treatment methods

Do not contaminate water, food or feed by storage or disposal. Dispose of packaging according to state and local authorities. If burned, stay out of smoke.

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14. Transport information

DOT: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods.

15. Regulatory information**15.1 US Federal regulations****United State inventory (TSCA 8b)**

All components are listed or exempted.

RCRA classification

Not listed or classified.

CWA-311

Calcium Hydroxide has been withdrawn from the Clean Water Act (CWA) list of hazardous substances. (11/13/79) (44FR654000).

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

FDA

Calcium Hydroxide has been determined as Generally Recognized As Safe (GRAS) by FDA. See 21CFR184.1205. (CFR Title 21 Part 184 – Direct food substances affirmed as generally recognized as safe).

Clean Air Act (Sections 112 and 602): Not listed.

15.2 Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302/304 Extremely hazardous substance: Not listed

SARA 311/312 Hazardous Chemical:Calcium Hydroxide:

Immediate Hazard – Yes

Delayed Hazard – No

Fire Hazard – No

Pressure Hazard – No

Reactivity Hazard – No

Crystalline Silica, respirable powder:

Immediate Hazard – No

Delayed Hazard – Yes

Fire Hazard – No

Pressure Hazard – No

Reactivity Hazard – No

SARA 313 (TRI reporting): Not listed

15.3 US State regulations**U.S. California Proposition 65**

WARNING: This product contains a chemical known to the State of California to cause cancer.

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

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