

Section 1: Product and Company Identification

1.1 Product Identifiers:

Product Names: ABRAXIS® Affinity Capture and Extraction (ACE) Kit - Microcystins

Product Codes: 520100

1.2 Identified Use: Isolation of target analytes in samples. **Restrictions on Use:** For research use only.

1.3 Company: Gold Standard Diagnostics, 795 Horsham Road, Horsham, PA 19044 USA, info.abraxis@us.goldstandarddiagnostics.com
+1(215) 357-3911, FAX +1(215) 357-5232



1.4 Emergency Telephone Number: +1(215) 357-3911




Section 2: Hazard(s) Identification

2.1 Classification of the substance or mixture - GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

| Chemical Name | GHS Classification |
|----------------------|--|
| 2-Chloroacetamide | Acute toxicity, Oral (Category 3), H301 Skin sensitization (Category 1), H317 Reproductive toxicity (Category 2), H361 Short-term (acute) aquatic hazard (Category 3), H402 |
| Acetonitrile | Acute toxicity, Oral (Category 4), H302 Acute toxicity, Inhalation (Category 4), H332 Acute toxicity, Dermal (Category 4), H312 Eye irritation (Category 2A), H319 |
| Ammonium bicarbonate | Acute toxicity, Oral (Category 4), H302 Short-term (acute) aquatic hazard (Category 3), H402 |
| Formic acid | Flammable liquids (Category 3), H226 Acute toxicity, Oral (Category 4), H302 Acute toxicity, Inhalation (Category 3), H331 Skin corrosion (Category 1A), H314 Serious eye damage (Category 1), H318 |
| Sodium azide | Acute toxicity, Oral (Category 2), H300 Acute toxicity, Inhalation (Category 2), H330 Acute toxicity, Dermal (Category 1), H310 Specific target organ toxicity - repeated exposure, Oral (Category 2), Brain, H373 Short-term (acute) aquatic hazard (Category 1), H400 Long-term (chronic) aquatic hazard (Category 1), H410 |

2.2 GHS Label elements, including precautionary statements

| Chemical Name | GHS Pictogram | Hazard Statement(s) | Precautionary Statement(s) |
|-------------------|---|---|--|
| 2-Chloroacetamide |  | H301 Toxic if swallowed. H317 May cause an allergic skin reaction. H361 Suspected of damaging fertility or the unborn child. H402 Harmful to aquatic life. | P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing mist or vapors. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ eye protection/ face protection. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. 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. P363 Wash contaminated clothing before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403 + P235 Store in a well-ventilated place. Keep cool. P501 Dispose of contents/ container to an approved waste disposal plant. |
| Acetonitrile |  | H225 Highly flammable liquid and vapor. H302 + H312 + H332 Harmful if | P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P264 Wash skin thoroughly after handling. |

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| | | <p>swallowed, in contact with skin or if inhaled. H319 Causes serious eye irritation</p> | <p>P270 Do not eat, drink or smoke when using this product. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P363 Wash contaminated clothing before reuse. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.</p> |
| Ammonium bicarbonate |  | <p>H302 Harmful if swallowed. H402 Harmful to aquatic life.</p> | <p>P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. P501 Dispose of contents/ container to an approved waste disposal plant.</p> |
| Formic acid |  | <p>H226 Flammable liquid and vapor. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H331 Toxic if inhaled</p> | <p>P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. 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/ doctor. P363 Wash contaminated clothing before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.</p> |
| Sodium azide |  | <p>H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled. H373 May cause damage to organs (Brain) through prolonged or repeated exposure if swallowed. H410 Very toxic to aquatic life with long lasting effects.</p> | <p>P260 Do not breathe dust. P262 Do not get in eyes, on skin, or on clothing. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing. P284 Wear respiratory protection. P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth. P302 + P350 + P310 IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. P314 Get medical advice/ attention if you feel unwell. P362 Take off contaminated clothing and wash before reuse. P391 Collect spillage.</p> |

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| | | | P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant. |
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2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – Sodium Azide: Contact with acids liberates very toxic gas. Sodium Azide may react with lead and copper plumbing to form highly explosive metal azides. Rapidly absorbed through skin.

Section 3: Composition / Information on Ingredients

3.2 Mixtures:

| Hazardous Ingredients: | | |
|--|----------|---|
| Chemical Name | % by wt. | GHS |
| 2-Chloroacetamide Formula: C ₂ H ₄ ClNO Molecular weight: 93.51 g/mol CAS-No.: 79-07-2 EC-No.: 201-174-2 Index-No.: 616-036-00-0 | < 0.05% | Acute Tox. 3; Skin Sens. 1; Repr. 2; Aquatic Acute 3; H301, H317, H361, H402 Concentration limits: >= 0.1 % |
| Acetonitrile Synonyms: Methyl cyanide, ACN Formula: C ₂ H ₃ N Molecular weight: 41.05 g/mol CAS-No.: 75-05-8 EC-No.: 200-835-2 Index-No.: 608-001-00-3 | 1-5% | Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; H225, H302, H332, H312, H319 |
| Ammonium bicarbonate Synonyms: Ammonium hydrogen carbonate Formula: CH ₅ NO ₃ Molecular Weight: 79.06 g/mol CAS-No.: 1066-33-7 EC-No.: 213-911-5 | < 0.5% | Acute Tox. 4; Aquatic Acute 3; H302, H402 |
| Formic Acid Formula: CH ₂ O ₂ Molecular weight: 46.03 g/mol CAS-No.: 64-18-6 EC-No.: 200-579-1 Index-No.: 607-001-00-0 | 1-5% | Flam. Liq. 3; Acute Tox. 4; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; H226, H302, H331, H314, H318 Concentration limits: > 78.5 %: Acute Tox. 3, H331; 75 - 78.5 %: Acute Tox. 4, H332; > 75 %: , EUH071; >= 90 %: Skin Corr. 1A, H314; 10 - < 90 %: Skin Corr. 1B, H314; 2 - < 10 %: Skin Irrit. 2, H315; Eye Irrit. 2, H319; |
| Sodium Azide Formula: N ₃ Na Molecular weight: 65.01 g/mol CAS-No.: 26628-22-8 EC-No.: 247-852-1 Index-No. : 011-004-00-7 | < 0.01% | Acute Tox. 2; Acute Tox. 1; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H300, H330, H310, H373, H400, H410 M-Factor - Aquatic Acute: 1 M-Factor – Aquatic Chronic: 1 |

Section 4: First Aid Measures

4.1 Description of first aid measures: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water. Take off immediately all contaminated clothing. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed: No data available

4.3 Indication of any immediate medical attention and special treatment needed: No data available. Treat symptomatically.

Section 5: Fire-fighting Measures

5.1 Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire. Sodium azide: Sand powder against metal.

5.2 Special hazards arising from the substance or mixture:

Acetonitrile: Carbon oxides, Nitrogen oxides (NO_x), Hydrogen cyanide (hydrocyanic acid); Combustible, pay attention to flashback. Vapors are Gold Standard Diagnostics info.abraxiskits@us.goldstandarddiagnostics.com www.abraxiskits.com (215)357-3911

heavier than air and may spread along floors; Development of hazardous combustion gases or vapours possible in the event of fire; Forms explosive mixtures with air at ambient temperatures.

Formic Acid: Nature of decomposition products unknown.

Sodium Azide: Sodium oxides, not combustible.

5.3 Advice for firefighters: Wear self-contained breathing apparatus for fire-fighting if necessary.

5.4 Further information: Remove container from danger zone. Suppress gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment (see section 8). Avoid dust formation. Avoid breathing vapors, mist, dust, or gas. Keep away from heat and sources of ignition. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up: Solids (if applicable): Pick up and arrange disposal without creating dust. Sweep up and shovel. Liquids (if applicable): Absorb with liquid-binding material (sand, diatomite, universal binders, sawdust, Chemizorb®). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections: For information on safe handling see section 7. For information on personal protection see section 8. For information on disposal see section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling: See section 2. Avoid inhalation of vapors and contact with skin and eyes. Wear appropriate personal protective equipment. Do not eat, drink, or smoke in work area. Work under hood. Do not inhale. Avoid generation of vapors/aerosols.

7.2 Precautions for safe storage: Keep container(s) tightly closed in a dry, well-ventilated place. Protect from physical damage. See label or product insert for appropriate storage temperature and additional specific information. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. Sodium azide: Do not store near acids.

7.3 Specific end use(s): No data available

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

| Chemical Name | CAS-No. | Value | Control parameters | Basis |
|----------------------|-----------|--|---------------------------------|---|
| 2- Chloroacetamide | 79-07-2 | Contains no substances with occupational exposure limits | | |
| Acetonitrile | 75-05-8 | TWA | 20 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | TWA | 20 ppm 34 mg/m ³ | USA. NIOSH Recommended Exposure Limits |
| | | TWA | 40 ppm 70 mg/m ³ | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| | | PEL | 40 ppm 70 mg/m ³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | STEL | 60 ppm 105 mg/m ³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | Not classifiable as a human carcinogen; Danger of cutaneous absorption | | |
| Ammonium bicarbonate | 1066-33-7 | Contains no substances with occupational exposure limits | | |
| Formic Acid | 64-18-6 | TWA | 5 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | TWA | 5 ppm 9 mg/m ³ | USA. NIOSH Recommended Exposure Limits |
| | | TWA | 5 ppm 9 mg/m ³ | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| | | PEL | 5 ppm 9 mg/m ³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | STEL | 10 ppm 19 mg/m ³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

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|--------------|------------|------|----------------------|---|
| | | STEL | 10 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| Sodium Azide | 26628-22-8 | C | 0.29 mg/m3 | USA. ACGIH Threshold Limit Values (TLV). Not classifiable as a human carcinogen |
| | | C | 0.11 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | C | 0.1 ppm 0.3 mg/m3 | Potential for dermal absorption: USA. NIOSH Recommended Exposure Limits |
| | | C | 0.1 ppm 0.3 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

Derived No Effect Level (DNEL)

| Chemical Name | Application Area | Routes of Exposure | Health Effect | Value |
|----------------------|-------------------|--------------------|---|----------------|
| 2- Chloroacetamide | No data available | | | |
| Acetonitrile | Workers | Inhalation | Acute local effects, Acute systemic effects | 68 mg/m3 |
| | | Skin contact | Long-term systemic effects | 32.2mg/kg BW/d |
| | | Inhalation | Long-term local effects, Long-term systemic effects | 68 mg/m3 |
| | Consumers | Inhalation | Acute local effects | 220 mg/m3 |
| | | Inhalation | Acute systemic effects | 22 mg/m3 |
| | | Inhalation | Long-term systemic effects | 4.8 mg/m3 |
| Ammonium bicarbonate | No data available | | | |
| Formic Acid | Workers | Inhalation | Long-term local effects, Long-term systemic effects | 9.5 mg/m3 |
| | Workers | Inhalation | Acute local effects, Acute systemic effects | 19 mg/m3 |
| | Consumers | Inhalation | Acute local effects, Acute systemic effects | 9.5 mg/m3 |
| | Consumers | Inhalation | Long-term local effects, Long-term systemic effects | 3 mg/m3 |
| Sodium Azide | No data available | | | |

Predicted No Effect Concentration (PNEC)

| Chemical Name | Compartment | Value |
|----------------------|-------------------------------|------------|
| 2- Chloroacetamide | No data available | |
| Acetonitrile | Water | 10 mg/l |
| | Soil | 2.41 mg/kg |
| | Sea water | 1 mg/l |
| | Fresh water | 10 mg/l |
| | Fresh water sediment | 7.53 mg/kg |
| | Onsite sewage treatment plant | 32 mg/l |
| Ammonium bicarbonate | No data available | |
| Formic Acid | Soil | 1.5 mg/kg |
| | Sea water | 0.22 mg/l |
| | Fresh water | 2 mg/l |
| | Sea sediment | 1.34 mg/kg |
| | Fresh water sediment | 13.4 mg/kg |
| | Sewage treatment plant | 7.2 mg/l |
| | Aquatic intermittent release | 1 mg/l |

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|--------------|-------------------|-------------------|
| Sodium Azide | No data available | No data available |
|--------------|-------------------|-------------------|

8.2 Exposure controls:

Appropriate engineering controls: Provide adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Keep away from food and beverages. Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment: The usual precautionary measures, including eye/face/skin protection, should be taken when handling any chemical. Avoid contact with eyes, skin, and clothing.

Eye protection: As with handling of any chemical, wear approved safety goggles.

Skin protection: Handle with gloves. No specific information regarding glove material or thickness is available, but gloves must be impermeable and resistant to the substance being handled. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection: As with any chemical, where excessive vapor, mist, or dust may result, use a chemical fume hood or approved respiratory protection equipment.

Body protection: Lightweight, flame-resistant protective clothing.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties of the mixture

Appearance: Multiple

Odor: Characteristic

Odor Threshold: Multiple

pH: Multiple

Melting point/freezing point: Multiple

Initial boiling point and boiling range: Multiple

Flash point: No data available

Evaporation rate: Multiple

Flammability (solid, gas): Multiple

Upper/lower flammability or explosive limits: Multiple

Vapor pressure: Multiple

Vapor density: Multiple

Relative density: Multiple

Water solubility: Multiple

Partition coefficient: n-octanol/water: Multiple **Auto-ignition temperature:** Multiple **Decomposition temperature:** Multiple

Viscosity: Multiple

Explosive properties: Multiple

Oxidizing properties: Multiple

9.2 Other information: Multiple

Section 10: Stability and Reactivity

10.1 Reactivity: Vapors may form explosive mixture with air. Sodium azide: Contact with acids liberates very toxic gas.

10.2 Chemical stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions:

Acetonitrile - Violent reactions possible with: Strong bases, strong reducing agents, nitrates, nitrites, perchlorates, perchloric acid, conc. sulfuric acid with heat; Risk of ignition or formation of inflammable gases or vapours with: Oxidizing agents, Nitric acid, nitrogen dioxide with catalyst, acids, alkalines.

Ammonium bicarbonate - Violent reactions possible with: nitrates, nitrites, Acids, alkalines.

Sodium azide – Risk of explosion and/or of toxin gas formation with the following substances: Heavy metals, bromine dimethylsulfate, acids, dichloromethane, carbon disulfide, sulfuric acid, halogenated hydrocarbon, copper, lead, chromyl chloride, nitrates, benzoyl chloride, acids.

10.4 Conditions to avoid: Avoid contact with incompatible materials. Avoid exposure to heat and direct sunlight.

10.5 Incompatible materials: Metals and metallic compounds

10.6 Hazardous decomposition products: In the event of fire, see section 5.

Section 11: Toxicological Information

11.1 Information on toxicological effects

| | |
|-------------------|---|
| 2-Chloroacetamide | <p>Oral LD50 Rat 138 mg/kg;</p> <p>Dermal: No data available</p> <p>Inhalation: No data available</p> <p>Ingestion: No data available</p> <p>Skin contact: Irritant to skin and mucous membranes.</p> <p>Eye contact: May cause eye irritation in susceptible persons.</p> <p>Respiratory or skin sensitization: No data available</p> <p>Aspiration hazard: No data available</p> <p>Mutagenicity: No data available</p> <p>Carcinogenicity</p> <p>IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.</p> <p>ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.</p> <p>NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.</p> |
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|--------------|---|
| | <p>OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Teratogenicity: No data available Reproductive/fertility toxicity: No data available Specific target organ toxicity, single exposure: No data available Specific target organ toxicity, repeated exposure: No data available</p> |
| Acetonitrile | <p>Acute toxicity LD50 Oral - Mouse - male and female - 617 mg/kg (OECD Test Guideline 401) LC50 Inhalation - Mouse - male and female - 4 h - 6.022 mg/l - vapor (OECD Test Guideline 403) Acute toxicity estimate Dermal - 1,500 mg/kg (Expert judgment) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)</p> <p>Skin corrosion/irritation Skin - Rabbit Result: No skin irritation - 4 h (OECD Test Guideline 404)</p> <p>Serious eye damage/eye irritation Eyes - Rabbit Result: Causes serious eye irritation. (OECD Test Guideline 405) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)</p> <p>Respiratory or skin sensitization Buehler Test - Guinea pig Result: negative (OECD Test Guideline 406)</p> <p>Germ cell mutagenicity Test Type: Ames test Test system: <i>S. typhimurium</i> Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA) Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: US-EPA Result: negative Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: Positive results were obtained in home in vitro tests. Remarks: (National Toxicology Program) Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells Metabolic activation: Metabolic activation Result: negative Remarks: Sister chromatid exchange Test system: <i>Saccharomyces cerevisiae</i> Metabolic activation: without metabolic activation Result: positive Remarks: Cytogenetic analysis (ECHA) Test Type: In vitro mammalian cell gene mutation test Test system: Mouse lymphoma test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Species: Mouse</p> |

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|----------------------|---|
| | <p>Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative</p> <p>Carcinogenicity No evidence of carcinogenicity in animal studies. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed humancarcinogen by IARC. NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.</p> <p>Reproductive toxicity Animal testing did not show any effects on fertility. Specific target organ toxicity – single or repeated exposure The substance or mixture is not classified as specific target organ toxicant, single or repeated exposure. Aspiration hazard: No aspiration toxicity classification</p> |
| Ammonium bicarbonate | <p>Acute toxicity LD50 Oral - Rat - male and female - 1,576 mg/kg (OECD Test Guideline 401) Remarks: (ECHA) LC50 Inhalation - Rat - male and female - 4.5 h - > 4.74 mg/l - dust/mist (US-EPA) Remarks: (ECHA) (in analogy to similar products) The value is given in analogy to the following substances: sodium hydrogencarbonate LD50 Dermal - Rat - male and female - > 2,000 mg/kg (OECD Test Guideline 434) Remarks: (ECHA)</p> <p>Skin corrosion/irritation Skin - reconstructed human epidermis (RhE) Result: No skin irritation (OECD Test Guideline 431) Remarks: (ECHA)</p> <p>Serious eye damage/eye irritation Eyes - Rabbit Result: No eye irritation (US-EPA) Remarks: (ECHA) (in analogy to similar products) The value is given in analogy to the following substances: sodium hydrogen carbonate</p> <p>Respiratory or skin sensitization Maximization Test - Guinea pig Result: negative (US-EPA) Remarks: (ECHA) (in analogy to similar products) The value is given in analogy to the following substances: ammonium chloride</p> <p>Germ cell mutagenicity Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Remarks: (ECHA) Test Type: In vivo micronucleus test Species: Mouse Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative Remarks: (ECHA) (in analogy to similar products) The value is given in analogy to the following substances: ammonium chloride</p> <p>Carcinogenicity</p> |

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity: No data available
Specific target organ toxicity - single exposure: No data available
Specific target organ toxicity - repeated exposure: No data available
Aspiration hazard: No data available

Formic Acid

Acute toxicity
LD50 Oral - Rat - male and female - 730 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - 7.85 mg/l - vapor
(OECD Test Guideline 403)
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation (Draize Test)

Serious eye damage/eye irritation Remarks: Causes serious eye damage. conjunctivitis
Lacrimal irritation due to vapours.

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479
Result: negative
Test Type: sister chromatid exchange assay
Test system: Human lymphocytes
Metabolic activation: without metabolic activation Method: OECD Test Guideline 479
Result: negative
Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation Method:

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|--------------|---|
| | <p>OECD Test Guideline 473 Result: negative</p> <p>Test Type: gene mutation test Species: Drosophila melanogaster Application Route: Oral Method: OECD Test Guideline 477 Result: negative</p> <p>Carcinogenicity IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. Reproductive toxicity: No data available Specific target organ toxicity - single exposure: No data available Specific target organ toxicity - repeated exposure: No data available Aspiration hazard: No data available</p> |
| Sodium Azide | <p>Acute toxicity LD50 Oral - Rat - 27 mg/kg Remarks: (RTECS) LC50 Inhalation - Rat - male and female - 4 h - 0.054 - 0.52 mg/l - dust/mist (US-EPA) LD50 Dermal - Rabbit - 20 mg/kg Remarks: (RTECS) No data available</p> <p>Skin corrosion/irritation Skin - In vitro study Result: No skin irritation (OECD Test Guideline 439)</p> <p>Serious eye damage/eye irritation Eyes - Bovine cornea Result: No eye irritation - 4 h (OECD Test Guideline 437)</p> <p>Respiratory or skin sensitization Local lymph node assay (LLNA) - Mouse Result: negative (OECD Test Guideline 429)</p> <p>Germ cell mutagenicity Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative Test Type: unscheduled DNA synthesis assay Test system: Chinese hamster lung cells Metabolic activation: without metabolic activation Method: OECD Test Guideline 482 Result: negative Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells Metabolic activation: without metabolic activation Method: OECD Test Guideline 479 Result: negative</p> <p>Carcinogenicity IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. Reproductive toxicity: No data available Specific target organ toxicity - single exposure: No data available</p> |

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| | <p>Specific target organ toxicity - repeated exposure: Oral - May cause damage to organs through prolonged or repeated exposure.</p> <p>Aspiration hazard: No data available</p> |
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11.2 Additional Information

Acetonitrile: RTECS: AL7700000

Treat as cyanide poisoning., Always have on hand a cyanide first-aid kit, together with proper instructions., The onset of symptoms is generally delayed pending conversion to cyanide. Nausea, Vomiting, Diarrhea, Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness, impaired judgment, Lack of coordination, stupor, death. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Formic Acid RTECS: LQ4900000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

Sodium Azide RTECS: VY8050000

Nausea, Headache, Vomiting, Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular damage, blindness, attacks of rigidity, and hepatic and cerebral effects., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological Information

| Chemical Name | 12.1 Toxicity | 12.2 Persistence and Degradability | 12.3 Bio-accumulative potential | 12.4 Mobility in Soil | 12.5 Results of PBT and vPvB assessment | 12.6 Other adverse effects |
|----------------------|---|--|--|-----------------------|--|---|
| 2-Chloroacetimide | LC50 - Carassius auratus (goldfish) - 19.8 mg/l - 96 h; EC50 - Daphnia magna (Water flea) - 14 mg/l - 48 h | Aerobic - Exposure time 28 d Result: 94% - Readily biodegradable (OECD Test Guideline 301B) | No data available | No data available | No data available | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Do not empty into drains. |
| Acetonitrile | Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead minnow) - 1,640 mg/l - 96 h Toxicity to algae static test NOEC Phaeodactylum tricorutum - 400 mg/l - 72 h (ISO 10253) Toxicity to bacteria static test ErC50 - Phaeodactylum tricorutum - 9,696 mg/l - 72 h (ISO 10253) Toxicity to fish(Chronic toxicity) flow-through test NOEC - Oryzias latipes - 102 mg/l - 21 d (OECD Test Guideline 204) | Result: 70 % - Readily biodegradable. (OECD Test Guideline 310) | No bioaccumulation is to be expected (log Pow <= 4). | | | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Do not empty into drains. |
| Ammonium bicarbonate | Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 173 mg/l - 96 h Remarks: (ECOTOX Database) LC50 - Oncorhynchus mykiss (rainbow trout) - | The methods for determining the biological degradability are not applicable to inorganic substances. | No data available | No data available | PBT/vPvB assessment not available as chemical safety assessment not required/not conducted | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Do |

| | | | | | | |
|--------------|--|--|--|--------------------------|---|--|
| | 98.3 mg/l - 96 h Remarks: (ECOTOX Database) | | | | | not empty into drains. |
| Formic acid | <p>Toxicity to fish static test LC50 - Danio rerio (zebra fish) - 130 mg/l - 96 h (OECD Test Guideline 203) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: ammonium formate</p> <p>Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 365 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: ammonium formate</p> <p>Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - 1,240 mg/l - 72h (OECD Test Guideline 201) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: ammonium formate</p> <p>Toxicity to bacteria static test NOEC - activated sludge - 72 mg/l - 13 d Remarks: (ECHA)</p> <p>Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) semi-static test NOEC - Daphnia magna (Water flea) - >= 100 mg/l - 21 d (OECD Test Guideline211)</p> | <p>Biodegradability aerobic - Exposure time 14 d Result: 100 % - Readily biodegradable. (OECD Test Guideline 301C) Biochemical Oxygen Demand (BOD) 86 mg/g Remarks: (External MSDS) Ratio BOD/ThBOD 8.60 %</p> | <p>Bioaccumulation is unlikely. Does not significantly accumulate in organisms.</p> | <p>No data available</p> | <p>PBT/vPvB assessment not available as chemical safety assessment not required/not conducted</p> | <p>An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Do not empty into drains.</p> |
| Sodium azide | <p>Toxicity to fish flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 2.75 mg/l - 96 h (OECD Test Guideline 203) Toxicity to algae static test ErC50 – Pseudo-kirchneriella subcapitata - 0.35 mg/l - 96 h (OECD Test Guideline 201) Toxicity to bacteria</p> | <p>The methods for determining the biological degradability are not applicable to inorganic substances.</p> | <p>No data available</p> | <p>No data available</p> | <p>PBT/vPvB assessment not available as chemical safety assessment not required/not conducted</p> | <p>An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Do not empty into drains.</p> |

Section 13: Disposal Considerations

13.1 Waste treatment methods

Product: Chemical residues and remains should be routinely handled as special waste. Leave chemicals in original containers and do not mix with other waste. This must be disposed of in compliance with anti-pollution and other laws of the country concerned. To ensure compliance we recommend contact of the relevant authorities.

Contaminated packaging: All waste must be handled and disposed according to local, state, and federal regulations. Refer to sections 7 and 8 for safe handling guidance.

Section 14: Transport Information

| Chemical Name | DOT (US) | IMDG | IATA |
|----------------------|--|---|--|
| 2-Chloroacetamide | UN number: 2811 Class: 6.1 Packing group: III Proper shipping name: Toxic solids, organic, n.o.s. (chloroacetamide) Reportable Quantity (RQ): Poison Inhalation Hazard:No | UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (chloroacetamide) | UN number: 2811 Class: 6.1 Packing group: III Proper shipping name: Toxic solid, organic, n.o.s. (chloroacetamide) |
| Acetonitrile | UN number: 1648 Class: 3 Packing group: II Proper shipping name: Acetonitrile Reportable Quantity (RQ): 5000 lbs Poison Inhalation Hazard: No | UN number: 1648 Class: 3 Packing group: II EMS-No: F-E, S-D Proper shipping name: ACETONITRILE | UN number: 1648 Class: 3 Packing group: II Proper shipping name: Acetonitrile |
| Ammonium bicarbonate | UN number: 3077 Class: 9 Packing group: III Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (ammonium hydrogen carbonate) Reportable Quantity (RQ): 5000 lbs Poison Inhalation Hazard:No | Not dangerous goods | Not dangerous goods |
| Formic acid | UN number: 1779 Class: 8 (3) Packing group: II Proper shipping name: Formic acid Reportable Quantity (RQ): 5000 lbs Poison Inhalation Hazard: No | UN number: 1779 Class: 8 (3) Packing group: II EMS-No: F-E, S-C Proper shipping name: FORMIC ACID | UN number: 1779 Class: 8 (3) Packing group: II Proper shipping name: Formic acid |
| Sodium azide | UN number: 1687 Class: 6.1 Packing group: II Proper shipping name: Sodium azide Reportable Quantity (RQ): 1000 lbs Poison Inhalation Hazard:No | UN number: 1687 Class: 6.1 Packing group: II EMS-No: F-A, S-A Proper shipping name: SODIUM AZIDE Marine pollutant : yes | UN number: 1687 Class: 6.1 |

Section 15: Regulatory Information

| Chemical Name | SARA 302 | SARA 313 | SARA 311/312 | State Right-To-Know |
|----------------------|---|---|---|---|
| 2-Chloroacetimide | No chemicals in this material are subject to the reporting requirements of SARA Section 302 | Does not exceed the threshold reporting levels established by SARA Title III, Section 313 | Acute Health Hazard, Chronic Health Hazard | Not relevant to California Prop. 65 |
| Acetonitrile | This material does not contain any components with a section 302 EHS TPQ | Subject to reporting levels established by SARA Title III, Section 313 | Fire Hazard, Acute Health Hazard | |
| Ammonium bicarbonate | This material does not contain any components with a section 302 EHS TPQ | Subject to reporting levels established by SARA Title III, Section 313 | Acute Health Hazard | Massachusetts Right To Know Component Pennsylvania Right To Know Component |
| Formic acid | This material does not contain any components with a section 302 EHS TPQ | Subject to reporting levels established by SARA Title III, Section 313 | Fire Hazard, Acute Health Hazard, Chronic Health Hazard | Massachusetts Right To Know Component Pennsylvania Right To Know Component |
| Sodium azide | sodium azide CAS-No. 26628-22-8 Revision Date 2007-07-01 | sodium azide CAS-No. 26628-22-8 Revision Date 2007-07-01 | Acute Health Hazard | Massachusetts Right To Know Component Pennsylvania Right To Know Component |

Section 16: Other information

Opinions expressed represent a best effort to present accurate information, the data are not to be taken as a warranty or representation for which Gold Standard Diagnostics assumes legal responsibility. The information shall not be taken as being all-inclusive and is to be used only as a guide. The data are offered solely for the user's consideration, investigation, and verification. These suggestions should not be confused with either state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.

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