SAFETY DATA SHEET

1. Identification

Product identifier                Hotstart PCR Ready Mix
Other means of identification     None.
Recommended use                   Engineered DNA polymerase premixed with PCR reagents. DNA sample preparation for sequencing
Recommended restrictions          Use in accordance with manufacturer's recommendations.

Manufacturer/Importer/Supplier/Distributor information

  Company Name: Dovetail Genomics, LLC
  Address: 2161 Delaware Ave, Santa Cruz, CA 95060, United States of America
  Telephone: (831) 713-4465
  Website: dovetailgenomics.com
  Emergency phone number: +1 866 519 4752 (access code: 334943)

2. Hazard(s) identification

Physical hazards                  Not classified.
Health hazards
  Acute toxicity, oral             Category 4
  Skin corrosion/irritation        Category 2
  Specific target organ toxicity, single exposure (oral) Category 1 (Central nervous system)

OSHA defined hazards               Not classified.

Label elements

Signal word                        Danger
Hazard statement                   Harmful if swallowed. Causes skin irritation. Causes damage to organs (Central nervous system) by ingestion.
Precautionary statement
  Prevention                       Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves.
  Response                         If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If exposed: Call a poison center/doctor.
Storage                            Store locked up.
Disposal                           Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)        None known.
Supplemental information             None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Chloride</td>
<td>75-57-0</td>
<td>1 - 10</td>
</tr>
</tbody>
</table>
Composition comments

All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

**Eye contact**
Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

**Most important symptoms/effects, acute and delayed**

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

**General information**
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

**Suitable extinguishing media**
Foam. Powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

**Environmental precautions**
Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

**Precautions for safe handling**
Do not breathe mist or vapor. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**
Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

**Occupational exposure limits**
No exposure limits noted for ingredient(s).

**Biological limit values**
No biological exposure limits noted for the ingredient(s).
**Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountains and emergency showers are recommended.

**Individual protection measures, such as personal protective equipment**

<table>
<thead>
<tr>
<th>Eye/face protection</th>
<th>Wear safety glasses with side shields (or goggles).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin protection</td>
<td>Wear appropriate chemical resistant gloves. Nitrile, butyl rubber or neoprene gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>In case of insufficient ventilation, wear suitable respiratory equipment. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.</td>
</tr>
<tr>
<td>Thermal hazards</td>
<td>Wear appropriate thermal protective clothing, when necessary.</td>
</tr>
<tr>
<td>General hygiene considerations</td>
<td>Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.</td>
</tr>
</tbody>
</table>

**9. Physical and chemical properties**

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Liquid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not known.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other information</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not oxidizing.</td>
</tr>
</tbody>
</table>

**10. Stability and reactivity**

**Reactivity**

The product is stable and non-reactive under normal conditions of use, storage and transport.
Material is stable under normal conditions.

No dangerous reaction known under conditions of normal use.

Contact with incompatible materials.

Strong oxidizing agents.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Ammonia. Chlorine compounds.

11. Toxicological information

Information on likely routes of exposure

Inhalation  Prolonged inhalation may be harmful.

Skin contact  Causes skin irritation. May be harmful in contact with skin.

Eye contact  Direct contact with eyes may cause temporary irritation.

Ingestion  Harmful if swallowed. Causes damage to organs by ingestion.

Symptoms related to the physical, chemical and toxicological characteristics


Information on toxicological effects

Acute toxicity  Harmful if swallowed. May be harmful in contact with skin.

Components  Species  Test Results

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Chloride (CAS 75-57-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>50 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation  Causes skin irritation.

Serious eye damage/eye irritation  Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization  Not a respiratory sensitizer.

Skin sensitization  This product is not expected to cause skin sensitization.

Germ cell mutagenicity  No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity  Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity  Not listed.

NTP Report on Carcinogens  Not listed.


Reproductive toxicity  This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure  Causes damage to organs (Central nervous system) by ingestion.

Specific target organ toxicity - repeated exposure  Not classified.

Aspiration hazard  Not an aspiration hazard.

Further information  None known.

12. Ecological information

Ecotoxicity  Harmful to aquatic life with long lasting effects.

Persistence and degradability  No data is available on the degradability of this product.

Bioaccumulative potential  No data available for this product.

Mobility in soil  No data available.

Other adverse effects  No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
13. Disposal considerations

Disposal instructions  Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations  Dispose in accordance with all applicable regulations.

Hazardous waste code  The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products  Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging  Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT  Not regulated as dangerous goods.

IATA  Not regulated as dangerous goods.

IMDG  Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  Not established.

15. Regulatory information

US federal regulations  This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)  Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)  Not listed.

SARA 304 Emergency release notification  Not regulated.


Superfund Amendments and Reauthorization Act of 1986 (SARA)  SARA 302 Extremely hazardous substance  Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories

Acute toxicity (any route of exposure)

Skin corrosion or irritation

Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)  Not regulated.

Other federal regulations  Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)  Not regulated.

Safe Drinking Water Act (SDWA)  Not regulated.

US state regulations  US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act  Not listed.
US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.

US. Rhode Island RTK
Not regulated.

California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>22-February-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>27-March-2018</td>
</tr>
<tr>
<td>Version #</td>
<td>02</td>
</tr>
</tbody>
</table>

HMIS® ratings
Health: 4
Flammability: 1
Physical hazard: 0

List of abbreviations
CAS: Chemical Abstract Service.
EC50: Effective Concentration, 50%.
IATA: International Air Transport Association.
IBC: Intermediate Bulk Container.
IMDG: International Maritime Dangerous Goods.
LC50: Lethal Concentration, 50%.
LD50: Lethal Dose, 50%.
NOEC: No observed effect concentration.
OEL: Occupational Exposure Limit.

Disclaimer
Dovetail Genomics, LLC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.