1. Identification

Product identifier

Product name phi29 DNA Polymerase Reaction Buffer

Other means of identification

Product No B0269

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use This product is for research and development only

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address
New England BioLabs
240 County Road
Ipswich, MA 01938
USA

Emergency telephone number

Company Phone Number 978-927-5054, 800-632-5227 (toll free)

Telefax 978-921-1350

E-mail address info@neb.com

24 Hour Emergency Phone Number Chemtrec +1 703-741-5970
2. Hazard(s) identification

Classification

Label elements

Hazard statements

7.8795 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.
7.8795 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
9.2009 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
9.2009 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
9.2009 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Other information
No information available.

3. Composition/information on ingredients

Substance
Not applicable.

Mixture

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Hazardous Material Information Review Act registry number (HMIRA registry #)</th>
<th>Date HMIRA filed and date exemption granted (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Sulfate</td>
<td>7783-20-2</td>
<td>0.5 - 1.5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. First-aid measures

Description of first aid measures

Inhalation
Remove to fresh air.

Eye contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact
Wash skin with soap and water.

Ingestion
Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms
No information available.

Effects of Exposure
No information available.

Indication of any immediate medical attention and special treatment needed
Note to physicians

Treat symptomatically.

### 5. Fire-fighting measures

**Suitable Extinguishing Media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire**
CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media**
Do not scatter spilled material with high pressure water streams.

**Specific hazards arising from the chemical**
No information available.

**Explosion data**
- Sensitivity to mechanical impact: None.
- Sensitivity to static discharge: None.

**Special protective equipment and precautions for fire-fighters**
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions**
Ensure adequate ventilation.

**Methods and material for containment and cleaning up**

**Methods for containment**
Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**
Pick up and transfer to properly labeled containers.

### 7. Handling and storage

**Precautions for safe handling**

**Advice on safe handling**
Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**
Keep containers tightly closed in a dry, cool and well-ventilated place.

### 8. Exposure controls/personal protection

**Control parameters**

**Exposure Limits**
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Appropriate engineering controls

Engineering controls
- Showers
- Eyewash stations
- Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection
- No special protective equipment required.

Hand protection
- No special protective equipment required.

Skin and body protection
- No special protective equipment required.

Respiratory protection
- No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations
- Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td>None known</td>
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<tr>
<td>Initial boiling point and boiling range</td>
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<td>None known</td>
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<tr>
<td>Flash point</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability or explosive limits</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Lower flammability or explosive limits</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td>None known</td>
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<tr>
<td>Vapor density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Relative density</td>
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<td>None known</td>
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<tr>
<td>Water solubility</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Solubility(ies)</td>
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<td>None known</td>
</tr>
<tr>
<td>Partition coefficient</td>
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<td>None known</td>
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<td>Autoignition temperature</td>
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<td>None known</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
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<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>
10. Stability and reactivity

Reactivity          No information available.
Chemical stability  Stable under normal conditions.
Possibility of hazardous reactions None under normal processing.
Conditions to avoid No known based on information supplied.
Incompatible materials None known based on information supplied.
Hazardous decomposition products None known based on information supplied.

11. Toxicological information

Information on likely routes of exposure

Inhalation          Specific test data for the substance or mixture is not available.
Eye contact         Specific test data for the substance or mixture is not available.
Skin contact         Specific test data for the substance or mixture is not available.
Ingestion           Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms            No information available.
Acute toxicity       

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

| ATEmix (oral)   | 214,923.60 mg/kg |
| ATEmix (dermal) | 151,354.60 mg/kg |
| ATEmix (inhalation-gas) | 99,999.00 ppm |
| ATEmix (inhalation-vapor) | 99,999.00 mg/l |
| ATEmix (inhalation-dust/mist) | 99,999.00 mg/l |

7.8795 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
7.8795 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
9.2009 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
9.2009 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
9.2009 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Sulfate</td>
<td>= 2840 mg/kg (Rat)</td>
<td>&gt; 2000 mg/kg (Rat)</td>
<td>-</td>
</tr>
<tr>
<td>7783-20-2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.
Respiratory or skin sensitization  No information available.

Germ cell mutagenicity  No information available.

Carcinogenicity  No information available.

Reproductive toxicity  No information available.

STOT - single exposure  No information available.

STOT - repeated exposure  No information available.

Aspiration hazard  No information available.

12. Ecological information

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Sulfate</td>
<td>-</td>
<td>LC50: =250mg/L (96h, Brachydanio rerio)</td>
<td>-</td>
<td>LC50: =14mg/L (48h, Daphnia magna)</td>
</tr>
<tr>
<td>7783-20-2</td>
<td></td>
<td>LC50: =480mg/L (96h, Brachydanio rerio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: =420mg/L (96h, Brachydanio rerio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: =18mg/L (96h, Cyprinus carpio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: 32.2 - 41.9mg/L (96h, Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: 5.2 - 8.2mg/L (96h, Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: &gt;100mg/L (96h, Pimephales promelas)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: 123 - 128mg/L (96h, Poecilia reticulata)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: =126mg/L (96h, Poecilia reticulata)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability  No information available.

Bioaccumulation

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Sulfate</td>
<td>-5.1</td>
</tr>
<tr>
<td>7783-20-2</td>
<td></td>
</tr>
</tbody>
</table>

Mobility in soil  No information available.
13. Disposal considerations

**Waste treatment methods**

Waste from residues/unused products: Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging: Do not reuse empty containers.

14. Transport information

**DOT**
Not regulated

**TDG**
Not regulated

**MEX**
Not regulated

**ICAO (air)**
Not regulated

**IATA**
Not regulated

**IMDG**
Not regulated

**RID**
Not regulated

**ADR**
Not regulated

**ADN**
Not regulated

15. Regulatory information

Regulatory information

**International Regulations**

The Montreal Protocol on Substances that Deplete the Ozone Layer: Not applicable

The Stockholm Convention on Persistent Organic Pollutants: Not applicable

The Rotterdam Convention: Not applicable

**International Inventories**

**TSCA**
Contact supplier for inventory compliance status.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>US TSCA Inventory listing</th>
<th>US TSCA inactive/active designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Present</td>
<td>Active</td>
</tr>
<tr>
<td>Tris-HCl</td>
<td>1185-53-1</td>
<td>Present</td>
<td>Active</td>
</tr>
<tr>
<td>Ammonium Sulfate</td>
<td>7783-20-2</td>
<td>Present</td>
<td>Active</td>
</tr>
<tr>
<td>Magnesium Chloride</td>
<td>7786-30-3</td>
<td>Present</td>
<td>Active</td>
</tr>
<tr>
<td>Dithiothreitol</td>
<td>3483-12-3</td>
<td>Present</td>
<td>Active</td>
</tr>
</tbody>
</table>
Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Sulfate - 7783-20-2</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations
California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. Other information

NFPA
Health hazards 0  Flammability 0  Instability 0  Special hazards -

HMIS
Health hazards 0  Flammability 0  Physical hazards 0  Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet
Legend  Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
TWA  TWA (time-weighted average)  STEL  STEL (Short Term Exposure Limit)
Ceiling  Maximum limit value  *  Skin designation

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand’s Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared by  Environmental, Health and Safety, 978-927-5054
Revision date  29-Aug-2023
Revision note  No information available.

Disclaimer
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