# SAFETY DATA SHEET

**Document Type** AGHS - OSHA GHS **Revision date** 21-Jul-2016 **Version** 3

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product name** Q5™ High-Fidelity DNA Polymerase
**Product No** M0491

**Recommended use of the chemical and restrictions on use**
**Recommended use** This product is for research and development only
**Uses advised against** No information available

**Details of the supplier of the safety data sheet**
**Supplier Address** New England BioLabs
240 County Road
Ipswich, MA 01938
USA

**Company Phone Number** 978-927-5054
800-632-5227 (toll free)
**Telefax** 978-921-1350
**E-mail address** info@neb.com
**Emergency telephone number**
**Emergency telephone** 978-927-5054
800-632-5227 (toll free)
9:00am - 5:00pm Monday-Friday EST

## 2. HAZARDS IDENTIFICATION

**Classification**

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

**Label elements**

### Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

**Appearance** Colorless **Physical state** Liquid **Odor** Mild

**Hazards not otherwise classified (HNOC)**

**Other information**

3.02 % of the mixture consists of ingredient(s) of unknown toxicity *Note: No data available*

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Mixture**

The product contains no substances which at their given concentration, are considered to be hazardous to health.

## 4. FIRST AID MEASURES

**First aid measures**

**General advice**
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

**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.

**Inhalation**
Remove to fresh air.

**Ingestion**
Clean mouth with water and drink afterwards plenty of water.

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

**Unsuitable extinguishing media**
CAUTION: Use of water spray when fighting fire may be inefficient.

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

**Protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

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

**Personal precautions**
Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment [PPE]**
Use personal protection recommended in Section 8.

**Environmental precautions**
See Section 12 for additional Ecological Information.

**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**
Use personal protective equipment as required. Dam up. Cover liquid spill with sand, earth or other non-combustible absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**
Handle in accordance with good industrial hygiene and safety practice.

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

**Storage temperature**
Refer to www.neb.com for specific information.

**Storage Conditions**
Keep/store only in original container.

**Incompatible materials**
None known based on information supplied.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

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

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Glycerol<br>56-81-5 | - | TWA: 15 mg/m³ mist, total particulate<br>TWA: 5 mg/m³ mist, respirable fraction<br>(vacated) TWA: 10 mg/m³ mist, total particulate<br>(vacated) TWA: 5 mg/m³ mist, respirable fraction | - |

**Other information**
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Appropriate engineering controls**
Showers. Eyewash stations.

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

**Eye/face protection**
Wear safety glasses with side shields (or goggles).

**Skin and body protection**
Wear suitable protective clothing and gloves.

**Respiratory protection**
Use in well ventilated areas.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Physical state** | Liquid |
| **Appearance** | Colorless |
| **Odor** | Mild |

| **Property** | | **Remarks • Method** |
|---|---|---|
| **pH** | 7.4 | |
| **Melting point / freezing point** | | |
| **Boiling point / boiling range** | 100 °C / 212 °F | |
| **Flash point** | 100 °C / 212 °F | |
| **Evaporation rate** | | No information available |
| **Flammability (solid, gas)** | | No information available |
| **Flammability Limit in Air** | | No information available |
| **Upper flammability limit** | | |
| **Lower flammability limit** | | |
| **Vapor pressure** | | No information available |
| **Vapor density** | | No information available |
| **Relative density** | | No information available |
| **Specific gravity** | | No information available |
| **Water solubility** | | No information available |
| **Solubility in other solvents** | | No information available |
| **Partition coefficient** | | No information available |
| **Autoignition temperature** | | No information available |
| **Decomposition temperature** | | No information available |
| **Kinematic viscosity** | | No information available |
| **Dynamic viscosity** | | No information available |
| **Explosive properties** | | No information available |
| **Oxidizing properties** | | No information available |

**Other information**

| | |
|---|---|
| **Softening point** | No information available |
| **Molecular weight** | No information available |
| **VOC content (%)** | No information available |
| **Density** | No information available |
| **Bulk density** | No information available |

## 10. STABILITY AND REACTIVITY

**Reactivity**
No data available.

**Chemical stability**
Stable under normal conditions.

**Possibility of hazardous reactions**
Can react briskly with oxidizers - danger of explosion.

**Conditions to avoid**
Incompatible materials. Ignition sources. Heat.

**Incompatible materials**

Strong oxidizing agents.

**Hazardous decomposition products**
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO2).

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Inhalation**
Avoid breathing vapors or mists. May cause irritation of respiratory tract.

**Eye contact**
Redness. May cause slight irritation.

**Skin contact**
Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

**Ingestion**
May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

**Information on toxicological effects**

| | |
|---|---|
| **Symptoms** | No information available. |

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

| | |
|---|---|
| **Skin corrosion/irritation** | Mild |
| **Serious eye damage/eye irritation** | Mild |
| **Irritation** | Mild |
| **Corrosivity** | Mild |
| **Sensitization** | |
| **Skin** | No information available |
| **Respiratory** | No information available |
| **Germ cell mutagenicity** | No information available |
| **Carcinogenicity** | No information available |

| | |
|---|---|
| **Reproductive toxicity** | No information available |
| **Developmental toxicity** | No information available |
| **Teratogenicity** | No information available |
| **STOT - single exposure** | No information available |
| **STOT - repeated exposure** | No information available |
| **Chronic toxicity** | No information available |
| **Subchronic toxicity** | No information available |
| **Target organ effects** | Eyes, Kidneys, Respiratory system, Skin. |
| **Neurological effects** | No information available |
| **Other adverse effects** | No information available |
| **Aspiration hazard** | No information available |

**Numerical measures of toxicity - Product information**

| | |
|---|---|
| **Unknown acute toxicity** | 3.02 % of the mixture consists of ingredient(s) of unknown toxicity |

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

| | |
|---|---|
| **ATEmix (oral)** | 25189 mg/kg |
| **ATEmix (dermal)** | 43860 mg/kg mg/l |

## 12. ECOLOGICAL INFORMATION

**Marine pollutant**
No information available

**Ecotoxicity**
No information available

3.26 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---|---|---|---|---|
| Glycerol<br>56-81-5 | - | 51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static | - | 500: 24 h Daphnia magna mg/L EC50 |
| Potassium Chloride<br>7447-40-7 | 2500: 72 h Desmodesmus subspicatus mg/L EC50 | 1060: 96 h Lepomis macrochirus mg/L LC50 static 750 - 1020: 96 h Pimephales promelas mg/L LC50 static | - | 825: 48 h Daphnia magna mg/L EC50 83: 48 h Daphnia magna mg/L EC50 Static |
| Ethylenediamine tetraacetic acid<br>60-00-4 | 1.01: 72 h Desmodesmus subspicatus mg/L EC50 | 44.2 - 76.5: 96 h Pimephales promelas mg/L LC50 static 34 - 62: 96 h Lepomis macrochirus mg/L LC50 static | - | 113: 48 h Daphnia magna mg/L EC50 Static |

**Persistence and degradability**
No information available

**Bioaccumulation**
No information available

**Mobility**
No information available

**Other adverse effects**
**Ozone** No information available
**Ozone depletion potential (ODP)** No information available

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Relevant Information**
Keep out of drains, sewers, ditches and waterways.

**Disposal considerations**
Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

**Contaminated packaging**
Empty containers must be tripled rinsed prior to disposal.

## 14. TRANSPORT INFORMATION

**DOT** Not regulated

## 15. REGULATORY INFORMATION

**International Inventories**

**TSCA** -

**Legend:**

*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*

**US Federal Regulations**

**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**

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

## 16. OTHER INFORMATION

| | | | | |
|---|---|---|---|---|
| **NFPA** | **Health hazards** 0 | **Flammability** 1 | **Instability** 0 | **Special Hazard** - |
| **HMIS** | **Health hazards** 0 | **Flammability** 1 | **Physical hazards** 0 | **Personal protection** - |

**Prepared by** EH&S Manager
978-927-5054

**Prepared by** New England BioLabs

**Issue date** No data available

**Revision note** SDS is valid 3 years from revision date. Contact info@neb.com for latest revision.

**Disclaimer**

**IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of New England Biolabs, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. New England Biolabs will not be liable for any damages resulting from handling or contact with the product.**

**End of Safety Data Sheet**

# SAFETY DATA SHEET

**Document Type** AGHS - OSHA GHS **Revision date** 21-Jul-2016 **Version** 3

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product name** Q5 High GC Enhancer
**Product No** B9028

**Recommended use of the chemical and restrictions on use**
**Recommended use** This product is for research and development only
**Uses advised against** No information available

**Details of the supplier of the safety data sheet**
**Supplier Address** New England BioLabs
240 County Road
Ipswich, MA 01938
USA

**Company Phone Number** 978-927-5054
800-632-5227 (toll free)
**Telefax** 978-921-1350
**E-mail address** info@neb.com
**Emergency telephone number**
**Emergency telephone** 978-927-5054
800-632-5227 (toll free)
9:00am - 5:00pm Monday-Friday EST

## 2. HAZARDS IDENTIFICATION

**Classification**

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

**Label elements**

### Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

**Appearance** Colorless **Physical state** Liquid **Odor** Mild

**Hazards not otherwise classified (HNOC)**

**Other information**

4.3 % of the mixture consists of ingredient(s) of unknown toxicity *Note: No data available*

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Mixture**

| Chemical Name | CAS No | Weight-% | Trade Secret |
|---|---|---|---|
| Trade Secret | Proprietary | 10 - 30 | * |

The product contains no substances which at their given concentration, are considered to be hazardous to health.

## 4. FIRST AID MEASURES

**First aid measures**

**General advice**
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

**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.

**Inhalation**
Remove to fresh air.

**Ingestion**
Clean mouth with water and drink afterwards plenty of water.

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

**Unsuitable extinguishing media**
CAUTION: Use of water spray when fighting fire may be inefficient.

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

**Protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

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

**Personal precautions**
Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment [PPE]**
Use personal protection recommended in Section 8.

**Environmental precautions**
See Section 12 for additional Ecological Information.

**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**
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**
Handle in accordance with good industrial hygiene and safety practice.

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

**Storage temperature**
Refer to www.neb.com for specific information.

**Storage Conditions**
Keep/store only in original container.

**Incompatible materials**
None known based on information supplied.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

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

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Trade Secret | - | TWA: 15 mg/m³ mist, total particulate<br>TWA: 5 mg/m³ mist, respirable fraction<br>(vacated) TWA: 10 mg/m³ mist, total particulate<br>(vacated) TWA: 5 mg/m³ mist, respirable fraction | - |

**Other information**
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Appropriate engineering controls**
Showers. Eyewash stations.

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

**Eye/face protection**
Wear safety glasses with side shields (or goggles).

**Skin and body protection**
Wear suitable protective clothing and gloves.

**Respiratory protection**
Use in well ventilated areas.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Physical state** | Liquid |
| **Appearance** | Colorless |
| **Odor** | Mild |

| **Property** | **Remarks • Method** |
|---|---|
| **pH** | Refer to www.neb.com for specific information |
| **Melting point / freezing point** | No information available |
| **Boiling point / boiling range** | No information available |
| **Flash point** | No information available |
| **Evaporation rate** | No information available |
| **Flammability (solid, gas)** | No information available |
| **Flammability Limit in Air** | No information available |
| **Upper flammability limit** | |
| **Lower flammability limit** | |
| **Vapor pressure** | No information available |
| **Vapor density** | No information available |
| **Relative density** | No information available |
| **Specific gravity** | No information available |
| **Water solubility** | No information available |
| **Solubility in other solvents** | No information available |
| **Partition coefficient** | No information available |
| **Autoignition temperature** | No information available |
| **Decomposition temperature** | No information available |
| **Kinematic viscosity** | No information available |
| **Dynamic viscosity** | No information available |
| **Explosive properties** | No information available |
| **Oxidizing properties** | No information available |

**Other information**

| | |
|---|---|
| **Softening point** | No information available |
| **Molecular weight** | No information available |
| **VOC content (%)** | No information available |
| **Density** | No information available |
| **Bulk density** | No information available |

## 10. STABILITY AND REACTIVITY

**Reactivity**
No data available.

**Chemical stability**
Stable under normal conditions.

**Possibility of hazardous reactions**
Can react briskly with oxidizers - danger of explosion.

**Conditions to avoid**
Incompatible materials. Ignition sources. Heat.

**Incompatible materials**
Strong oxidizing agents.

**Hazardous decomposition products**
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO2).

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Inhalation**
Avoid breathing vapors or mists. May cause irritation of respiratory tract.

**Eye contact**
Redness. May cause slight irritation.

**Skin contact**
Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

**Ingestion**
May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Trade Secret | = 14500 mg/kg ( Rat ) | = 40 g/kg ( Rat ) | - |

**Information on toxicological effects**

**Symptoms** No information available.

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

**Skin corrosion/irritation** Mild
**Serious eye damage/eye irritation** Mild
**Irritation** Mild
**Corrosivity** Mild
**Sensitization**
**Skin** No information available
**Respiratory** No information available
**Germ cell mutagenicity** No information available
**Carcinogenicity** No information available

**Reproductive toxicity** No information available
**Developmental toxicity** No information available
**Teratogenicity** No information available
**STOT - single exposure** No information available
**STOT - repeated exposure** No information available
**Chronic toxicity** No information available
**Subchronic toxicity** No information available
**Target organ effects** Eyes, Kidneys, Respiratory system, Skin.
**Neurological effects** No information available
**Other adverse effects** No information available
**Aspiration hazard** No information available

**Numerical measures of toxicity - Product information**

**Unknown acute toxicity** 4.3 % of the mixture consists of ingredient(s) of unknown toxicity
**The following values are calculated based on chapter 3.1 of the GHS document** . mg/kg mg/l

## 12. ECOLOGICAL INFORMATION

**Marine pollutant**
No information available

**Ecotoxicity**
No information available

4.3 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---|---|---|---|---|
| Trade Secret | - | 51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static | - | 500: 24 h Daphnia magna mg/L EC50 |
| Trade Secret | 12350 - 25500: 96 h Skeletonema costatum mg/L EC50 | 34000: 96 h Pimephales promelas mg/L LC50 40: 96 h Lepomis macrochirus g/L LC50 static 33 - 37: 96 h Oncorhynchus mykiss g/L LC50 static 41.7: 96 h Cyprinus carpio g/L LC50 | - | 7000: 24 h Daphnia species mg/L EC50 |

**Persistence and degradability**
No information available

**Bioaccumulation**
No information available

**Mobility**
No information available

| Chemical Name | Partition coefficient |
|---|---|
| Trade Secret | -2.03 |

**Other adverse effects**
**Ozone** No information available
**Ozone depletion potential (ODP)** No information available

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Relevant Information**
Keep out of drains, sewers, ditches and waterways.

**Disposal considerations**
Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

**Contaminated packaging**
Empty containers must be tripled rinsed prior to disposal.

## 14. TRANSPORT INFORMATION

**DOT** Not regulated

## 15. REGULATORY INFORMATION

**International Inventories**

**TSCA** Complies

**Legend:**

*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*

### US Federal Regulations

**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**

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---|---|---|---|
| Trade Secret | X | - | - |

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

## 16. OTHER INFORMATION

| | | | | |
|---|---|---|---|---|
| **NFPA** | **Health hazards** 0 | **Flammability** 0 | **Instability** 0 | **Special Hazard** - |
| **HMIS** | **Health hazards** 0 | **Flammability** 0 | **Physical hazards** 0 | **Personal protection** - |

**Prepared by** EH&S Manager
978-927-5054

**Prepared by** New England BioLabs

**Issue date** No data available

**Revision note** SDS is valid 3 years from revision date. Contact info@neb.com for latest revision.

**Disclaimer**

**IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of New England Biolabs, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. New England Biolabs will not be liable for any damages resulting from handling or contact with the product.**

**End of Safety Data Sheet**

# SAFETY DATA SHEET

**Document Type** AGHS - OSHA GHS **Revision date** 21-Jul-2016 **Version** 3

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product name** Q5™ Reaction Buffer
**Product No** B9027

**Recommended use of the chemical and restrictions on use**
**Recommended use** This product is for research and development only
**Uses advised against** No information available

**Details of the supplier of the safety data sheet**
**Supplier Address** New England BioLabs
240 County Road
Ipswich, MA 01938
USA

**Company Phone Number** 978-927-5054
800-632-5227 (toll free)
**Telefax** 978-921-1350
**E-mail address** info@neb.com
**Emergency telephone number**
**Emergency telephone** 978-927-5054
800-632-5227 (toll free)
9:00am - 5:00pm Monday-Friday EST

## 2. HAZARDS IDENTIFICATION

**Classification**

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

**Label elements**

### Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

**Appearance** Colorless **Physical state** Liquid **Odor** Mild

**Hazards not otherwise classified (HNOC)**

**Other information**

May be harmful if swallowed

7.49 % of the mixture consists of ingredient(s) of unknown toxicity *Note: No data available*

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Mixture**

| Chemical Name | CAS No | Weight-% | Trade Secret |
|---|---|---|---|
| Potassium Chloride | 7447-40-7 | 1 - 5 | * |
| Ammonium Sulfate | 7783-20-2 | 1 - 5 | * |

The product contains no substances which at their given concentration, are considered to be hazardous to health.

## 4. FIRST AID MEASURES

**First aid measures**

**General advice**
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

**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.

**Inhalation**
Remove to fresh air.

**Ingestion**
Clean mouth with water and drink afterwards plenty of water.

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

**Unsuitable extinguishing media**
CAUTION: Use of water spray when fighting fire may be inefficient.

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

**Protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

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

**Personal precautions**

Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment [PPE]**
Use personal protection recommended in Section 8.

**Environmental precautions**
See Section 12 for additional Ecological Information.

**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**
Use personal protective equipment as required. Dam up. Cover liquid spill with sand, earth or other non-combustible absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**
Handle in accordance with good industrial hygiene and safety practice.

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

**Storage temperature**
Refer to www.neb.com for specific information.

**Storage Conditions**
Keep/store only in original container.

**Incompatible materials**
None known based on information supplied.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

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

**Appropriate engineering controls**
Showers. Eyewash stations.

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

**Eye/face protection**
Wear safety glasses with side shields (or goggles).

**Skin and body protection**
Wear suitable protective clothing and gloves.

**Respiratory protection**
Use in well ventilated areas.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Physical state** | Liquid |
| **Appearance** | Colorless |
| **Odor** | Mild |

| **Property** | | **Remarks • Method** |
|---|---|---|
| **pH** | 8.5 | |
| **Melting point / freezing point** | | |
| **Boiling point / boiling range** | 100 °C / 212 °F | |
| **Flash point** | 100 °C / 212 °F | |
| **Evaporation rate** | | No information available |
| **Flammability (solid, gas)** | | No information available |
| **Flammability Limit in Air** | | No information available |
| **Upper flammability limit** | | |
| **Lower flammability limit** | | |
| **Vapor pressure** | | No information available |
| **Vapor density** | | No information available |
| **Relative density** | | No information available |
| **Specific gravity** | | No information available |
| **Water solubility** | | No information available |
| **Solubility in other solvents** | | No information available |
| **Partition coefficient** | | No information available |
| **Autoignition temperature** | | No information available |
| **Decomposition temperature** | | No information available |
| **Kinematic viscosity** | | No information available |
| **Dynamic viscosity** | | No information available |
| **Explosive properties** | | No information available |
| **Oxidizing properties** | | No information available |

**Other information**

| | |
|---|---|
| **Softening point** | No information available |
| **Molecular weight** | No information available |
| **VOC content (%)** | No information available |
| **Density** | No information available |
| **Bulk density** | No information available |

## 10. STABILITY AND REACTIVITY

**Reactivity**
No data available.

**Chemical stability**
Stable under normal conditions.

**Possibility of hazardous reactions**
Can react briskly with oxidizers - danger of explosion.

**Conditions to avoid**
Incompatible materials. Ignition sources. Heat.

**Incompatible materials**
Strong oxidizing agents.

**Hazardous decomposition products**
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO2).

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Inhalation**
Avoid breathing vapors or mists. May cause irritation of respiratory tract.

**Eye contact**
Redness. May cause slight irritation.

**Skin contact**
Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

**Ingestion**
May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Potassium Chloride | = 2600 mg/kg ( Rat ) | - | - |
| Ammonium Sulfate | = 2840 mg/kg ( Rat ) | - | - |

**Information on toxicological effects**

**Symptoms** No information available.

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

**Skin corrosion/irritation** Mild
**Serious eye damage/eye irritation** Mild
**Irritation** Mild
**Corrosivity** Mild
**Sensitization**
**Skin** No information available
**Respiratory** No information available
**Germ cell mutagenicity** No information available
**Carcinogenicity** No information available

**Reproductive toxicity** No information available
**Developmental toxicity** No information available
**Teratogenicity** No information available
**STOT - single exposure** No information available
**STOT - repeated exposure** No information available
**Chronic toxicity** No information available
**Subchronic toxicity** No information available
**Target organ effects** Kidneys, Eyes, Skin, Respiratory system.
**Neurological effects** No information available
**Other adverse effects** No information available
**Aspiration hazard** No information available

**Numerical measures of toxicity - Product information**

**Unknown acute toxicity** 7.49 % of the mixture consists of ingredient(s) of unknown toxicity
**The following values are calculated based on chapter 3.1 of the GHS document** .
**ATEmix (oral)** 4474 mg/kg

## 12. ECOLOGICAL INFORMATION

**Marine pollutant**
No information available

**Ecotoxicity**
No information available

7.7 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---|---|---|---|---|
| Potassium Chloride 7447-40-7 | 2500: 72 h Desmodesmus subspicatus mg/L EC50 | 1060: 96 h Lepomis macrochirus mg/L LC50 static 750 - 1020: 96 h Pimephales promelas mg/L LC50 static | - | 825: 48 h Daphnia magna mg/L EC50 83: 48 h Daphnia magna mg/L EC50 Static |
| Ammonium Sulfate 7783-20-2 | - | 32.2 - 41.9: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 460 - 1000: 96 h Leuciscus idus mg/L LC50 static 480: 96 h Brachydanio rerio mg/L LC50 flow-through 250: 96 h Brachydanio rerio mg/L LC50 420: 96 h Brachydanio rerio mg/L LC50 semi-static 100: 96 h Pimephales promelas mg/L LC50 5.2 - 8.2: 96 h Oncorhynchus mykiss mg/L LC50 static 18: 96 h Cyprinus carpio mg/L LC50 123 - 128: 96 h Poecilia reticulata mg/L LC50 semi-static 126: 96 h Poecilia reticulata mg/L LC50 | - | 423: 24 h Daphnia magna mg/L EC50 14: 48 h Daphnia magna mg/L LC50 |
| Trade Secret | - | 431 - 495: 96 h Pimephales promelas mg/L LC50 flow-through | - | - |
| Magnesium Sulfate 7487-88-9 | 2700: 72 h Desmodesmus subspicatus mg/L EC50 | 19000: 24 h Lepomis macrochirus mg/L LC50 static 2610 - 3080: 96 h Pimephales promelas mg/L LC50 static | - | 1700: 24 h Daphnia magna mg/L EC50 266.4 - 417.3: 48 h Daphnia magna mg/L EC50 Static |

**Persistence and degradability**
No information available

**Bioaccumulation**
No information available

**Mobility**
No information available

| Chemical Name | Partition coefficient |
|---|---|
| Ammonium Sulfate 7783-20-2 | -5.1 |

**Other adverse effects**
**Ozone** No information available
**Ozone depletion potential (ODP)** No information available

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Relevant Information**
Keep out of drains, sewers, ditches and waterways.

**Disposal considerations**
Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent

or absorbed onto a combustible material and burned by a chemical incinerator.

**Contaminated packaging**
Empty containers must be tripled rinsed prior to disposal.

## 14. TRANSPORT INFORMATION

**DOT** Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

**TSCA** Complies

**Legend:**
*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*

### US Federal Regulations

**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**

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---|---|---|---|
| Ammonium Sulfate<br>7783-20-2 | - | X | X |

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

## 16. OTHER INFORMATION

| | | | | |
|---|---|---|---|---|
| **NFPA** | **Health hazards** 0 | **Flammability** 1 | **Instability** 0 | **Special Hazard** - |
| **HMIS** | **Health hazards** 0 | **Flammability** 1 | **Physical hazards** 0 | **Personal protection** - |

**Prepared by** EH&S Manager

| | |
|---|---|
| | 978-927-5054 |
| **Prepared by** | New England BioLabs |
| **Issue date** | No data available |
| **Revision note** | SDS is valid 3 years from revision date. Contact info@neb.com for latest revision. |

**Disclaimer**

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**End of Safety Data Sheet**