Bead Reagent

Section 1: Chemical Information

Product Name: Bead Reagent
Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended use: reagent

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Label Elements:

The product does not need to be labelled in accordance with EC directives or respective national laws.

Other hazards: None

Section 3: Hazard Identification

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

Section 4: First Aid Measures

General advice

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

Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Move to fresh air.

Ingestion

Rinse mouth.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Indication of any immediate medical attention and special treatment needed.

No data available

Section 5: Fire and Explosion Data

Suitable extinguishing media

Water, Water spray (fog), Foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media

N/A

Specific hazards arising from the chemical

N/A

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.

Section 6: Accidental Release Measures

Personal precautions

Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required. Avoid breathing vapors.

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.

Section 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

Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Store away from incompatible materials.

Storage Conditions

Store in a cool, dry and airiness place. Keep storage container tightly closed. Recommended storage temperature -5℃

Incompatible materials

Strong oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

Other information

N/A

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

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Section 10: Stability and Reactivity Data

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

Chemical Stability: Stable under normal conditions

Possibility of Hazardous Reactions: N/A

Conditions to Avoid: High temp and frequent exposure.

Incompatible Materials: Strong oxidizing agents

Hazardous Decomposition Products: None known based on information supplied.

Section 11: Toxicological Information

Low hazard for usual industrial or commercial handling by trained personnel

Information on likely routes of exposure Inhalation

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Eye contact

Direct contact with eyes may cause temporary irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

No harmful effects expected in amounts likely to be ingested by accident.

Skin corrosion/irritation	Not Classified
Serious eye damage/eye irritation	Not Classified
Sensitization	Not Classified
Germ cell mutagenicity	Not Classified

Carcinogenicity: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Reproductive toxicity

STOT – single exposure	Not Classified
STOT - repeated exposure	Not Classified
Target Organ Effects:	N/A
Aspiration hazard	Not Classified
Other adverse effects	N/A

Numerical measures of toxicity: Product Info

Unknown acute toxicity	N/A

Section 12: Ecological Information

Ecotoxicity

No data available

Section 13: Disposal Considerations

Waste treatment methods

Relevant Information

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

No known chemical safety assessment has been performed.

No data available for safety, health and environmental regulations/legislation for the substance or mixture.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Crosslinking Solution

Section 1: Chemical Information

Product Name: Crosslinking Solution
RTECS: LP8925000
TSCA: TSCA 8(b) inventory: Formaldehyde; Water
CI#: Not applicable.
Synonym: Formalin
Chemical Name: Formaldehyde
Chemical Formula: HCHO

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)
Recommended use: reagent

Section 2: Composition and Information on Ingredients

Composition:

2% Formaldehyde, CAS# 50-00-0

98% Water, CAS#7732-18-5

Toxicological Data on Ingredients: Formaldehyde: ORAL (LD50): Acute: 100 mg/kg [Rat]. 42 mg/kg [Mouse]. 260 mg/kg [Guinea pig]. MIST (LC50): Acute: 454000 mg/m 4 hours [Mouse].

Section 3: Hazard Identification

Potential Acute Health Effects:

Very hazardous in case of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive). Slightly hazardous in case of skin contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:

Hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product:

Flammable. **Auto-Ignition Temperature:** 430°C (806°F) **Flash Points:** CLOSED CUP: 50°C (122°F). OPEN CUP: 60°C (140°F). **Flammable Limits:** The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol) **Products of Combustion:** These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH MAY BURN WITH NEAR INVISIBLE FLAME (Methyl alcohol)

Special Remarks on Explosion Hazards:

Reaction with peroxide, nitrogen dioxide, and permformic acid can cause an explosion.

(Formaldehyde gas)

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:

Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls and Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Formaldehyde gas STEL: 0.3 (ppm) from ACGIH (TLV) [United States] STEL: 0.37 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.75 STEL: 2 (ppm) from OSHA (PEL) [United States] TWA: 2 STEL: 2 (ppm) [United Kingdom (UK)] TWA: 2.5 STEL: 2.5 (mg/m3) [United Kingdom (UK)] Methyl alcohol TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Suffocating. (Strong.) **Taste:** Not available.

Molecular Weight: 30.02

Color: Clear Colorless.

pH (1% soln/water): 3 [Acidic.] pH of the solution as is.

Boiling Point: 98°C (208.4°F)

Melting Point: -15°C (5°F)

Critical Temperature: The lowest known value is 240°C (464°F) (Methyl alcohol).

Specific Gravity: 1.08 (Water = 1)

Vapor Pressure: 2.4 kPa (@ 20°C)

Vapor Density: 1.03 (Air = 1)

Volatility: 100% (w/w).

Odor Threshold: The highest known value is 100 ppm (Methyl alcohol)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility: Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone, alcohol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

Incompatibility with various substances:

Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with metals.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Also incompatible with urea, phenol, isocyanates, anhydrides, amines, AZO compounds, carbonyl compounds, oxides (e.g. nitrogen dioxide), performic acid, dithiocarbmates, or peroxides. Polymerization can be inhibited by the addition of methanol or stabilizers such as hydorxypropyl methyl cellulose, methyl ethyl celluloses, or isophthalobisguanamine.

Special Remarks on Corrosivity: Not available. **Polymerization:** Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

Acute oral toxicity (LD50): 42 mg/kg [Mouse]. (Formaldehyde) Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol). Acute toxicity of the mist(LC50): 454000 mg/m 4 hours [Mouse]. (Formaldehyde) 3

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

Other Toxic Effects on Humans:

Very hazardous in case of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive).

Special Remarks on Toxicity to Animals:

Formaldehyde: LD50 [Rabbit] - Route: Skin; Dose: 270 ul/kg

Special Remarks on Chronic Effects on Humans:

Exposure to Formaldehyde and Methanol may affect genetic material (mutagenic). Exposure to Formaldehyde and Methanol may cause adverse reproductive effects and birth defects(teratogenic). Adverse reproductive effects of Formaldehyde as well as Methanol are primarily based on animal studies. Very few human studies have been done on the adverse reproductive effects from exposure to Formaldehyde. Studies produced a weak association (limited evidence) between adverse human female reproductive effects and occupational exposure. Furthermore, no human data could be found on adverse reproductive effects from occupational exposure to Methanol. Exposure to Formaldehyde may cause cancer.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Corrosive. Causes skin irritation which may range from mild to severe with possible burns depending on the extent of exposure and concentration of solution. Other symptoms may include brownish discoloration of the skin, urticaria, and pustulovesicffular eruptions. May be absorbed through skin with symptoms paralleling those of ingestion. **Eyes:** Corrosive. Contact with liquid causes severe eye irritation and burns. It may cause irreversible eye damage (severe corneal Solutions containing low formaldehyde concentrations may produce transient discomfort and irritation. **Inhalation:** Causes irritation of the respiratory tract (nose, throat, airways). Symptoms may include dry and sore mouth and throat, thirst, and sleep disturbances, difficulty breathing, shortness of breath, coughing, sneezing, wheezing rhinitis, chest tightness, pulmonary edema, bronchitis, tracheitis, laryngospasm, pneumonia, palpitations. It may also affect

metabolism weight loss, metabolic acidosis), behavior/central nervous system (excitement, central nervous system depression, somnolence, convulsions, stupor, aggression, headache, weakness, dizziness, drowsiness, coma), peripheral nervous system, and blood. Ingestion: Harmful if swallowed. May be fatal. Causes gastrointestinal irritation with nausea, vomiting (possibly with blood), diarrhea, severe pain in mouth, throat and stomach, and possible corrosive injury to the gastrointestinal mucosa/ulceration or bleeding from stomach. May also affect the liver(jaundice), urinary system/kidneys (difficulty urinating, albuminuria, hematuria, anuria), blood, endocrine system, respiration (respiratory obstruction, pulmonary edema, bronchiolar obstruction), cardiovascular system (hypotension), metabolism (metabolic acidosis), eyes (retinal changes, visual field changes), and behavior/central nervous system (symptoms similar to those for inhalation). Contains Methanol which may cause blindness if swallowed. Chronic **Potential Health Effects: Skin**: Prolonged or repeated exposure may cause contact dermatitis both irritant and allergic. It may also cause skin discoloration. **Inhalation:** Although there is no clear evidence, prolonged or repeated exposure may induce allergic asthma. Other effects are similar to that of acute exposure. Ingestion: Prolonged or repeated ingestion may cause gastrointestinal tract irritation and ulceration or bleeding from the stomach. Other effects may be similar to that of acute ingestion.

Section 12: Ecological Information

Ecotoxicity: Not available. **BOD5 and COD:** Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. **Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in polluted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air. (Methyl alcohol)

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:

CLASS 3: Flammable liquid. Class 8: Corrosive material

Identification: Formaldehyde Solution, flammable (Methyl alcohol) UNNA: 1198 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Formaldehyde California prop. 65 (no significant risk level): Formaldehyde: 0.04 mg/day (inhalation) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Formaldehyde Solution Connecticut hazardous material survey.: Formaldehyde; Methyl alcohol Illinois toxic substances disclosure to employee act: Formaldehyde; Methyl alcohol Illinois chemical safety act: Formaldehyde; Methyl alcohol New York release reporting list: Formaldehyde; Methyl alcohol Rhode Island RTK hazardous substances: Formaldehyde; Methyl alcohol Pennsylvania RTK: Formaldehyde; Methyl alcohol Minnesota: Formaldehyde gas; Methyl alcohol Massachusetts RTK: Formaldehyde; Methyl alcohol Massachusetts spill list: Formaldehyde; Methyl alcohol New Jersey: Formaldehyde; Methyl alcohol New Jersey spill list: Formaldehyde; Methyl alcohol Louisiana RTK reporting list: Formaldehyde Louisiana spill reporting: Formaldehyde; Methyl alcohol California Director's List of Hazardous Substances: Formaldehyde; Methyl alcohol TSCA 8(b) inventory: Formaldehyde gas; Methyl alcohol; Water TSCA 4(f) priority risk review: Formaldehyde, Reagent, ACS SARA 302/304/311/312 extremely hazardous substances: Formaldehyde SARA 313 toxic chemical notification and release reporting: Formaldehyde; Methyl alcohol CERCLA: Hazardous substances.: Formaldehyde: 100 lbs. (45.36 kg); Methyl alcohol: 5000 lbs. (2268 kg);

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): HMIS (U.S.A.):

Health Hazard: 3 **Fire Hazard:** 2 **Reactivity:** 0 **Personal Protection:** G

National Fire Protection Association (U.S.A.): Health: 3

Flammability: 2 **Reactivity:** 0 **Specific hazard:**

Protective Equipment:

Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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DNA Elution Buffer

Section 1: Chemical Information

Product Name: DNA Elution Buffer
Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)
Recommended Use: reagent

Section 2: Composition and Information on Ingredients

Hazard Classification

Health Hazards: No known OSHA hazards

Not a dangerous substance according to GHS

GHS Label Element

Hazard Symbol: N/A

Hazard Statements: **Not a hazardous substance or mixture.**

Section 3: Hazard Identification

Substance or Mixture: Mixture of non-hazardous substances.

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration. Consult doctor in case of complaints.

In Case of Skin Contact: Wash with soap and water. Generally doesn't irritate.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO_2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Not required. .

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

See section 7 for information on safe handling.
See section 8 for information on PPE.

See section 13 for disposal information.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

Hand Protection: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: Not miscible or difficult to mix.

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: No data available

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No irritant effect.

Eyes: No irritant effect.

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Additional information:

The product is not subject to classification according to internally approved calculation methods for preparations: When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: No data available

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Section 13: Disposal Considerations

Recommendation: Smaller quantities can be disposed of with household waste.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components: N/A

Pennsylvania Right To Know Components: N/A

New Jersey Right To Know Components: N/A

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Phase Genomics be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Phase Genomics has been advised of the possibility of such damages.

Library Reagent 1

Section 1: Chemical Information

Product Name: Library Reagent 1

Recommended Use: reagent

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: odorless

Section 3: Hazard Identification

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

Glycerol, CAS No. 56-81-5, 30-60% by weight

Section 4: First Aid Measures

General advice

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

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 cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Move to fresh air.

Ingestion

Get medical attention.

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.

Section 5: Fire and Explosion Data

Suitable extinguishing media

Water, Water spray (fog), Foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media

N/A

Specific hazards arising from the chemical

N/A

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.

Section 6: Accidental Release Measures

Personal precautions

Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required.

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.

Section 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

Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Store away from incompatible materials.

Storage Conditions

Keep container tightly closed. Keep/store only in original container. Store away from incompatible materials. Store at -15° C to -25° C (5° F to -13° F).

Incompatible materials

Strong oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

Glycerol, 56081-5

OSHA PEL:

TWA: 15 mg/m3 mist, total particulate

TWA: 5 mg/m3 mist, respirable fraction

(vacated) TWA: 10 mg/m3 mist, total particulate

(vacated) TWA: 5 mg/m3 mist, respirable fraction

Other information: N/A

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

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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

Chemical Stability: Stable under normal conditions

Possibility of Hazardous Reactions: N/A

Conditions to Avoid: N/A

Incompatible Materials: Strong oxidizing agents

Hazardous Decomposition Products: None known based on information supplied.

Section 11: Toxicological Information

Low hazard for usual industrial or commercial handling by trained personnel

Information on likely routes of exposure Inhalation

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Eye contact

Direct contact with eyes may cause temporary irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

No harmful effects expected in amounts likely to be ingested by accident.

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Glycerol (56-81-5)	=12,600 mg/kg (Rat)	>10 g/kg (Rabbit)	>570 mg/m^3 (Rat) 1h

Skin corrosion/irritation Not Classified

Serious eye damage/eye irritation Not Classified

Sensitization Not Classified

Germ cell mutagenicity Not Classified

Carcinogenicity: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Reproductive toxicity

STOT – single exposure Not Classified

STOT - repeated exposure Not Classified

Target Organ Effects: Eyes, kidney, respiratory system, skim.

Aspiration hazard Not Classified

Other adverse effects N/A

Numerical measures of toxicity: Product Info

Unknown acute toxicity 51% of the mixture consists of ingredients of unknown toxicity

Section 12: Ecological Information

Ecotoxicity

2.3% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Glycerol 56-81-5	-	51 - 57 mL/L: LC50 96 h Oncorhynchus mykiss static	500 mg/L: EC50 24 h Daphnia magna
Sodium chloride 7647-14-5	-	12946 mg/L: LC50 96 h Lepomis macrochirus static 6020 - 7070 mg/L: LC50 96 h Pimephales promelas static 5560 - 6080 mg/L: LC50 96 h Lepomis macrochirus flow-through 6420 - 6700 mg/L: LC50 96 h Pimephales promelas static 4747 - 7824 mg/L: LC50 96 h Oncorhynchus mykiss flow-through 7050 mg/L: LC50 96 h Pimephales promelas semi-static	1000 mg/L: EC50 48 h Daphnia magna 340.7 - 469.2 mg/L: EC50 48 h Daphnia magna Static

Persistence and degradability

Not a PBT or vPvB substance or mixture.

Bioaccumulation

Glycerol (58-81-5) partition coefficient -1/76

Mobility

No data available

Other adverse effects

No data available

Section 13: Disposal Considerations

Waste treatment methods

Relevant Information

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

TSCA	Does not comply
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

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

Glycerol (56-81-5)

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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Library Reagent 2

Section 1: Chemical Information

Product Name: Library Reagent 2

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)
Recommended Use: reagent

Section 2: Composition and Information on Ingredients

Mixture: There are no substances at their given concentration, are considered to be hazardous to health.

Section 3: Hazard Identification

Sodium dodecyl sulfate solution Cas # 151-21-3

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration. Consult doctor in case of complaints.

In Case of Skin Contact: Wash with soap and water. Generally doesn't irritate.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Not required. .

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

See section 7 for information on safe handling.

See section 8 for information on PPE.

See section 13 for disposal information.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

Hand Protection: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: Not miscible or difficult to mix.

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur oxides, Sodium oxides.

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No irritant effect.

Eyes: No irritant effect.

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: The sodium salt of dodecyl sulfate has been reported to cause pulmonary sensitization resulting in hyperactive airway. Dysfunction and pulmonary allergy accompanied by fatigue, malaise, and aching. Significant symptoms of exposure can persist for more than two years and can be activated by a variety of nonspecific environmental stimuli such as automobile. Exhaust, perfumes, and passive smoking. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

General notes: N/A

Section 13: Disposal Considerations

Dispose unused material. Observe regulations.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components: N/A

Pennsylvania Right To Know Components: N/A

New Jersey Right To Know Components: N/A

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Library Buffer

Section 1: Chemical Information

Product Name: Library Buffer

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended use: reagent

Section 2: Composition and Information on Ingredients

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

10- 30% Weight of N,N-Dimethylformamide, CAS# 68-12-2

Section 3: Hazard Identification

GHS Classification OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Serious eye damage/eye irritation	Category 2A
Reproductive toxicity	Category 1B

Signal Word:

Danger

Hazard statements

Causes serious eye irritation. May damage fertility or the unborn child

Appearance:

Colorless liquid

Physical state:

Liquid

Odor:

N/A

Precautionary Statements - Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood Use personal protective equipment as required. Wash face, hands and any exposed skin thoroughly after handling

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of in accordance with federal, state and local regulations

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

Unknown acute toxicity 20 % of the mixture consists of ingredient(s) of unknown toxicity

Section 4: First Aid Measures

General advice

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

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 victim to fresh air. Get medical attention if symptoms persist.

Ingestion

Get medical advice and attention.

Most important symptoms and effects, both acute and delayed

May cause redness and tearing of the eyes. Vapors may cause drowsiness and dizziness.

Indication of any immediate medical attention and special treatment needed.

Note to physicians: Treat symptomatically.

Section 5: Fire and Explosion Data

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at -20 degrees Celsius.

Storage Conditions

Keep/store only in original container.

Incompatible materials

Strong Oxidizing Reagents

Section 8: Exposure Controls and Personal Protection

Control parameters Exposure Guidelines

NIOSH IDLH Immediately Dangerous to Life or Health

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
N,N-Dimethylformamide 68-12-2	TWA: 10 ppm Skin	TWA: 10 ppm TWA: 30 mg/m3 (vacated) TWA: 10 ppm (vacated) TWA: 30 mg/m3 (vacated) S*S*	IDLH: 500 ppm TWA: 10 ppm TWA: 30 mg/m3

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 Engineering Controls

Showers Eyewash stations Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye and Face Protection

Wear safety glasses with side shields (or goggles).

Skin and Body Protection

Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Contact glove manufacturer for specific information.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Wash after handling this material and before eating, drinking and/or smoking. Regular cleaning of equipment, work area and clothing is recommended.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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, nitrate compounds, halogens

Hazardous Decomposition Products: Thermal decomposition can lead to release of irritating and toxic gases and vapors. Nitrogen oxides (NOx). Carbon monoxide. Carbon dioxide (CO2).

Section 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

May cause redness and tearing of the eyes. Vapors may cause drowsiness and dizziness.

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

Skin corrosion/irritation

Not classified

Serious eye damage/eye irritation

Irritating to Eyes

Sensitization

Not Classified

Germ cell mutagenicity

Not Classified

Carcinogenicity

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Target organ effects

Central Vascular System (CVS), Eyes, kidney, liver, Respiratory system, Skin.

Aspiration Hazard

Not classified

Other adverse effects

No information available

Chemical name	ACGIH	IARC	NTP	OSHA
N,N-Dimethylformamide 68-12-2	-	Group 2A	-	-

Numerical measures of toxicity - Product Information

Unknown Acute toxicity: 20% of the mixture consists of ingredient(s) of unknown toxicity

Section 12: Ecological Information

Ecotoxicity

0.5 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
N,N-Dimethylformamide 68-12-2	96h-EC50(Desmodesmus subspicatus):500 mg/L	96h-LC50(Oncorhynchus mykiss):9800 mg/L, 96h-LC50(Pimephales promelas):10410 mg/L, 96h-LC50(Lepomis macrochirus):6300 mg/L	48h-EC50(Daphnia magna):7500 mg/L, 48h-EC50(Daphnia magna):6800 - 13900 mg/L, 48h-EC50(Daphnia magna):8485 mg/L

Persistence and degradability

Not a PBT or PVB substance or mixture

Bioaccumulation

N,N-Dimethylformamide 68-12-2: Partition Coefficient -1.028

Mobility

No data available

Other adverse effects

No data available

Section 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.

Contaminated packaging

Empty containers must be tripled rinsed prior to disposal.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

DSL/NDSL: Complies

PICCS: Complies

Legend:

DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List

PICCS: Philippines Inventory of Chemicals and Chemical Substances

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

N,N-Dimethylformamide 68-12-2: 1% SARA 313- Threshold Value

SARA 311/312 Hazard Categories

Acute health hazard: Yes

Chronic Health Hazard: Yes

Fire hazard: No

Sudden release of pressure hazard: No

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, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
N,N-Dimethylformamide 68-12-2	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

Chemical name	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5	-	-	X
N,N-Dimethylformamide 68-12-2	X	X	X

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Ligation Buffer

Section 1: Chemical Information

Product Name: Ligation Buffer

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)
Recommended Use: reagent

Section 2: Composition and Information on Ingredients

Composition:

1% Formaldehyde, CAS# 50-00-0

99% Non-hazardous material

Toxicological Data on Ingredients: Formaldehyde: ORAL (LD50): Acute: 100 mg/kg [Rat]. 42 mg/kg [Mouse]. 260 mg/kg [Guinea pig]. MIST (LC50): Acute: 454000 mg/m 4 hours [Mouse].

The ingredients listed in this section include only those items that have more than 1% of a component classified as hazardous and 0.1% of a component classified as carcinogenic. If you have any questions, please contact support@phasegenomics.com

Section 3: Hazard Identification

Potential Acute Health Effects:

Very hazardous in case of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive). Slightly hazardous in case of skin contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:

Hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable. **Auto-Ignition Temperature:** 430°C (806°F) **Flash Points:** CLOSED CUP: 50°C (122°F). OPEN CUP: 60°C (140°F). **Flammable Limits:** The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol) **Products of Combustion:** These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH MAY BURN WITH NEAR INVISIBLE FLAME (Methyl alcohol)

Special Remarks on Explosion Hazards:

Reaction with peroxide, nitrogen dioxide, and permformic acid can cause an explosion.

(Formaldehyde gas)

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:

Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls and Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Formaldehyde gas STEL: 0.3 (ppm) from ACGIH (TLV) [United States] STEL: 0.37 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.75 STEL: 2 (ppm) from OSHA (PEL) [United States] TWA: 2 STEL: 2 (ppm) [United Kingdom (UK)] TWA: 2.5 STEL: 2.5 (mg/m3) [United Kingdom (UK)] Methyl alcohol TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Suffocating. (Strong.) **Taste:** Not available.

Molecular Weight: 30.02

Color: Clear Colorless.

pH (1% soln/water): 3 [Acidic.] pH of the solution as is.

Boiling Point: 98°C (208.4°F)

Melting Point: -15°C (5°F)

Critical Temperature: The lowest known value is 240°C (464°F) (Methyl alcohol).

Specific Gravity: 1.08 (Water = 1)

Vapor Pressure: 2.4 kPa (@ 20°C)

Vapor Density: 1.03 (Air = 1)

Volatility: 100% (w/w).

Odor Threshold: The highest known value is 100 ppm (Methyl alcohol)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility: Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone, alcohol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

Incompatibility with various substances:

Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with metals. **Corrosivity:** Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Also incompatible with urea, phenol, isocyanates, anhydrides, amines, AZO compounds, carbonyl compounds, oxides(e.g. nitrogen dioxide), performic acid, dithiocarbmates, or peroxides. Polymerization can be inhibited by the addition of methanol or stabilizers such as hydorxypropyl methyl cellulose, methyl ethyl celluloses, or isophthalobisguanamine.

Special Remarks on Corrosivity: Not available. **Polymerization:** Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

Acute oral toxicity (LD50): 42 mg/kg [Mouse]. (Formaldehyde) Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol). Acute toxicity of the mist(LC50): 454000 mg/m 4 hours [Mouse]. (Formaldehyde) 3

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

Other Toxic Effects on Humans:

Very hazardous in case of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive).

Special Remarks on Toxicity to Animals:

Formaldehyde: LD50 [Rabbit] - Route: Skin; Dose: 270 ul/kg

Special Remarks on Chronic Effects on Humans:

Exposure to Formaldehyde and Methanol may affect genetic material (mutagenic). Exposure to Formaldehyde and Methanol may cause adverse reproductive effects and birth defects(teratogenic). Adverse reproductive effects of Formaldehyde as well as Methanol are primarily based on animal studies. Very few human studies have been done on the adverse reproductive effects from exposure to Formaldehyde. Studies produced a weak association (limited evidence) between adverse human female reproductive effects and occupational exposure. Furthermore, no human data could be found on adverse reproductive effects from occupational exposure to Methanol. Exposure to Formaldehyde may cause cancer.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Corrosive. Causes skin irritation which may range from mild to severe with possible burns depending on the extent of exposure and concentration of solution. Other symptoms may include brownish discoloration of the skin, urticaria, and pustulovesicffular eruptions. May be absorbed through skin with symptoms paralleling those of ingestion. **Eyes:** Corrosive. Contact with liquid causes severe eye irritation and burns. It may cause irreversible eye damage (severe corneal Solutions containing low formaldehyde concentrations may produce transient discomfort and irritation. **Inhalation:** Causes irritation of the respiratory tract (nose, throat, airways). Symptoms may include dry and sore mouth and throat, thirst, and sleep disturbances, difficulty breathing, shortness of breath, coughing, sneezing, wheezing rhinitis, chest tightness, pulmonary edema, bronchitis, tracheitis, laryngospasm, pneumonia, palpitations. It may also affect metabolism weight loss, metabolic acidosis), behavior/central nervous system (excitement, central nervous system depression, somnolence, convulsions, stupor, aggression, headache, weakness, dizziness, drowsiness, coma), peripheral nervous system, and blood. Ingestion: Harmful if swallowed. May be fatal. Causes gastrointestinal irritation with nausea, vomiting (possibly with blood), diarrhea, severe pain in mouth, throat and stomach, and possible corrosive injury to the gastrointestinal mucosa/ulceration or bleeding from stomach. May also affect the liver(jaundice), urinary system/kidneys (difficulty urinating, albuminuria, hematuria, anuria), blood, endocrine system, respiration (respiratory obstruction, pulmonary edema, bronchiolar obstruction), cardiovascular system (hypotension), metabolism (metabolic acidosis), eyes (retinal changes, visual field changes), and behavior/central nervous system (symptoms similar to those for inhalation). Contains Methanol which may cause blindness if swallowed. Chronic **Potential Health Effects: Skin**: Prolonged or repeated exposure may cause contact dermatitis both irritant and allergic. It may also cause skin discoloration. **Inhalation:** Although there is no clear evidence, prolonged or repeated exposure may induce allergic asthma. Other effects are similar to that of acute exposure. Ingestion: Prolonged or repeated ingestion may cause gastrointestinal tract irritation and ulceration or bleeding from the stomach. Other effects may be similar to that of acute ingestion.

Section 12: Ecological Information

Ecotoxicity: Not available. **BOD5 and COD:** Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. **Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in polluted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air. (Methyl alcohol)

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:

CLASS 3: Flammable liquid. Class 8: Corrosive material

Identification: Formaldehyde Solution, flammable (Methyl alcohol) UNNA: 1198 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Formaldehyde California prop. 65 (no significant risk level): Formaldehyde: 0.04 mg/day (inhalation) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Formaldehyde Solution Connecticut hazardous material survey.: Formaldehyde; Methyl alcohol Illinois toxic substances disclosure to employee act: Formaldehyde; Methyl alcohol Illinois chemical safety act: Formaldehyde; Methyl alcohol New York release reporting list: Formaldehyde; Methyl

alcohol Rhode Island RTK hazardous substances: Formaldehyde; Methyl alcohol Pennsylvania RTK: Formaldehyde; Methyl alcohol Minnesota: Formaldehyde gas; Methyl alcohol Massachusetts RTK: Formaldehyde; Methyl alcohol Massachusetts spill list: Formaldehyde; Methyl alcohol New Jersey: Formaldehyde; Methyl alcohol New Jersey spill list: Formaldehyde; Methyl alcohol Louisiana RTK reporting list: Formaldehyde Louisiana spill reporting: Formaldehyde; Methyl alcohol California Director's List of Hazardous Substances: Formaldehyde; Methyl alcohol TSCA 8(b) inventory: Formaldehyde gas; Methyl alcohol; Water TSCA 4(f) priority risk review: Formaldehyde, Reagent, ACS SARA 302/304/311/312 extremely hazardous substances: Formaldehyde SARA 313 toxic chemical notification and release reporting: Formaldehyde; Methyl alcohol CERCLA: Hazardous substances.: Formaldehyde: 100 lbs. (45.36 kg); Methyl alcohol: 5000 lbs. (2268 kg);

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): HMIS (U.S.A.):

Health Hazard: 3 **Fire Hazard:** 2 **Reactivity:** 0 **Personal Protection:** G

National Fire Protection Association (U.S.A.): Health: 3

Flammability: 2 **Reactivity:** 0 **Specific hazard:**

Protective Equipment:

Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Ligation Enzyme

Section 1: Chemical Information

Product Name: Ligation Enzyme

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: reagent

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Section 3: Hazard Identification

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

HNOC: No Data available

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: Mild

Section 4: First Aid Measures

General advice

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

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.

Section 5: Fire and Explosion Data

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at -20 degrees Celsius.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

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

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.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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).

Section 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.

Section 12: Ecological Information

Ecotoxicity

0.18 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Glycerol 56-81-5	-	51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static	500: 24 h Daphnia magna mg/L EC50
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
Ethylenediamine tetraacetic acid 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

All other data unavailable

Section 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.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other 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

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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Plant Lysis Buffer 2

Section 1: Chemical Information

Product Name: Plant Lysis Buffer 2

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)
Recommended Use: reagent

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Section 3: Hazard Identification

Sodium dodecyl sulfate solution Cas # 151-21-3

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration. Consult doctor in case of complaints.

In Case of Skin Contact: Wash with soap and water. Generally doesn't irritate.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Not required. .

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

See section 7 for information on safe handling.

See section 8 for information on PPE.

See section 13 for disposal information.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

Hand Protection: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: Not miscible or difficult to mix.

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur oxides, Sodium oxides.

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No irritant effect.

Eyes: No irritant effect.

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: The sodium salt of dodecyl sulfate has been reported to cause pulmonary sensitization resulting in hyperactive airway. Dysfunction and pulmonary allergy accompanied by fatigue, malaise, and aching. Significant symptoms of exposure can persist for more than two years and can be activated by a variety of nonspecific environmental stimuli such as automobile. Exhaust, perfumes, and passive smoking. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

General notes: N/A

Section 13: Disposal Considerations

Dispose unused material. Observe regulations.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components: N/A

Pennsylvania Right To Know Components: N/A

New Jersey Right To Know Components: N/A

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Phase Genomics be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Phase Genomics has been advised of the possibility of such damages.

PCR Hot Start Mix

Section 1: Chemical Information

Product Name: PCR Hot Start Mix

Recommended Use: reagent

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: odorless

Section 3: Hazard Identification

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

HNOC: No Data available

Section 4: First Aid Measures

General advice

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

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

Move to fresh air.

Ingestion

Get medical attention.

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.

Section 5: Fire and Explosion Data

Suitable extinguishing media

Water, Water spray (fog), Foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media

N/A

Specific hazards arising from the chemical

N/A

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Store away from incompatible materials.

Storage Conditions

Keep/store only in original container.

Incompatible materials

Strong oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

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

Other information

N/A

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

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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

Chemical Stability: Stable under normal conditions

Possibility of Hazardous Reactions: None under normal processing.

Conditions to Avoid: N/A

Incompatible Materials: Strong oxidizing agents

Hazardous Decomposition Products: None known based on information supplied.

Section 11: Toxicological Information

Low hazard for usual industrial or commercial handling by trained professional.

Information on likely routes of exposure Inhalation

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

No harmful effects expected in amounts likely to be ingested by accident.

Section 12: Ecological Information

Ecotoxicity

0 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Persistence and degradability

Not a PBT or vPvB substance or mixture.

Bioaccumulation

No data available

Mobility

No data available

Other adverse effects

No data available

Section 13: Disposal Considerations

Waste treatment methods

Relevant Information

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

TSCA	Does not comply
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	**No**
Chronic Health Hazard	**No**
Fire hazard	**No**
Sudden release of pressure hazard	**No**
Reactive Hazard	**No**

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 by state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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PCR Index Mix

Section 1: Chemical Information

Product Name: PCR Index Mix

Recommended Use: reagent

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: odorless

Section 3: Hazard Identification

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

HNOC: No Data available

Section 4: First Aid Measures

General advice

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

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

Move to fresh air.

Ingestion

Get medical attention.

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.

Section 5: Fire and Explosion Data

Suitable extinguishing media

Water, Water spray (fog), Foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media

N/A

Specific hazards arising from the chemical

N/A

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Store away from incompatible materials.

Storage Conditions

Keep/store only in original container.

Incompatible materials

Strong oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

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

Other information

N/A

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

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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

Chemical Stability: Stable under normal conditions

Possibility of Hazardous Reactions: None under normal processing.

Conditions to Avoid: N/A

Incompatible Materials: Strong oxidizing agents

Hazardous Decomposition Products: None known based on information supplied.

Section 11: Toxicological Information

Low hazard for usual industrial or commercial handling by trained professional.

Information on likely routes of exposure Inhalation

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

No harmful effects expected in amounts likely to be ingested by accident.

Section 12: Ecological Information

Ecotoxicity

0 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Persistence and degradability

Not a PBT or vPvB substance or mixture.

Bioaccumulation

No data available

Mobility

No data available

Other adverse effects

No data available

Section 13: Disposal Considerations

Waste treatment methods

Relevant Information

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

TSCA	Does not comply
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	**No**
Chronic Health Hazard	**No**

Fire hazard **No**

Sudden release of pressure hazard **No**

Reactive Hazard **No**

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 by state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Phase Genomics will not be liable for any damages resulting from handling or contact with the product.

PCR Primer Mix

Section 1: Chemical Information

Product Name: PCR Primer Mix

Recommended Use: reagent

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: odorless

Section 3: Hazard Identification

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

HNOC: No Data available

Section 4: First Aid Measures

General advice

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

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

Move to fresh air.

Ingestion

Get medical attention.

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.

Section 5: Fire and Explosion Data

Suitable extinguishing media

Water, Water spray (fog), Foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media

N/A

Specific hazards arising from the chemical

N/A

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Store away from incompatible materials.

Storage Conditions

Keep/store only in original container.

Incompatible materials

Strong oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

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

Other information

N/A

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

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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

Chemical Stability: Stable under normal conditions

Possibility of Hazardous Reactions: Can react briskly with oxidizers- danger of explosion.

Conditions to Avoid: N/A

Incompatible Materials: Strong oxidizing agents

Hazardous Decomposition Products: None known based on information supplied.

Section 11: Toxicological Information

Information on likely routes of exposure Inhalation

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

No harmful effects expected in amounts likely to be ingested by accident.

Section 12: Ecological Information

Ecotoxicity

0 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Persistence and degradability

Not a PBT or vPvB substance or mixture.

Bioaccumulation

No data available

Mobility

No data available

Other adverse effects

No data available

Section 13: Disposal Considerations

Waste treatment methods

Relevant Information

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

TSCA	Does not comply
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

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

This product does not contain any substances regulated by state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Quenching Solution

Section 1: Chemical Information

Product Name: Quenching Solution

Identified uses: Laboratory chemicals, Synthesis of substances

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Section 2: Composition and Information on Ingredients

Hazard Classification

Health Hazards: No known OSHA hazards

Not a dangerous substance according to GHS

GHS Label Element

Hazard Symbol: N/A

Hazard Statements: Not a hazardous substance or mixture.

Section 3: Hazard Identification

Substance or Mixture: Mixture of non-hazardous substances.

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration.

In Case of Skin Contact: Wash with soap and water.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically. Symptoms may be delayed.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Avoid dust formation. Avoid breathing vapors. See Section 8: Exposure Controls/ Personal Protection for more information.

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

> Hand Protection: Use gloves when handling this product. Inspect gloves prior to use for any visible damage. Use proper glove removal technique to prevent contact with skin. Dispose of gloves in accordance with applicable laws. Wash and dry hands after use.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

> Form: Liquid
>
> Color: Clear

Odor: No data available

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: No data available

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: No data available

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No data available

Eyes: No data available

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: No data available

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

Section 13: Disposal Considerations

Contaminated Packaging:

Disposal must be made according to official regulations.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Glycine CAS-No. 56-40-6

New Jersey Right To Know Components

Glycine CAS-No. 56-40-6

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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RX Enzyme

Section 1: Chemical Information

Product Name: RX Enzyme

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: reagent

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Section 3: Hazard Identification

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

HNOC: No Data available

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: Mild

Other information

2.19 % of the mixture consists of ingredient(s) of unknown toxicity

Section 4: First Aid Measures

General advice

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

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.

Section 5: Fire and Explosion Data

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at -20 degrees Celsius.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

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

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.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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).

Section 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.

Section 12: Ecological Information

Ecotoxicity

2.19 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Glycerol 56-81-5	-	51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static	500: 24 h Daphnia magna mg/L EC50
Calcium Chloride 10043-52-4		10650: 96 h Lepomis macrochirus mg/L LC50 static	2400: 48 h Daphnia magna mg/L LC50

All other data unavailable

Section 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.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other 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

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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SPRI Beads

Section 1: Chemical Information

Product Name: SPRI Beads Cas #: 26628-22-8

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Section 2: Composition and Information on Ingredients

Hazard Classification

Health Hazards: No known OSHA hazards

Not a dangerous substance according to GHS

GHS Label Element

Hazard Symbol: N/A

Hazard Statements: Not a hazardous substance or mixture.

Section 3: Hazard Identification

Substance or Mixture: Mixture of non-hazardous substances.

Synonyms/Common Names: N/A

Chemical Name: Sodium azide

Cas No.: 26628-22-8

Concentration: 0.05%

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration.

In Case of Skin Contact: Wash with soap and water.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically. Symptoms may be delayed.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: Prevent fire fighting water from entering surface water or groundwater.

Section 6: Accidental Release Measures

Personal Precautions: Avoid inhalation of vapors or mist. See Section 8: Exposure Controls/ Personal Protection for more information.

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

Section 7: Handling and Storage

Precautions for Safe Handling: Handle in accordance with good chemical hygiene and safety practices. Protect from moisture. Avoid contact with eyes, skin and clothing. Avoid inhalation of vapors or mist.

Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: Adequate ventilation and access to eye washing stations are required.

Recommendations for Personal Protective Measures:

Hand Protection: Use gloves when handling this product. Inspect gloves prior to use for any visible damage. Use proper glove removal technique to prevent contact with skin. Dispose of gloves in accordance with applicable laws. Wash and dry hands after use.

Eye Protection: Use a face shield and/or safety goggles when handling this product. Use eyewear that has been approved by NIOSH.

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be used.

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product. Do not eat, drink or smoke when handling this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid, with precipitates

Color: Brown

Odor: No data available

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: No data available

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: No data available

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No data available

Eyes: No data available

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: No data available

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: This product contains an environmentally hazardous substance below the cutoff level. Refer to Section 3 for ingredient information. Do not allow undiluted product to enter sewer/surface or ground water.

Section 13: Disposal Considerations

Product:

> Disposal should be in accordance with applicable regional, national and local laws and regulations.
>
> Sodium azide preservative may form explosive compounds in metal drain lines. See NIOSH Bulletin: Explosive Azide Hazard (8/16/76). To avoid possible build-up of azide compounds, ush wastepipes with water after the disposal of undiluted reagent. Sodium azide disposal must be in accordance with appropriate local regulations.

Refer to Section 7: Handling and Storage and Section 8: Exposure Control/ Personal Protection for additional handling information and protection of employees.

Contaminated Packaging:

Disposal must be made according to official regulations.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302/304:

SARA 302 TPQ:

Name: Sodium azide

%: 0.05

EHS Yes

(lbs) 500

(gallons) -

SARA 304 RQ:

(lbs) 1,000

(gallons) -

SARA 304 RQ:

2,000,000 lbs / 908,000 kg

SARA 313 Components:

Sodium azide is subject to reporting requirements of Section 313, Title III of SARA. 1.0% de minimis concentration.

SARA 311/312 Hazards:

N/A

US State Regulations:

California Prop. 65: No ingredient regulated by CA Prop 65 present.

Massachusetts RTK: Sodium azide CAS No. 26628-22-8

New Jersey & Community RTK:

Water	**CAS No. 7732-18-5**
Sodium azide	**CAS. No 26628-22-8**

Pennsylvania RTK:

Water	**CAS No. 7732-18-5**
Sodium azide	**CAS No. 26628-22-8**

Rhode Island RTK: No ingredient regulated by RI Right to Know Act present.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Streptavidin Beads

Section 1: Chemical Information

Product Name: Streptavidin Beads

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended use: reagent

Section 2: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Section 3: Hazard Identification

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

Principle Routes of Exposure

Potential Health Effects

Eyes: May cause irritation

Skin: May cause irritation

Inhalation: May be harmful by inhalation

Ingestion: May be harmful if swallowed

No negative carcinogenic, mutagenic, reproductive or sensitization effects

HMIS:

Health: 0, Flammability: 0, Reactivity: 0

Section 4: First Aid Measures

General advice

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

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.

Section 5: Fire and Explosion Data

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at 4 degrees Celsius.

Storage Conditions

Keep/store only in original container. Keep in dry and well ventilated place.

Incompatible materials

None known based on information supplied.

Section 8: Exposure Controls and Personal Protection

Exposure Guidelines

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

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.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Brown

Odor: None

pH Range: 6-8

Property: No information available

Section 10: Stability and Reactivity Data

Reactivity: No data available.

Chemical Stability: Stable under normal conditions

Possibility of Hazardous Reactions: Hazardous reaction not reported

Conditions to Avoid: None under normal processing.

Polymerization

Not applicable

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).

Section 11: Toxicological Information

Acute Toxicity

Not available

Information on likely routes of exposure Inhalation

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.

Section 12: Ecological Information

Ecotoxicity:

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants

Mobility: No information available

Biodegradation: Inherently biodegradable

Bioaccumulation: Material does not bioaccumulate

Section 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.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

US Federal Regulations

SARA 313

This product is not regulated by SARA

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. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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Bead Wash Buffer 2

Section 1: Chemical Information

Product Name: Bead Wash Buffer 2

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: reagent

Section 2: Composition and Information on Ingredients

Hazard Classification

Health Hazards: No known OSHA hazards

Not a dangerous substance according to GHS

GHS Label Element

Hazard Symbol: N/A

Hazard Statements: Not a hazardous substance or mixture.

Section 3: Hazard Identification

Substance or Mixture: Mixture of non-hazardous substances.

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration. Consult doctor in case of complaints.

In Case of Skin Contact: Wash with soap and water. Generally doesn't irritate.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Not required. .

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

See section 7 for information on safe handling.

See section 8 for information on PPE.

See section 13 for disposal information.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

Hand Protection: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: Not miscible or difficult to mix.

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: No data available

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No irritant effect.

Eyes: No irritant effect.

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Additional information:

The product is not subject to classification according to internally approved calculation methods for preparations: When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: No data available

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Section 13: Disposal Considerations

Recommendation: Smaller quantities can be disposed of with household waste.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components: N/A

Pennsylvania Right To Know Components: N/A

New Jersey Right To Know Components: N/A

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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information for their particular purposes. In no event shall Phase Genomics be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Phase Genomics has been advised of the possibility of such damages.

Bead Wash Buffer 1

Section 1: Chemical Information

Product Name: Bead Wash Buffer 1

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended use: Reagent

Section 2: Composition and Information on Ingredients

Hazard Classification

Health Hazards: No known OSHA hazards

Not a dangerous substance according to GHS

GHS Label Element

Hazard Symbol: N/A

Hazard Statements: Not a hazardous substance or mixture.

Section 3: Hazard Identification

Substance or Mixture: Mixture of non-hazardous substances.

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration. Consult doctor in case of complaints.

In Case of Skin Contact: Wash with soap and water. Generally doesn't irritate.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Not required. .

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

See section 7 for information on safe handling.

See section 8 for information on PPE.

See section 13 for disposal information.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

Hand Protection: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the

preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: Not miscible or difficult to mix.

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: No data available

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No irritant effect.

Eyes: No irritant effect.

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Additional information:

The product is not subject to classification according to internally approved calculation methods for preparations: When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: No data available

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Section 13: Disposal Considerations

Recommendation: Smaller quantities can be disposed of with household waste.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components: N/A

Pennsylvania Right To Know Components: N/A

New Jersey Right To Know Components: N/A

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: *11/09/2017 12:00 PM*

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Bead Bind Buffer

Section 1: Chemical Information

Product Name: Bead Bind Buffer

Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: reagent

Section 2: Composition and Information on Ingredients

Hazard Classification

Health Hazards: No known OSHA hazards

Not a dangerous substance according to GHS

GHS Label Element

Hazard Symbol: N/A

Hazard Statements: Not a hazardous substance or mixture.

Section 3: Hazard Identification

Substance or Mixture: Mixture of non-hazardous substances.

Section 4: First Aid Measures

General Advice: Wear protective gloves/protective clothing/eye protection/face protection.

If Inhaled: If not breathing, give artificial respiration. Consult doctor in case of complaints.

In Case of Skin Contact: Wash with soap and water. Generally doesn't irritate.

In Case of Eye Contact: Remove contact lenses, if present and easy to do. Continue rinsing.

If Swallowed: N/A

Most Important Symptoms and Effects, Acute and Delayed: N/A

Recommendations for Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5: Fire and Explosion Data

Conditions of Flammability: Not flammable or combustible.

Suitable Extinguishing Media: Dry powder, CO2, water spray or regular foam.

Special Protective Equipment for Firefighters: Wear self-contained breathing apparatus, if necessary.

Hazardous Combustion Products: Further Information: N/A

Further information: N/A

Section 6: Accidental Release Measures

Personal Precautions: Not required. .

Environmental Precautions: Do not allow undiluted product to enter sewer/surface or ground water.

Emergency Procedures: Evacuate personnel to safe areas and follow emergency response protocols.

Methods and Materials for Containment and Cleaning Up: Use inert absorbent material to soak up spill.

See section 7 for information on safe handling.

See section 8 for information on PPE.

See section 13 for disposal information.

Section 7: Handling and Storage

Precautions for Safe Handling: Provide appropriate exhaust ventilation at places where dust is formed. Conditions for Safe Storage: Store at 2-8°C. Keep container tightly closed in a dry, well-ventilated place.

Incompatible Products: N/A

Section 8: Exposure Controls and Personal Protection

Appropriate Engineering Controls: General industrial hygiene practice.

Recommendations for Personal Protective Measures:

Hand Protection: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Eye Protection: N/A

Skin and Body Protection: Wear appropriate laboratory attire when handling this product, such as gloves, long pants, closed-toe shoes and a laboratory coat.

Respiratory Protection: N/A

Hygiene Measures: Avoid contact with eyes, skin and clothing. Wash hands thoroughly after using this product.

Special Requirements for Personal Protective Equipment, Protective Clothing, Respirators, etc: N/A

Components with Workplace Control Parameters: N/A

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Melting Point/Freezing Point: No data available

Initial Boiling Point/Boiling Range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (Solid, Gas): No data available

Upper/Lower Limits on Flammability and Explosive Limits:

Flammability Limit (Upper): No data available

Flammability Limit (Lower): No data available

Explosive Limit (Upper): No data available

Explosive Limit (Lower): No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility:

Solubility in Water: Not miscible or difficult to mix.

Solubility (Other): No data available

Partition Coefficient (n-octanol/ water): No data available

Auto-Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Section 10: Stability and Reactivity Data

Reactivity: No data available

Chemical Stability: No data available

Possibility of Hazardous Reactions: Conditions to Avoid: No data available

Materials to Avoid: No data available

Hazardous Decomposition Products: No data available

Section 11: Toxicological Information

Information on Likely Routes of Exposure:

Inhalation: No data available

Ingestion: No data available

Skin: No irritant effect.

Eyes: No irritant effect.

Information on Toxicological Effects:

Acute Toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other Information: No data available

Skin Corrosion/Irritation: No data available

Serious Eye Damage/Irritation: No data available

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Additional information:

The product is not subject to classification according to internally approved calculation methods for preparations: When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Carcinogenicity:

IARC: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product that is present at 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity –

Single Exposure: No data available

Specific Target Organ Toxicity –

Repeated Exposures: No data available

Aspiration Hazard: No data available

Signs and Symptoms of Exposure: No data available

Synergistic Effects: No data available

Additional Information: No data available

Section 12: Ecological Information

Toxicity: No known significant effects or critical hazards.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

PBT and vPvB Assessment: No data available

Other Adverse Effects: N/A

General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Section 13: Disposal Considerations

Recommendation: Smaller quantities can be disposed of with household waste.

Section 14: Transport Information

DOT: Not regulated.

IMDG: Not regulated.

IATA: Not regulated.

Section 15: Other Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components: N/A

Pennsylvania Right To Know Components: N/A

New Jersey Right To Know Components: N/A

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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Plant Lysis Buffer

Section 1: Chemical Information

Product Name: Plant Lysis Buffer
Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: Reagent

Section 2: Hazard Identification

GHS – Classification:
Signal Word: WARNING

Hazards of product: Serious Eye Damage/Eye Irritation Category 2

Physical Hazards: not hazardous

Hazard statements
H319 - Causes serious eye irritation
H402 - Harmful to aquatic life

Precautionary statements
P264 - Wash hands thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
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
P273 - Avoid release to the environment

Label Elements:
Appearance: Colorless
Physical State: Liquid
Odor: Mild

Potential Effects of a Single Acute Exposure

Inhalation: May be harmful by inhalation.

Eye Contact: May cause eye irritation with susceptible persons.

Skin Contact: May cause skin irritation in susceptible persons.

Skin Absorption: No evidence of harmful effects from available information.

Ingestion: May be harmful if swallowed.

HMIS:

Health	1
Flammability	0
Reactivity	0

Section 3: Composition and Information on Ingredients

Component	CAS #	%W/W
Triton X-100	9036-19-5	1%

Section 4: First Aid Measures

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Skin contact

Rinse with plenty of water. If symptoms arise, call a physician

Inhalation

Move to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration.

Ingestion

Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Do not induce vomiting without medical advice.

Notes to Physician

Treat symptomatically.

Section 5: Fire and Explosion Data

Suitable extinguishing media

Water spray. Carbon dioxide (CO2). Foam. Dry chemical.

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at -20 degrees Celsius.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

Section 8: Exposure Controls and Personal Protection

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
Triton X-100	-	-	-

Appropriate engineering controls

Showers. Eyewash stations. Ensure adequate ventilation, especially in confined areas.

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. In case of insufficient ventilation wear suitable respiratory equipment.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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: None under normal use

Section 11: Toxicological Information

Acute Toxicity

Chemical Name	LD50 (oral,rat/mouse)	LD50 (dermal,rat/rabbit)	LC50 (inhalation,rat/mouse)
Triton X-100	= 1800 mg/kg (Rat)	no data available	no data available

Information on likely routes of exposure Inhalation

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

Eye contact

May cause eye irritation with susceptible persons.

Skin contact

May cause skin irritation in susceptible persons.

Inhalation

May be harmful by inhalation.

Ingestion

May be harmful if swallowed.

Section 12: Ecological Information

Ecotoxicity

No information available.

Acute aquatic toxicity

Category 3

Chronic aquatic toxicity

Not classified chronic

Mobility

No information available.

Biodegradation

Inherently biodegradable

Hazardous decomposition products

None under normal use

Bioaccumulation

Does not bioaccumulate.

Section 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.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

TSCA Listed: Triton X-100 9002-93-1 (1)

Legend:

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

US Federal Regulations

SARA 313

This product is not regulated by SARA.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contains HAPs.

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

WHMIS Hazard Class

D2B Toxic materials

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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Proximo Fragmentation Enzyme

Section 1: Chemical Information

Product Name: Proximo Fragmentation Enzyme
Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: Reagent

Section 2: Hazard Identification

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

HNOC: No Data available

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: Mild

Section 3: Composition and Information on Ingredients

There are no substances at their given concentration, are considered to be hazardous to health.

Section 4: First Aid Measures

General advice

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

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

Irritation. Redness. Drowsiness. Dizziness.

Indication of any immediate medical attention and special treatment needed.

Note to physicians: Treat symptomatically.

Section 5: Fire and Explosion Data

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at -20 degrees Celsius.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

Section 8: Exposure Controls and Personal Protection

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 56-81-5	-	TWA: 15 mg/m^3 mist, total particulate TWA: 5 mg/m^3 mist, respirable fraction (vacated) TWA: 10 mg/m^3 mist, total particulate (vacated) TWA: 5 mg/m^3 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.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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).

Section 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.

Section 12: Ecological Information

Ecotoxicity

0.26 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Glycerol 56-81-5	-	51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static	500: 24 h Daphnia magna mg/L EC50
Ethylenediamine tetraacetic acid 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

All other data unavailable

Section 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.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other 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

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

Last Updated: 11/09/2017 12:00 PM

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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 Phase Genomics, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Phase Genomics will not be liable for any damages resulting from handling or contact with the product.

Proximo Fragmentation Buffer

Section 1: Chemical Information

Product Name: Proximo Fragmentation Buffer
Supplier: Phase Genomics, 4000 Mason Road, Seattle, WA 98122, 1-833-PHAS-GEN (1 800 742-7436)

Recommended Use: Reagent

Section 2: Hazard Identification

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

HNOC: No Data available

Label Elements:

Appearance: Colorless

Physical State: Liquid

Odor: Mild

Section 3: Composition and Information on Ingredients

Mixture

There are no substances at their given concentration, are considered to be hazardous to health.

Section 4: First Aid Measures

General advice

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

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.

Section 5: Fire and Explosion Data

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.

Section 6: Accidental Release Measures

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.

Section 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

Keep at -20 degrees Celsius.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

Section 8: Exposure Controls and Personal Protection

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.

Section 9: Physical and Chemical Properties

Physical State: Form: Liquid

Color: Clear or colorless

Odor: None

Property: No information available

Section 10: Stability and Reactivity Data

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).

Section 11: Toxicological Information

Information on likely routes of exposure Inhalation

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.

Section 12: Ecological Information

Ecotoxicity

99 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Magnesium Chloride 7786-30-3	2200: 72 h Desmodesmus subspicatus mg/L EC50	4210: 96 h Gambusia affinis mg/L LC50 static 1970 - 3880: 96 h Pimephales	140: 48 h Daphnia magna mg/L EC50 Static 1400: 24 h Daphnia magna mg/L EC50

All other data unavailable

Section 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.

Section 14: Transport Information

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

Section 15: Other Regulatory Information

International Inventories

TSCA: Complies

Legend:

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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

Section 16: Other Information

References: Not available. **Other Special Considerations:** Not available.

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