

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY INFORMATION

- ◆ **Product name:** ONPG Kit
- ◆ **Catalog number:** GO10001
- ◆ **Chemical name or synonyms:** none
- ◆ **Contact:**

OZ Biosciences

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SECTION 2 – HAZARDS IDENTIFICATION

OSHA/HCS status :

Standard Dilution Buffer:	No Classification
10X ONPG Solution :	No Classification
Stop buffer:	No Classification
Enzyme standard, β-Galactosidase:	No Classification
5X Lysis Buffer	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Substrate buffer solution	This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR Acute toxicity, Oral (Category 3) Acute toxicity, Inhalation (Category 3) Acute toxicity, Dermal (Category 2) Skin irritation (Category 2) Serious eye damage (Category 1) Skin sensitisation (Category 1) Specific target organ toxicity - repeated exposure, Oral (Category 2), Liver, Heart Acute aquatic toxicity (Category 1) Chronic aquatic toxicity (Category 1)

Emergency overview

5X Lysis Buffer

WARNING!



Substrate buffer

DANGER



Hazards Statements

5X Lysis Buffer

CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Substrate buffer

H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H373 May cause damage to organs (Liver, Heart) through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautions

5X Lysis Buffer

Do not ingest. Do not get in eyes. Avoid breathing vapor or mist. Avoid contact with skin and clothing. Use only with adequate ventilation.

Substrate buffer

Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Precautionary statement(s)

Prevention

- P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- P262 Do not get in eyes, on skin, or on clothing.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ eye protection/ face protection.

Response

- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
- P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.
- P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/ physician.
- P322 Specific measures (see supplemental first aid instructions on this label).
- P330 Rinse mouth.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P361 Remove/ Take off immediately all contaminated clothing.
- P391 Collect spillage.

Storage

- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

Disposal

- P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

5X Lysis Buffer: 1.25M Tris Buffer containing Triton X-100

Standard Dilution Buffer: PBS buffer containing Bovine Serum Albumin

Substrate Buffer: 1mM Magnesium Chloride, 10mM KCL, 50mM β-Mercaptoethanol, 60mM Sodium Phosphate dibasic, pH 8.0.

Substrate buffer : Chlorophenol red-β-D-galactopyranoside in water

Stop buffer: 1M Sodium carbonate

Enzyme standard, β-Galactosidase: 400 units/ml in 50% glycerol buffer

The following ingredients are considered as Hazardous:

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>	<u>EINECS</u>	<u>Classification</u>
Beta mercaptoethanol	60-24-2	< 10%	200-464-6	H301, H310, H315, H317, H318, H331, H373, H410
Triton X-100	9002-93-1	< 1%	N/A	H302 H319 H411

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section

SECTION 4 – FIRST AID MEASURES

◆ **Effects and symptoms:**

- *Inhalation* Hazardous in case of inhalation.
- *Ingestion* May be fatal if swallowed.
- *Skin contact* Causes skin irritation. May be harmful if absorbed through the skin.
- *Eye contact* Causes eye irritation. Risk of serious damage to the eyes.
- *Aggravating conditions* No aggravating condition known.

Eye Contact

5X Lysis Buffer

Check for and remove any contact lenses.
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Substrate buffer

In case of contact, immediately flush eyes with plenty of water for at least 15² minutes. Get medical attention immediately.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Substrate buffer
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothes before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately

Ingestion

5X Lysis Buffer
Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Substrate buffer
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Ingestion Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention

Protection of first-aiders

5X Lysis Buffer
risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Substrate buffer

Notes to physician

5X Lysis Buffer
No action shall be taken involving any personal In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Substrate buffer

◆ **First-Aid measures:**

- *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
- *Ingestion* Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
- *Skin contact* In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothes before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
- *Notes to physician* Not available.
- *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- ◆ **Flammability of the product:** May be combustible at high temperature.
- ◆ **Flash Point:** N/A.
- ◆ **Fire hazards in presence of various substances:** N/A.
- ◆ **Fire fighting media and instructions:** SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
- ◆ **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- ◆ **Hazardous thermal decomposition products:** Carbon oxides, nitrogen oxides.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions:

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk

through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions

contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Avoid dispersal of spilled material and runoff and

Methods for Cleaning up

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

SECTION 7 – HANDLING AND STORAGE

- ◆ **Handling:** Keep away from heat and sources of ignition. Avoid breathing vapors or spray mists. Avoid prolonged exposure.
- ◆ **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.. Use original container.
- ◆ **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also **Personal protection**

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- ◆ **Appearance and physical state:** N/A
- ◆ **Appearance and odor information:** N/A
- ◆ **Boiling point:** N/A
- ◆ **Flash Point:** N/A
- ◆ **Lower Explosion Limit (% by volume):** N/A
- ◆ **Upper Explosion Limit (% by volume):** N/A
- ◆ **Vapour pressure at 20°C:** N/A
- ◆ **Vapour density:** N/A
- ◆ **Solubility in water:** fully miscible
- ◆ **Specific Gravity (water = 1):** N/A
- ◆ **Percent volatile by volume:** N/A
- ◆ **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- ◆ **Stability and reactivity:** The product is stable at a pH between 4 and 11
- ◆ **Conditions to avoid:** pH < 4 and pH > 11, using temperatures < + 2°C and > + 96°C
- ◆ **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- ◆ **Hazardous polymerization:** Will not occur.
- ◆ **Hazardous decomposition products:** Not available.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	Result	Species	Dose
Beta mercaptoethanol	LD50 Oral	Rat Rat	162 mg/kg
Poly(oxy-1,2-ethanediyl), .alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy	LD50 Oral	Rat	1800 mg/kg
Beta mercaptoethanol	LC50 Inhalation LD50 Dermal	Rat Rabbit	4h 2mg/L 112-224 mg/kg
Poly(oxy-1,2-ethanediyl), .alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy	Eyes moderate irritant Skin Mild Irritant	Rabbit Rabbit	24h 10µL 24h 500 µL

◆ **Additional information regarding beta-mercaptoethanol****Skin corrosion/irritation**

Skin - rabbit

Result: Irritating to skin.

(Draize Test)

Serious eye damage/eye irritation

Eyes - rabbit

Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Maximisation Test - guinea pig

May cause sensitisation by skin contact.

(OECD Test Guideline 406)

Germ cell mutagenicity

Experiments showed mutagenic effects in cultured bacterial cells.

Carcinogenicity

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

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

Ingestion - May cause damage to organs through prolonged or repeated exposure. - Liver, Heart

Aspiration hazard

no data available

Additional Information

RTECS: KL5600000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting,

Weakness, Unconsciousness, Material is extremely destructive to tissue of the mucous membranes and

upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation

and edema of the bronchi, pneumonitis, pulmonary edema

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity : No known significant effects or critical hazards

Aquatic ecotoxicity

Ingredient	Result	Species	Exposure
Beta mercaptoethanol	Acute LC50 0.89 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 h
	Acute LC50 46 mg/l Fresh water	Fish - Pimephales promelas	96 h
Poly(oxy-1,2-ethanediy), . alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy	Acute LC50 5.85 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi – Neonate	48 h
	Acute LC50 11.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 h
	Acute LC50 4500 µg/l Fresh water	Fish - Pimephales promelas	96 h

SECTION 13 – DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements. The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

SECTION 14 – TRANSPORT INFORMATION

UN number

ADR/RID: 2966

IMDG: 2966

IATA-DGR: 2966

UN proper shipping name

ADR/RID: THIOGLYCOL

IMDG: THIOGLYCOL

IATA-DGR: Thioglycol

Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA-DGR: 6.1

Packaging group

ADR/RID: II

IMDG: II

IATA-DGR: II

Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA-DGR: no

Special precautions for user

no data available

SECTION 15 – REGULATORY INFORMATION

- 5X Lysis Buffer

HCS Classification

Irritating material
Target organ effects

U.S. Federal regulations: SARA 302/304: No products were found.

SARA 311/312 Hazards identification: Immediate (acute) health hazard, Delayed (chronic) health hazard

TSCA 8(a) PAIR: Poly(oxy-1,2-ethanediyl), .alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-.

omega.-hydroxy

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted

Clean Air Act Section
112(b) Hazardous Air
Pollutants (HAPs) Not listed
Clean Air Act Section
602 Class I Substances Not listed
Clean Air Act Section
602 Class II Substances Not listed
DEA List I Chemicals
(Precursor Chemicals) Not listed
DEA List II Chemicals
(Essential Chemicals) Not listed

State Regulations

Massachussets	No compounds are listed
New York	No compounds are listed
New Jersey	No compounds are listed
Pennsylvania	No compounds are listed
California Prop 65	No products were found

- **Substrate buffer**

HCS Classification

Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 200-464-6).

Canada: Listed on Canadian Domestic Substance List (DSL).

China: Listed on National Inventory.

Japan: Listed on National Inventory (ENCS).

Korea: Listed on National Inventory (KECI).

Philippines: Listed on National Inventory (PICCS).

Australia: Listed on AICS.

U.S. Federal regulations: SARA 302/304: No products were found.

SARA 311/312 Hazards identification: Immediate (acute) health hazard, Delayed (chronic) health hazard

TSCA 8(a) PAIR: Beta mercaptoethanol

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted

Clean Air Act Section
112(b) Hazardous Air
Pollutants (HAPs) Not listed
Clean Air Act Section
602 Class I Substances Not listed
Clean Air Act Section
602 Class II Substances Not listed
DEA List I Chemicals
(Precursor Chemicals) Not listed
DEA List II Chemicals
(Essential Chemicals) Not listed

State Regulations

Massachussets	2-Mercaptoethanol
Minesotta	2-Mercaptoethano
New Jersey	No compounds are listed
Pennsylvania	No compounds are listed
California Prop 65	

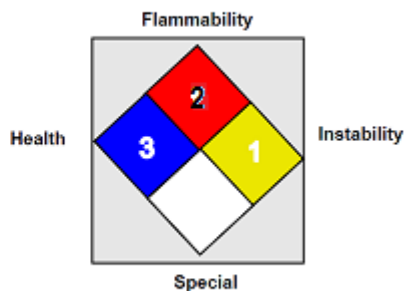
This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Hazardous Material Information System
(U.S.A.)

HEALTH	3
FIRE	2
REACTIVITY	1
PERSONAL PROTECTION	E

National Fire Protection Association
(U.S.A.)



◆ Revisions:

Issue Date: 22-May-2014
 Last Revision Date: 30-Aug-2016
 Revision note: New format. updated Section 2,8,15,16.

◆ Other Comments:

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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