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SAFETY DATA SHEET

5X M4 PCR Buffer

Prepared under WHMIS (Hazardous Products Regulations, SOR/2015-17) / GHS Rev. 7.

DOCUMENT ID	VERSION	ISSUED	EFFECTIVE
HSS-PL05-PCRB-SDS	2.1	2026-09-24	2026-09-24

1 Identification

Product name	5X M4 PCR Buffer (5X reaction buffer supplied with M4 Taq DNA Polymerase)
Supplied in	M4 Taq DNA Polymerase kits: catalogue M0902-010 (4 × 1 mL tubes) and M0902-050 (1 × 50 mL bottle). Also supplied in the 2X M4 Taq Master Mix kit, catalogue M0802-020 (2 mL).
Product type	Concentrated (5X) aqueous PCR reaction buffer: a proprietary buffered salt solution containing a non-ionic detergent and a stabilising protein.
Catalogue number	None of its own: a kit component, identified by the kit catalogue numbers above.
Recommended use	Laboratory reagent component of a polymerase chain reaction (PCR) kit. For laboratory research use only (RUO).
Restrictions on use	Not for food, drug, pesticide, or biological-product use. Not for human or animal diagnostic or therapeutic use.
Supplier	HoppeSyler Scientific Inc., 79 Bessemer Road, Unit 1, London, ON N6E 1P9, Canada
Origin	Developed and manufactured in Canada.
Emergency telephone	1-833-727-7522 · Email: info@hoppesyler.com

2 Hazard Identification

WHMIS / GHS classification	**Not classified.** The product does not meet the criteria for any physical, health, or environmental hazard class under the Hazardous Products Regulations (SOR/2015-17).
Basis for non-classification	Assessed on composition: every component is below its classification cut-off in the finished buffer.
Signal word	None.
Pictograms	None.
Hazard statements	None.
Precautionary statements	None required by the classification. Handling and personal protection for laboratory use are given in Sections 7 and 8.
Other hazards	No hazard is known that is not otherwise classified. As with any laboratory reagent, avoid unnecessary skin and eye contact and do not ingest.

3 Composition / Information on Ingredients

Substance type: mixture (aqueous buffered salt solution).

Component	CAS-No	Concentration (w/w)
Water (nuclease-free)	7732-18-5	80-100%*
Brij-58 (non-ionic detergent)	9004-95-9	0.1-1%*

* The actual concentration is withheld as a trade secret.

The remaining constituents are proprietary. Each of them is below every classification cut-off in the finished buffer, and none carries a carcinogen, germ-cell mutagen or reproductive-toxicant classification.

4 First-Aid Measures

Eye contact	Rinse cautiously with water for several minutes, holding the eyelids open. Remove contact lenses if present and easy to do, then continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Wash with plenty of soap and water. Remove contaminated clothing. Get medical attention if irritation develops and persists.
Inhalation	Not an expected route of exposure for this non-volatile aqueous liquid. Remove the person to fresh air if any discomfort occurs.

Ingestion	Rinse mouth with water. Do not induce vomiting. Get medical attention if a large amount is swallowed or if symptoms occur.
Symptoms / effects	None expected under normal handling. Transient mild eye or skin irritation may occur with direct or prolonged contact.
Note to physician	Treat symptomatically.

5 Fire-Fighting Measures

Suitable media	Water spray, water fog, dry chemical, carbon dioxide (CO_2), or alcohol-resistant foam. Use media appropriate to the surrounding fire.
Unsuitable media	None known.
Specific hazards	Not a flammable liquid: an aqueous salt solution with no volatile flammable solvent and no flash point (Section 9). The product as supplied does not support combustion; the dried residue is combustible. Hazardous combustion products of the residue may include carbon monoxide, carbon dioxide, and oxides of nitrogen and sulfur.
Firefighter PPE	Self-contained breathing apparatus (SCBA) and full protective gear for any surrounding fire.

6 Accidental Release Measures

Personal precautions	Wear protective gloves and eye protection. Avoid contact with eyes and skin. No special emergency measures are required for this small-volume, unclassified reagent.
Environmental	Avoid release to drains and waterways where practical; see Section 12. No special environmental precautions are required.
Containment / cleanup	Absorb the spill with paper towel or an inert absorbent. Wipe up, then clean the area with water. Place waste in a labelled container for disposal in accordance with Section 13.

7 Handling and Storage

Safe handling	Handle in accordance with good laboratory practice. Avoid contact with eyes. Wear the protective equipment given in Section 8 and wash hands after handling. Keep the buffer on ice during use.
Safe storage	Store frozen at -20 °C with the rest of the kit and keep the container tightly closed. Thaw completely and mix before use.
Incompatibilities	Strong oxidising agents.

8 Exposure Controls / Personal Protection

Exposure limits	No constituent of this product is listed in the Ontario Table of Ontario Regulation 833 or in United States OSHA Table Z-1, and none carries an ACGIH threshold limit value. The product is an aqueous liquid dispensed in small volumes and does not generate a mist or vapour in normal use. *Occupational exposure limits checked against the ACGIH threshold limit value list, United States OSHA 29 CFR 1910.1000 Table Z-1, and Ontario Regulation 833.*
Engineering controls	General laboratory ventilation is sufficient. No special engineering controls are required.
Eye / face protection	Safety glasses meeting CSA Z94.3.
Skin protection	Disposable nitrile gloves and a laboratory coat.
Respiratory protection	Not required under normal handling of this aqueous liquid.

9 Physical and Chemical Properties

Physical state	Liquid	**Decomposition temperature**	No data available
Colour	Colourless, clear	**pH**	About 8.8 for the 5X concentrate as supplied (not measured)
Odour	Odourless	**Kinematic viscosity**	No data available (water-like)
Melting point / freezing point	About 0 °C (aqueous solution; supplied frozen at -20 °C)	**Solubility**	Miscible with water
Boiling point / range	About 100 °C (aqueous solution; not measured)	**Partition coefficient (n-octanol/water, log K_{ow})**	No data available
Flammability	Not flammable	**Vapour pressure**	No data available
Explosion / flammability limits	Not applicable (not flammable)	**Density / relative density**	Approximately 1.06 (calculated, not measured)
Flash point	**Not applicable (aqueous salt solution with no volatile flammable solvent)**	**Relative vapour density**	No data available
Auto-ignition temperature	Not applicable (not flammable)	**Particle characteristics**	Not applicable (liquid)

With no volatile flammable solvent the product has no flash point and is not a flammable liquid. Values marked calculated or not measured are estimates, not test results.

10 Stability and Reactivity

Reactivity / stability	Stable under the recommended storage and handling conditions. No hazardous polymerisation. No hazardous reactions known.
Conditions to avoid	Repeated freeze/thaw cycles and prolonged storage above -20 °C, which may reduce performance and are not a safety hazard.
Incompatible materials	Strong oxidising agents.
Decomposition products	Thermal decomposition of the dried residue may yield carbon monoxide, carbon dioxide, and oxides of nitrogen and sulfur.

11 Toxicological Information

Likely routes of exposure	Eye and skin contact during pipetting are the only realistic routes. Ingestion is unlikely, and inhalation is not an expected route for this non-volatile aqueous liquid.
Acute toxicity	Not classified. No toxicity data exist for the mixture itself; the assessment is by calculation from the components. No component is classified for acute toxicity, and the mixture is not acutely toxic by the oral, dermal or inhalation route.
Skin corrosion / irritation	Not classified. Transient mild irritation may occur with prolonged direct contact.
Serious eye damage / irritation	Not classified. Transient mild irritation may occur with direct contact.
Respiratory / skin sensitisation	Not classified. No sensitiser is present at or above its classification cut-off. The stabilising protein is non-volatile and held in solution, and is not expected to present a sensitisation hazard under the recommended handling conditions.
Specific target organ toxicity (single and repeated exposure)	Not classified.
Aspiration hazard	Not classified.
Carcinogenicity, mutagenicity, reproductive toxicity	Not classified. No component carries a carcinogen, germ-cell mutagen or reproductive-toxicant classification, or an ACGIH carcinogen notation.
Component data	No constituent is present at a classifying level in the finished buffer. The non-ionic detergent is not classified for health effects at neat concentration, and its aquatic classification is addressed in Section 12. The stabilising protein has no acute-toxicity data available and is not classified.

12 Ecological Information

Ecotoxicity	Not classified as hazardous to the aquatic environment. The non-ionic detergent carries an aquatic chronic classification at neat concentration and is present in the range disclosed in Section 3.
Persistence and degradability	The buffer salts are common environmental ions. No degradation data are available for the other constituents.
Bioaccumulative potential	Low.
Mobility in soil	Highly mobile in soil and water, being miscible with water.
Other adverse effects	None known.

13 Disposal Considerations

Dispose of contents and container in accordance with local, provincial and federal regulations. The product is not classified as a hazardous waste on the basis of its composition; users must still verify their own waste characterisation and any institutional requirements. Do not release large volumes to drains.

14 Transport Information

TDG (Canada)	**Not regulated.** The product carries no hazard classification in Section 2 and meets no transport hazard class under the Transportation of Dangerous Goods Regulations (SOR/2001-286). No UN number or packing group applies.

15 Regulatory Information

Canada (WHMIS)	Not classified under the Hazardous Products Regulations (SOR/2015-17). Every component of the product, disclosed and proprietary alike, is listed on the Canadian Domestic Substances List (DSL).
Other jurisdictions	United States (TSCA): contact HoppeSyler Scientific for inventory compliance status. No component is listed under California Proposition 65.

16 Other Information

Prepared by	HoppeSyler Scientific Inc. · Approved by: HoppeSyler Scientific Inc.
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Legend	GHS = Globally Harmonized System of Classification and Labelling of Chemicals; WHMIS = Workplace Hazardous Materials Information System; HPR = Hazardous Products Regulations; TDG = Transportation of Dangerous Goods; DSL = Domestic Substances List; TSCA = Toxic Substances Control Act; RUO = Research Use Only; PCR = polymerase chain reaction; ACGIH = American Conference of Governmental Industrial Hygienists; H = hazard statement; P = precautionary statement.

Disclaimer. The information herein is provided in good faith and believed accurate as of the effective date. It is the user's responsibility to determine suitability for their purpose. HoppeSyler Scientific Inc. makes no warranty and assumes no liability for use of this information.

END OF SAFETY DATA SHEET