

# Material Safety Data Sheet: XF Plasma Membrane Permeabilizer (Part # 102504-100)

Date of Issue: February 28, 2013

## Section I – Identification of the substance/mixture and of the company/undertaking

**Synonyms:** Perfringolysin O, PFO, PMP

**Use of the substance/preparation:** This material is for research purposes only. It is not intended for use in humans.

**Details of the supplier of the safety data sheet:**

Seahorse Bioscience  
16 Esquire Road  
Billerica, MA 01862  
<http://www.seahorsebio.com>

This information is believed to be accurate and represents the best information available to date. We make no warranty or assume liability from its use. Users should make their own investigations to determine the suitability of the information.

**Emergency telephone number:** +1-978-671-1600

## Section II – Hazardous identification

**Classification of the substance or mixture:**

**GHS-US classification:** Not classified

**Label elements:** While this material is classified as not hazardous under OSHA regulations, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

## Section III – Composition/information on ingredients

**Name:** Perfringolysin O is derived from *Clostridium perfringens* and is provided in a 10 µm solution with 50 mM HEPES buffer, 10% glycerol and 100 µm NaCl

**Product Identifier:** PFO

**GHS-US classification:** Not classified

## Section IV – First Aid Measures

**First-aid measures general:** In case of any exposure, seek medical attention.

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

**Symptoms/injuries after inhalation:** If breathing is irregular or stopped, administer artificial respiration.

**IF ON SKIN (or hair):** Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

**If in eyes:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Symptoms/injuries after ingestion:** Do NOT induce vomiting unless directed to do so by a physician.

**Indication of any immediate medical attention and special treatment needed:** No additional information available

## Section IV – Firefighting measures

**Suitable extinguishing media:** powder, alcohol-resistant foam, water spray, carbon dioxide.

**Special hazards arising from the substance or mixture:**

**Fire hazard:** Non flammable.

**Reactivity:** Not applicable.

**Advice for firefighters:** Wear a self-contained breathing apparatus and appropriate personal protective equipment (PPE).

**Other information:** Responders should take into consideration the biohazard risk associated with responding to a fire in the area where the material may be stored or handled.

## Section VI – Accidental release measures

**Personal precautions, protective equipment and emergency procedures for non-emergency personnel:**

**Protective equipment:** Wear self-contained breathing apparatus and protective suit. Wear suitable protective clothing, gloves and eye or face protection.

**Emergency procedures:** Wash with water and soap. Separate working clothes from town clothes. Launder separately. Do not take working clothes home.

**Personal precautions, protective equipment and emergency procedures for emergency responders:**

**Emergency procedures:** Responders should take into consideration the biohazard risk associated with responding to a fire in the area where the material may be stored or handled.

**Environmental precautions:** Allow aerosols to settle. Wearing protective clothing, gently cover spill with paper towel and apply 1% sodium hypochlorite, starting at perimeter and working towards the center; allow sufficient contact time before clean up (30 min.).

**Methods and material for containment and cleaning up:** No additional information available

**Reference to other sections:** No additional information available

## Section VII – Handling and storage

**Precautions for safe handling:** Handle in accordance with at least Biosafety Level 2 practices. Keep container tightly closed. Wear suitable protective clothing. Avoid any direct contact with the product.

**Storage conditions:** Store at ambient temperature.

**Special rules on packaging:** Follow established laboratory procedures when handling material.

## Section VIII – Exposure controls/personal protection

**Control parameters:** No additional information available

**Appropriate engineering controls:** Avoid handling the material in a manner likely to create aerosols or splashes. If material is used in a manner that may create aerosols or splashes a Class I or II biological safety cabinet is recommended by the CDC. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

**Eye protection:** Safety glasses with side shields.

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

**Respiratory protection:** Familiarize personnel with proper use of respiratory protection equipment. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.

**Consumer exposure controls:** Avoid contact with skin and eyes. Do NOT taste or swallow. Wash hands before break and at end of works.

## Section IX – Physical and chemical properties

**Physical state:** Liquid

**Color:** colorless

**Odor:** None

**Odor threshold:** No data available

**pH:** No data available

**Relative evaporation rate (butylacetate=1):** No data available

**Melting point:** No data available

**Freezing point:** No data available

**Boiling point:** No data available

**Flash point:** No data available

**Self ignition temperature:** No data available

**Decomposition temperature:** No data available

**Flammability (solid, gas):** No data available

**Vapor pressure:** No data available

**Relative vapor density at 20 °C:** No data available

**Relative density:** No data available

**Solubility:** No data available

**Log Pow:** No data available

**Log Kow:** No data available

**Viscosity, kinematic:** No data available

**Viscosity, dynamic:** No data available

**Explosive properties:** No data available

**Oxidising properties:** No data available

**Explosive limits:** No data available

**Other information:** No additional information available

## Section X – Stability and reactivity

**Reactivity:** Not applicable.

**Chemical stability:** The product is stable at normal handling and storage conditions.

**Possibility of hazardous reactions:** Not applicable.

**Conditions to avoid:** None known.

**Incompatible materials:** None known.

**Hazardous decomposition products:** None known.

## Section XI – Toxicological information

**Acute toxicity:** Not classified

**Skin corrosion/irritation:** Not classified

**Serious eye damage/irritation:** Not classified

**Respiratory or skin sensitisation:** Not classified

**Germ cell mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive toxicity:** Not classified

**Specific target organ toxicity (single exposure):** Not classified

**Specific target organ toxicity (repeated exposure):** Not classified

**Aspiration hazard:** Not classified

**Potential Adverse human health effects and symptoms:**

Perfringolysin O (PFO) is a protein toxin that is extracted from gram-positive, spore-forming, rod-shaped *Clostridium perfringens* (*C. perfringens*) and has been shown to cause human and livestock disease. PFO toxin modulates the expression of ICAM-1, preventing the migration of leukocytes from migrating from the bloodstream to infected tissue to fight the disease. High concentrations of PFO are leukocytotoxic and have proven lethal to mice. Studies have shown that cytotoxicity, tissue necrosis and release of cytoline mediators may be expected. Contamination of wounds with *C. perfringens* can contaminate wounds and may result in gas gangrene, clostridial cellulitis or local tissue necrosis.

## Section XII – Ecological information

**Ecology - general:** No available information on product.

**Persistence and degradability:** No additional information available

**Bioaccumulative potential:** No additional information available

**Mobility in soil:** No additional information available

**Other adverse effects:** No additional information available

## Section XIII – Disposal considerations

**Waste treatment methods:** No additional information available

## Section XIV – Transport information

This product is shipped in 500 microliter containers and are exempt from DOT regulations per 49 CFR 173.4 and IATA regulations 2.6.2.2(f)

**UN number:** UN3172 Toxins, extracted from living sources, liquid, n.o.s. (Perfringolysin O)

**DOT Proper Shipping Name:** Toxins, extracted from living sources, liquid, n.o.s. (Perfringolysin O)

**Department of Transportation (DOT) Hazard Classes:** 6.1 - Poisonous materials 49 CFR 173.132

**Hazard labels (DOT):** 6.1 - Toxic substance

**DOT Symbols:** G - Identifies PSN requiring a technical name

**Packing group (DOT):** II - Medium Danger

**DOT Special Provisions (49 CFR 172.102):** 141 - A toxin obtained from a plant, animal, or bacterial source containing an infectious substance, or a toxin contained in an infectious substance, must be classed as Division 6.2, described as an infectious substance, and assigned to UN 2814 or UN 2900, as appropriate.

**DOT Packaging Exceptions (49 CFR 173.xxx):** 4 (Small quantities for highway and rail)

**DOT Packaging Non Bulk (49 CFR 173.xxx):** 201

**DOT Packaging Bulk (49 CFR 173.xxx):** 243

**Additional information:** No supplementary information available.

**Overland transport:** No additional information available

**Transport by sea:**

**DOT Vessel Stowage Location:** B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

**DOT Vessel Stowage Other:** 40 - Stow “clear of living quarters”

**Air transport:**

**DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27):** 1 L

**DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75):** 60 L

**Instruction “cargo” (ICAO):** 662

**Instruction “passenger” (ICAO):** 654

**Instruction “passenger” - Limited quantities (ICAO):** Y641

**Section XV – Regulatory information**

**Regional legislation:** Not regulated under OSHA HCS 1910.1200.

**Chemical safety assessment:** No additional information available

**SECTION 16: Other information**

Prepared using template TCA SDS US (GHS HazCom 2012)

Prepared by Transportation Compliance Associates 724-899-4100

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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The logo for Seahorse Bioscience, featuring a stylized blue seahorse icon to the left of the company name "Seahorse Bioscience" written in a blue serif font.