Bangs Laboratories, Inc.
9025 Technology Dr. Fishers, IN 46038 • www.bangslabs.com • info@bangslabs.com • 800.387.0672

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SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifiers

Catalog Number	*Product Name*
CS01000-CS01002	Streptavidin coated silica microparticles in borate buffer

1.2 Relevant identified uses of substance or mixture and uses advised against

Identified uses: Lab use

1.3 Details of the supplier of the safety data sheet

Company: Bangs Laboratories / A Division of Polysciences
9025 Technology Drive
Fishers, Indiana 46038
USA
Telephone: 800-387-0672

1.4 Emergency telephone number

Emergency Phone: 317-348-1673

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification: **TOXIC TO REPRODUCTION (Fertility) - Category 1B**
TOXIC TO REPRODUCTION (Unborn child) - Category 1B

Signal word: **Danger**

Pictogram:

Hazardous substance or mixture according to Regulation (EU) No. 1272/2008.
Hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

Hazard Statement(s)

H360	May damage fertility or the unborn child.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.2 Hazard Ratings: These ratings are Bangs Laboratories, Inc.'s own assessments of the properties of the material using the ANSI/ NFPA 704 Standard. Additional information can be found by consulting in the NFPA published ratings lists (List 325 and List 49). If no data is listed, the information is not available.

Health	*Flammability*	*Reactivity*
2	0	0

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Item#	*Name*	*CAS #*	*% in Product*
1	Water	007732185	97.901
2	Silicon dioxide	007631869	1
3	Boric acid	10043353	0.305
4	EDTA tetrasodium salt	10378231	0.416
5	Sodium tetraborate	1303964	0.138
6	Bovine serum albumin	009048468	0.10
7	Sodium azide (NaN_3)	026628228	0.09
8	Tween® 20	009005645	0.05
9	Streptavidin coating	009013201	≤0.018

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs

Skin: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Mantain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Systemic: Inhalation: Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations. Skin contact: Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations Ingestion: Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations.

Protection of first-aiders: No action shall be taken involving any personal 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing Media: Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture: In a fire or if heated, a pressure increase will occur and the container may burst. Sodium oxides Sodium azide is known to form explosive compounds when it is combined with metal halides and many heavy metals, such as lead, copper, gold, & silver. Borane/boron oxides.

5.3 Advice for firefighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

5.4 Further Information: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: 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 or gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

6.2 Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air)

6.3 Methods and materials for containment and cleaning up: Small spill: 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. Large spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections: For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7.2 Conditions for safe storage, including any incompatibilities: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Store between the following temperatures: 2- 8°C. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters 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. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases,fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. 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.

8.2 Exposure Controls: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Boiling Point:	100˚C / 212˚F
Density (particles):	~2.0 g/cc
Solubility:	insoluble
Appearance:	odorless, white or colorless liquid suspension that may stratify

9.2 Other safety information: None

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available

10.2 Chemical Stability: Stable under recommended storage conditions

10.3 Possibility of hazardous reactions: No data available

10.4 Conditions to avoid: Product may irreversibly aggregate if frozen.

10.5 Incompatible materials: Strong oxidizing agents, Strong reducing agents.

10.6 Hazardous decomposition products: Sodium azide is known to form explosive compounds when it is combined with metal halides and many heavy metals, such as lead, copper, gold, & silver.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects: Acute Toxicity : Boric acid - C50 Inhalation Gas.Rat > 0.16 mg/l4 hours LD50 Dermal Rabbit>2000 mg/kg-LD50 OralRat 2660 mg/kg Sodium tetraborate decahydrate - LD50 Oral-Rat-4,500 -5,000 mg/kg Inhalation LD50 Dermal- Rabbit-10,000 mg/kg Irritation/Corrosion: Boric acid- Skin - Mild irritant Human-72 hours 15 milligrams Intermittent. Sodium azide is known to be highly toxic.

Acute Effects: Sodium azide may result in eye and skin irritation. Ingestion may result in nausea, headache, and vomiting. Contact with boric acid whether through inhalation, skin, or ingestion acid one may have adverse symptoms such as: reduced fetal weight increase in fetal deaths skeletal malformations.

Chronic Effects: Sodium azide can cause cancer, or alter genetic material. Target organs include heart, nerves, and brain. Boric acid may damage fertility. Reproductive toxicity, fetotoxicity- Presumed human reproductive toxicant. Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus, including fetal weight loss and minor skeletal variations. The doses administered were many times in excess of those to which humans would normally be exposed. Human epidemiological studies show no increase in pulmonary disease in occupational populations with cronic exposures to boric acid dust and sodium borate dust. A recent epidemiological study under the conditions of normal occupational eposure to borate dusts indicated no effect on fertility.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: boric acid - Acute LC50 84.28 mg/l Marine water Crustaceans - Americamysis bahia - Juvenile (Fledgling,Hatchling, Weanling) 48 hours Acute LC50 133000 µg/l Fresh water Daphnia - Daphnia magna -Neonate 48 hours Acute LC50 100000 µg/l Fresh water Fish - Ptychocheilus lucius -Juvenile (Fledgling, Hatchling, Weanling) 96 hours Chronic NOEC 6000 µg/l Fresh water Daphnia - Daphnia magna 21 days Chronic NOEC 2100 µg/l Fresh water Fish - Oncorhynchus mykiss 87 days Sodium tetraborate decahydrate - Toxicity to fish LC50 - Carassius auratus (goldfish) - 178 mg/l- 72 h Toxicity to daphnia and other aquatic invertebrates: EC50-Daphnia magna (Water flea)-1,085 -1,402 mg/l-48 h Toxicity to algae: IC50 -Desmodesmus subspicatus (green algae) -158 mg/l-96 h

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods: 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. Bangs Laboratories disposes of polymer-based microparticles through our standard chemical waste disposal program, which is performed by a licensed provider in a safe, compliant, and environmentally-conscious manner.

CAS #	*Waste Code*	*Regulated Name*
007732185	not listed	not listed
007631869	not listed	not listed
10043353	not listed	not listed
010378231	not listed	not listed
1303964	not listed	not listed
009048468	not listed	not listed
026628228	P105	Sodium azide
009005645	not listed	not listed
009013201	not listed	not listed

SECTION 14: TRANSPORT INFORMATION

Refer to bill of lading or container label for DOT or other transportation hazard classification, if any.

SECTION 15: REGULATORY INFORMATION

All components of this product are on the TSCA public inventory.

Prop 65: Column A identifies those items which are known to the State of California to cause cancer. Column B identifies those which are known to the State of California to cause reproductive toxicity.

CAS #	*Column A*	*Column B*
007732185	no	no
007631869	no	no
10043353	no	no
010378231	no	no
1303964	no	no
009048468	no	no
026628228	no	no
009005645	no	no
009013201	no	no

SARA Toxic Release Chemicals *(as defined in Section 313 of SARA Title III):* This list identifies the toxic chemicals, including their de minimis concentrations for which reporting is required under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA). This list is also referred to as the Toxic Release Inventory (TRI) List.

CAS #	*Regulated Name*	*de minimis conc %*	*Rep. Thres.*
007732185	not listed	not listed	not listed
007631869	not listed	not listed	not listed
10043353	not listed	not listed	not listed
010378231	not listed	not listed	not listed
1303964	not listed	not listed	not listed
009048468	not listed	not listed	not listed
026628228	Sodium azide	1.0	not listed
009005645	not listed	not listed	not listed
009013201	not listed	not listed	not listed

SARA Extremely Hazardous Substances and TPQs: This list identifies hazardous substances regulated under Section 302 of SARA Title III with their TPQs (in pounds), as listed in 40 CFR 355, Appendices A and B.

CAS #	*Regulated Name*	*TPQ (pounds)*	*EHS-RQ (pounds)*
007732185	not listed	not listed	not listed
007631869	not listed	not listed	not listed
10043353	not listed	not listed	not listed
010378231	not listed	not listed	not listed
1303964	not listed	not listed	not listed
009048468	not listed	not listed	not listed
026628228	Sodium azide (NaN_3)	500	1,000
009005645	not listed	not listed	not listed
009013201	not listed	not listed	not listed

SECTION 16: OTHER INFORMATION

BANGS LABORATORIES, INC. provides the information contained herein in good faith, but makes no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose.

BANGS LABORATORIES, INC. makes no representations or warranties, either expressed or implied, of merchantability or fitness for particular purposes with respect to the information set forth herein or to which the information refers. Accordingly, BANGS LABORATORIES, INC. will not be responsible for damages resulting from the use of or reliance upon this information.

Preparation Information:
Bangs Laboratories, Inc.
1-800-387-0672

END OF SDS