

SAFETY DATA SHEET

VariFlex Bacterial Protein Expression System, Part Number 240175

Section 1. Identification

1.1 Product identifier

Product name : VariFlex Bacterial Protein Expression System, Part Number 240175
Part no. (chemical kit) : 240175
Part no. : Streptavidin Resin 240105-51
 pBEc-SBP Vector 240174-51
Validation date : 2/22/2018

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

Material uses : Analytical reagent.
 Streptavidin Resin 1.25 ml
 pBEc-SBP Vector 0.02 ml (20 µg 1 µg/µl)

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : Streptavidin Resin
 pBEc-SBP Vector

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture

Streptavidin Resin
 H226 FLAMMABLE LIQUIDS - Category 3
 H315 SKIN IRRITATION - Category 2
 H319 EYE IRRITATION - Category 2A
 H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3








2.2 GHS label elements

Hazard pictograms : Streptavidin Resin



Signal word :

Section 2. Hazards identification

Hazard statements	Streptavidin Resin pBec-SBP Vector :  Streptavidin Resin	Warning No signal word. H226 - Flammable liquid and vapor. H319 - Causes serious eye irritation. H315 - Causes skin irritation. H335 - May cause respiratory irritation. H336 - May cause drowsiness or dizziness. No known significant effects or critical hazards.
<u>Precautionary statements</u>	pBec-SBP Vector	
Prevention	:  Streptavidin Resin	P280 - Wear protective gloves. Wear eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. P242 - Use only non-sparking tools. P243 - Take precautionary measures against static discharge. P233 - Keep container tightly closed. P271 - Use only outdoors or in a well-ventilated area. P261 - Avoid breathing vapor. P264 - Wash hands thoroughly after handling. Not applicable.
Response	pBec-SBP Vector :  Streptavidin Resin	P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. P332 + P313 - If skin irritation occurs: Get medical attention. 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 attention. Not applicable.
Storage	pBec-SBP Vector :  Streptavidin Resin	P405 - Store locked up. P403 - Store in a well-ventilated place. P235 - Keep cool. Not applicable.
Disposal	pBec-SBP Vector :  Streptavidin Resin	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable.
Supplemental label elements	pBec-SBP Vector :  Streptavidin Resin pBec-SBP Vector	None known. None known.
<u>2.3 Other hazards</u>		
Hazards not otherwise classified	:  Streptavidin Resin pBec-SBP Vector	None known. None known.

Section 2. Hazards identification

Ingredient name	%	CAS number
Streptavidin Resin Ethanol	≥10 - ≤25	64-17-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: Streptavidin Resin	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.
	pBEc-SBP Vector	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	: Streptavidin Resin	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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 necessary, call a poison center or physician. 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.
	pBEc-SBP Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Streptavidin Resin	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	pBEc-SBP Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Streptavidin Resin	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

Section 4. First aid measures

pBEc-SBP Vector

does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. 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.

Wash out mouth with water. 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. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Streptavidin Resin
pBEc-SBP Vector

Causes serious eye irritation.
No known significant effects or critical hazards.

Inhalation : Streptavidin Resin

Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : pBEc-SBP Vector
Streptavidin Resin
pBEc-SBP Vector

No known significant effects or critical hazards.
Causes skin irritation.
No known significant effects or critical hazards.

Ingestion : Streptavidin Resin

Can cause central nervous system (CNS) depression.

pBEc-SBP Vector

No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Streptavidin Resin

Adverse symptoms may include the following:
pain or irritation
watering
redness

pBEc-SBP Vector

No specific data.

Inhalation : Streptavidin Resin

Adverse symptoms may include the following:
respiratory tract irritation
coughing

nausea or vomiting
headache

drowsiness/fatigue
dizziness/vertigo

unconsciousness

No specific data.

Skin contact : pBEc-SBP Vector
Streptavidin Resin

Adverse symptoms may include the following:
irritation
redness

No specific data.

Ingestion : pBEc-SBP Vector
Streptavidin Resin
pBEc-SBP Vector

No specific data.

No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Section 4. First aid measures

Notes to physician	: Streptavidin Resin pBEc-SBP Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Streptavidin Resin pBEc-SBP Vector	No specific treatment. No specific treatment.
Protection of first-aiders	: Streptavidin Resin pBEc-SBP Vector	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. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Streptavidin Resin pBEc-SBP Vector	Use dry chemical, CO ₂ , water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Streptavidin Resin pBEc-SBP Vector	Do not use water jet. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: S treptavidin Resin pBEc-SBP Vector	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Streptavidin Resin pBEc-SBP Vector	Decomposition products may include the following materials: carbon dioxide carbon monoxide No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters	: Streptavidin Resin pBEc-SBP Vector	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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. 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.
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Section 5. Fire-fighting measures

Special protective equipment for fire-fighters	: Streptavidin Resin pBEc-SBP Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Streptavidin Resin pBEc-SBP Vector	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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. 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. Put on appropriate personal protective equipment.
For emergency responders	: Streptavidin Resin pBEc-SBP Vector	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions	: Streptavidin Resin pBEc-SBP Vector	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). 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).
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6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: Streptavidin Resin pBEc-SBP Vector	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Stop leak if without risk. Move containers from spill
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Section 6. Accidental release measures

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

7.1 Precautions for safe handling

Protective measures : Streptavidin Resin

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

pBEc-SBP Vector

Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Streptavidin Resin

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. See also Section 8 for additional information on hygiene measures.

pBEc-SBP Vector

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. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities : Streptavidin Resin

Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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. See Section 10 for incompatible materials before handling or use. Store in accordance with local regulations. Store in

pBEc-SBP Vector

Section 7. Handling and storage

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. 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. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations	: Streptavidin Resin pBEc-SBP Vector	Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Streptavidin Resin pBEc-SBP Vector	Not applicable. Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Streptavidin Resin Ethanol	<p>ACGIH TLV (United States, 3/2017). STEL: 1000 ppm 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2016). TWA: 1000 ppm 10 hours. TWA: 1900 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2016). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p>

8.2 Exposure controls

Appropriate engineering controls	: <input checked="" type="checkbox"/> Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure controls	: 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.

Individual protection measures

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.
Eye/face protection	: 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: chemical splash goggles.

Section 8. Exposure controls/personal protection

Skin protection

Hand protection : 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.

Body protection : 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.

Other skin protection : 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.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Streptavidin Resin pBEc-SBP Vector	Liquid. Liquid.
Color	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Odor	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Odor threshold	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
pH	: Streptavidin Resin pBEc-SBP Vector	7.5 7.5
Melting point	: Streptavidin Resin pBEc-SBP Vector	Not available. 0°C (32°F)
Boiling point	: Streptavidin Resin pBEc-SBP Vector	Not available. 100°C (212°F)
Flash point	: Streptavidin Resin pBEc-SBP Vector	Closed cup: 37.8 to 61°C (100 to 141.8°F) Not available.
Evaporation rate	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Flammability (solid, gas)	: Streptavidin Resin pBEc-SBP Vector	Not applicable. Not applicable.
Lower and upper explosive (flammable) limits	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Vapor pressure	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Vapor density	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Relative density	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.

Section 9. Physical and chemical properties

Solubility	: Streptavidin Resin pBEc-SBP Vector	Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Auto-ignition temperature	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Decomposition temperature	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.
Viscosity	: Streptavidin Resin pBEc-SBP Vector	Not available. Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: Streptavidin Resin pBEc-SBP Vector	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Streptavidin Resin pBEc-SBP Vector	The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	: Streptavidin Resin pBEc-SBP Vector	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Streptavidin Resin pBEc-SBP Vector	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. No specific data.
10.5 Incompatible materials	: Streptavidin Resin pBEc-SBP Vector	Reactive or incompatible with the following materials: oxidizing materials May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Streptavidin Resin pBEc-SBP Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Streptavidin Resin Ethanol	LC50 Inhalation Vapor LD50 Oral	Rat Rat	124700 mg/m ³ 7 g/kg	4 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Streptavidin Resin Ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams 0.066666667 minutes 100 milligrams 100 microliters 400 milligrams 24 hours 20 milligrams	-
	Eyes - Moderate irritant	Rabbit	-		-
	Eyes - Moderate irritant	Rabbit	-		-
	Skin - Mild irritant	Rabbit	-		-
	Skin - Moderate irritant	Rabbit	-		-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Streptavidin Resin Ethanol	-	1	-

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Streptavidin Resin Ethanol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Streptavidin Resin
pBEc-SBP Vector

Routes of entry anticipated: Oral, Dermal, Inhalation.
Not available.

Section 11. Toxicological information

Potential acute health effects

Eye contact	: Streptavidin Resin pBEc-SBP Vector	Causes serious eye irritation. No known significant effects or critical hazards.
Inhalation	: Streptavidin Resin pBEc-SBP Vector	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. No known significant effects or critical hazards.
Skin contact	: Streptavidin Resin pBEc-SBP Vector	Causes skin irritation. No known significant effects or critical hazards.
Ingestion	: Streptavidin Resin pBEc-SBP Vector	Can cause central nervous system (CNS) depression. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Streptavidin Resin pBEc-SBP Vector	Adverse symptoms may include the following: pain or irritation watering redness No specific data.
Inhalation	: Streptavidin Resin pBEc-SBP Vector	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness No specific data.
Skin contact	: Streptavidin Resin pBEc-SBP Vector	Adverse symptoms may include the following: irritation redness No specific data.
Ingestion	: Streptavidin Resin pBEc-SBP Vector	No specific data. No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

General	: Streptavidin Resin pBEc-SBP Vector	No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: Streptavidin Resin pBEc-SBP Vector	No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Streptavidin Resin pBEc-SBP Vector	No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: Streptavidin Resin pBEc-SBP Vector	No known significant effects or critical hazards. No known significant effects or critical hazards.

Section 11. Toxicological information

Developmental effects	: Streptavidin Resin pBEc-SBP Vector	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: Streptavidin Resin pBEc-SBP Vector	No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Streptavidin Resin Ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks	

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Streptavidin Resin Ethanol	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Streptavidin Resin Ethanol	-0.35	0.5	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods






Disposal 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.

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

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN3316	UN3316	UN3316	UN3316	UN3316
UN proper shipping name	<input checked="" type="checkbox"/> Chemical kits	CHEMICAL KIT	EQUIPO QUIMICO	CHEMICAL KIT	Chemical kit
Transport hazard class(es)	9 	9 	9 	9 	9 
Packing group	II	II	II	II	II
Environmental hazards	<input checked="" type="checkbox"/> No.	No.	<input checked="" type="checkbox"/> No.	No.	No.

Additional information

Remarks: Excepted Quantity

DOT Classification : **Limited quantity** Yes.
Packaging instruction Exceptions: 161. Non-bulk: 161. Bulk: None.
Quantity limitation Passenger aircraft/rail: 10 kg. Cargo aircraft: 10 kg.
Special provisions 15

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9).

Mexico Classification : **Special provisions** 251, 340

IMDG : **Emergency schedules** F-A, _S-P_
Special provisions 251, 340

Section 14. Transport information

- IATA** : **Quantity limitation** Passenger and Cargo Aircraft: 10 kg. Packaging instructions: 960.
Cargo Aircraft Only: 10 kg. Packaging instructions: 960. Limited Quantities - Passenger Aircraft: 1 kg. Packaging instructions: Y960.
Special provisions A44, A163
- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
- Transport in bulk according to Annex II of MARPOL and the IBC Code** : Not available.

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Water Act (CWA) 311: Disodium hydrogenorthophosphate; Edetic acid

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

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : **Streptavidin Resin** FLAMMABLE LIQUIDS - Category 3
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Not applicable.

pBEc-SBP Vector

Composition/information on ingredients

Section 15. Regulatory information

Name	%	Classification
Streptavidin Resin Ethanol	≥10 - ≤25	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 HNOC - Defatting irritant

State regulations

- Massachusetts** : The following components are listed: ETHYL ALCOHOL; DENATURED ALCOHOL
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: ETHYL ALCOHOL; ALCOHOL
- Pennsylvania** : The following components are listed: DENATURED ALCOHOL; ETHANOL

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : Not determined.
- United States** : All components are listed or exempted.
- Viet Nam** : Not determined.

Section 16. Other information

History

Date of issue : 02/22/2018
Date of previous issue : 03/28/2016
Version : 5

Procedure used to derive the classification

Classification	Justification
Streptavidin Resin FLAMMABLE LIQUIDS - Category 3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	On basis of test data Calculation method Calculation method Calculation method Calculation method

 Indicates information that has changed from previously issued version.

Notice to reader

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