

SAFETY DATA SHEET



VariFlex Bacterial Protein Expression System, Part Number 240163

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : VariFlex Bacterial Protein Expression System, Part Number 240163
Part no. (chemical kit) : 240163
Part no. : pBEn-SBPa 240162-51
Streptavidin Resin 240105-51
pBEn-SBPb 240162-52
pBEn-SBPc 240162-53

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

Material uses : Analytical reagent.
pBEn-SBPa 0.02 ml (20 µg 1 µg/µl)
Streptavidin Resin 1.25 ml
pBEn-SBPb 0.02 ml (20 µg 1 µg/µl)
pBEn-SBPc 0.02 ml

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : pBEn-SBPa Mixture
Streptavidin Resin Mixture
pBEn-SBPb Mixture
pBEn-SBPc Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Streptavidin Resin
H226 FLAMMABLE LIQUIDS - Category 3

See Section 16 for the full text of the H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :  Streptavidin Resin



SECTION 2: Hazards identification

Signal word	: pBEn-SBPa Streptavidin Resin pBEn-SBPb pBEn-SBPc	No signal word. Warning No signal word. No signal word.
Hazard statements	: pBEn-SBPa Streptavidin Resin pBEn-SBPb pBEn-SBPc	No known significant effects or critical hazards. H226 - Flammable liquid and vapour. No known significant effects or critical hazards. No known significant effects or critical hazards.
<u>Precautionary statements</u>		
Prevention	: pBEn-SBPa Streptavidin Resin	Not applicable. P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin	Not applicable. Not applicable. Not applicable. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
Storage	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin pBEn-SBPb pBEn-SBPc	Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin	Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin pBEn-SBPb pBEn-SBPc	Not applicable. Not applicable. Not applicable. Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin pBEn-SBPb pBEn-SBPc	Not applicable. Not applicable. Not applicable. Not applicable.
<u>Special packaging requirements</u>		
Tactile warning of danger	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin	Not applicable. Not applicable. Not applicable. Not applicable.
2.3 Other hazards		
Other hazards which do not result in classification	: pBEn-SBPb pBEn-SBPc pBEn-SBPa Streptavidin Resin	None known. None known. None known. None known.

SECTION 3: Composition/information on ingredients

3.1 Substances	:	pBEn-SBPa	Mixture
		Streptavidin Resin	Mixture
		pBEn-SBPb	Mixture
		pBEn-SBPc	Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Streptavidin Resin Ethanol	EC: 200-578-6 CAS: 64-17-5 Index: 603-002-00-5	≥10 - ≤25	Flam. Liq. 2, H225 See Section 16 for the full text of the H statements declared above.	[2]

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	:	pBEn-SBPa	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.
		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 if irritation occurs.
		pBEn-SBPb	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.
		pBEn-SBPc	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	:	pBEn-SBPa	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		Streptavidin Resin	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 adverse health effects persist or are severe. 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.
		pBEn-SBPb	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		pBEn-SBPc	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

SECTION 4: First aid measures

Skin contact	: pBEn-SBPa	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Streptavidin Resin	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	pBEn-SBPb	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pBEn-SBPc	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: pBEn-SBPa	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.
	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 does not enter the lungs. Get medical attention if adverse health effects persist or are severe. 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.
	pBEn-SBPb	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.
	pBEn-SBPc	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.
Protection of first-aiders	: pBEn-SBPa	No action shall be taken involving any personal risk or without suitable training.
	Streptavidin Resin	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	pBEn-SBPb	No action shall be taken involving any personal risk or without suitable training.
	pBEn-SBPc	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

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SECTION 4: First aid measures

Eye contact	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Inhalation	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Skin contact	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Ingestion	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.
Inhalation	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.
Skin contact	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.
Ingestion	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: pBEn-SBPa	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Streptavidin Resin	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pBEn-SBPb	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pBEn-SBPc	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: pBEn-SBPa	No specific treatment.
	Streptavidin Resin	No specific treatment.
	pBEn-SBPb	No specific treatment.
	pBEn-SBPc	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

SECTION 5: Firefighting measures

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	:	pBEn-SBPa	In a fire or if heated, a pressure increase will occur and the container may burst.
		Streptavidin Resin	Flammable liquid and vapour. 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.
		pBEn-SBPb	In a fire or if heated, a pressure increase will occur and the container may burst.
		pBEn-SBPc	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	:	pBEn-SBPa	No specific data.
		Streptavidin Resin	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		pBEn-SBPb	No specific data.
		pBEn-SBPc	No specific data.

5.3 Advice for firefighters

Special precautions for fire-fighters	:	pBEn-SBPa	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.
		Streptavidin Resin	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.
		pBEn-SBPb	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.
		pBEn-SBPc	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.
Special protective equipment for fire-fighters	:	pBEn-SBPa	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
		Streptavidin Resin	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
		pBEn-SBPb	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
		pBEn-SBPc	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: pBEn-SBPa	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 spilt material. Put on appropriate personal protective equipment.
	Streptavidin Resin	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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	pBEn-SBPb	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 spilt material. Put on appropriate personal protective equipment.
	pBEn-SBPc	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 spilt material. Put on appropriate personal protective equipment.
For emergency responders	: pBEn-SBPa	If specialised 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".
	Streptavidin Resin	If specialised 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".
	pBEn-SBPb	If specialised 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".
	pBEn-SBPc	If specialised 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	: pBEn-SBPa	Avoid dispersal of spilt 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).
	Streptavidin Resin	Avoid dispersal of spilt 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).
	pBEn-SBPb	Avoid dispersal of spilt 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).
	pBEn-SBPc	Avoid dispersal of spilt 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 material for containment and cleaning up

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SECTION 6: Accidental release measures

Methods for cleaning up	: pBEn-SBPa	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.
	Streptavidin Resin	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.
	pBEn-SBPb	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.
	pBEn-SBPc	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.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	: pBEn-SBPa	Put on appropriate personal protective equipment (see Section 8).
	Streptavidin Resin	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour 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.
	pBEn-SBPb	Put on appropriate personal protective equipment (see Section 8).
	pBEn-SBPc	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	: pBEn-SBPa	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.
	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

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pBEn-SBPb	Section 8 for additional information on hygiene measures. 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.
pBEn-SBPc	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

Storage

: pBEn-SBPa	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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
pBEn-SBPb	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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
pBEn-SBPc	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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Danger criteria

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Category	Notification and MAPP threshold	Safety report threshold
Streptavidin Resin P5c	5000	50000

7.3 Specific end use(s)

Recommendations	: pBEn-SBPa	Industrial applications, Professional applications.
	Streptavidin Resin	Industrial applications, Professional applications.
	pBEn-SBPb	Industrial applications, Professional applications.
	pBEn-SBPc	Industrial applications, Professional applications.
Industrial sector specific solutions	: pBEn-SBPa	Not applicable.
	Streptavidin Resin	Not applicable.
	pBEn-SBPb	Not applicable.
	pBEn-SBPc	Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Streptavidin Resin Ethanol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 1000 ppm 8 hours. TWA: 1920 mg/m ³ 8 hours.

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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
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DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls	: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
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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.
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SECTION 8: Exposure controls/personal protection

- 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: safety glasses with side-shields.
- 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- 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.
- 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: pBEn-SBPa	Liquid.
	Streptavidin Resin	Liquid.
	pBEn-SBPb	Liquid.
	pBEn-SBPc	Liquid.
Colour	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Odour	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Odour threshold	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
pH	: pBEn-SBPa	7.5
	Streptavidin Resin	7.5
	pBEn-SBPb	7.5
	pBEn-SBPc	7.5
Melting point/freezing point	: pBEn-SBPa	0°C
	Streptavidin Resin	Not available.
	pBEn-SBPb	0°C
	pBEn-SBPc	0°C

SECTION 9: Physical and chemical properties

Initial boiling point and boiling range	: pBEn-SBPa	100°C
	Streptavidin Resin	Not available.
	pBEn-SBPb	100°C
	pBEn-SBPc	100°C
Flash point	: pBEn-SBPa	Not available.
	Streptavidin Resin	Closed cup: 37.8 to 61°C
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Evaporation rate	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Flammability (solid, gas)	: pBEn-SBPa	Not applicable.
	Streptavidin Resin	Not applicable.
	pBEn-SBPb	Not applicable.
	pBEn-SBPc	Not applicable.
Upper/lower flammability or explosive limits	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Vapour pressure	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Vapour density	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Relative density	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Solubility(ies)	: pBEn-SBPa	Easily soluble in the following materials: cold water and hot water.
	Streptavidin Resin	Soluble in the following materials: cold water and hot water.
	pBEn-SBPb	Easily soluble in the following materials: cold water and hot water.
	pBEn-SBPc	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Auto-ignition temperature	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Decomposition temperature	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Viscosity	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.

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SECTION 9: Physical and chemical properties

Explosive properties	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.
Oxidising properties	: pBEn-SBPa	Not available.
	Streptavidin Resin	Not available.
	pBEn-SBPb	Not available.
	pBEn-SBPc	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

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

Not available.

Acute toxicity estimates

Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

: pBEn-SBPa	Not available.
Streptavidin Resin	Routes of entry anticipated: Oral, Dermal, Inhalation.
pBEn-SBPb	Not available.
pBEn-SBPc	Not available.

Potential acute health effects

Inhalation	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Ingestion	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Skin contact	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Eye contact	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.

SECTION 11: Toxicological information

Ingestion	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.
Skin contact	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.
Eye contact	: pBEn-SBPa	No specific data.
	Streptavidin Resin	No specific data.
	pBEn-SBPb	No specific data.
	pBEn-SBPc	No specific data.

Delayed and immediate effects as well as 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	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Carcinogenicity	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Mutagenicity	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Teratogenicity	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Developmental effects	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.
Fertility effects	: pBEn-SBPa	No known significant effects or critical hazards.
	Streptavidin Resin	No known significant effects or critical hazards.
	pBEn-SBPb	No known significant effects or critical hazards.
	pBEn-SBPc	No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised 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.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.




Special precautions : 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. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN3316	UN3316	UN3316
14.2 UN proper shipping name	CHEMICAL KIT	CHEMICAL KIT	Chemical kit

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SECTION 14: Transport information

14.3 Transport hazard class(es)	9 	9 	9 
14.4 Packing group	II	II	II
14.5 Environmental hazards	No.	No.	No.

Additional information

Remarks: Excepted Quantity

- ADR/RID** : **Hazard identification number** 90
Limited quantity See SP 251
Special provisions 251, 340
Tunnel code (E)
- IMDG** : **Emergency schedules** F-A, _S-P_
Special provisions 251, 340
- 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
- 14.6 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.

14.7 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 EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles :

pBEn-SBPa	Not applicable.
Streptavidin Resin	Not applicable.
pBEn-SBPb	Not applicable.
pBEn-SBPc	Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

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SECTION 15: Regulatory information

This product is controlled under the Seveso Directive.

Danger criteria

Category

Streptavidin Resin
P5c

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.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Date of issue/Date of revision : 22/02/2018

18/19

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SECTION 16: Other information

Classification	Justification
Streptavidin Resin Flam. Liq. 3, H226	On basis of test data

Full text of abbreviated H statements

Streptavidin Resin H225 H226	Highly flammable liquid and vapour. Flammable liquid and vapour.
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Full text of classifications [CLP/GHS]

Streptavidin Resin Flam. Liq. 2, H225 Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3
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Date of issue/ Date of revision : 22/02/2018

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