

# SAFETY DATA SHEET



MiracleHyb Hybridization Solution, Part Number 201222

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

### 1.1 Product identifier

**Product name** : MiracleHyb Hybridization Solution, Part Number 201222  
**Part no. (chemical kit)** : 201222  
**Part no.** : MiracleHyb Probe 201222-24  
Preparation Buffer  
MiracleHyb Hybridization Solution 201222-14

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

**Material uses** : Analytical reagent.  
 MiracleHyb Probe Preparation Buffer 3 x 1 ml  
MiracleHyb Hybridization Solution 250 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** :  MiracleHyb Probe Mixture  
Preparation Buffer  
MiracleHyb Hybridization Solution Mixture

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

Not classified.

**Ingredients of unknown toxicity** :  MiracleHyb Hybridization Solution  
Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 30 - 60%  
Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%  
Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 30 - 60%

**Ingredients of unknown ecotoxicity** : MiracleHyb Hybridization Solution  
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2%

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

**Date of issue/Date of revision** : 23/11/2018

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**SECTION 2: Hazards identification**

<b>Signal word</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No signal word. No signal word.
<b>Hazard statements</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b><u>Precautionary statements</u></b>		
<b>Prevention</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b>Response</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b>Storage</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b>Disposal</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b>Hazardous ingredients</b>	: MiracleHyb Hybridization Solution	Not applicable.
<b>Supplemental label elements</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Safety data sheet available on request.
<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b><u>Special packaging requirements</u></b>		
<b>Tactile warning of danger</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b>2.3 Other hazards</b>		
<b>Other hazards which do not result in classification</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	None known. None known.

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## SECTION 3: Composition/information on ingredients

**3.1 Substances** : MiracleHyb Probe Preparation Mixture  
Buffer  
MiracleHyb Hybridization Solution Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
<b>MiracleHyb Hybridization Solution</b>				
Dimethyl sulfoxide	EC: 200-664-3 CAS: 67-68-5	≤10	Aquatic Chronic 3, H412	[1]
Lithium chloride	EC: 231-212-3 CAS: 7447-41-8	≤3	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319	[1]
Heparin	EC: 232-681-7 CAS: 9005-49-6	≤3	Acute Tox. 4, H302	[1]
Sodium dodecyl sulphate	EC: 205-788-1 CAS: 151-21-3	≤1.4	Flam. Sol. 2, H228 Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411  <b>See Section 16 for the full text of the H statements declared above.</b>	[1]

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.

### 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

<b>Eye contact</b>	: MiracleHyb Probe Preparation Buffer	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.
	MiracleHyb Hybridization Solution	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.
<b>Inhalation</b>	: MiracleHyb Probe Preparation Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	MiracleHyb Hybridization Solution	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Skin contact</b>	: MiracleHyb Probe Preparation Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	MiracleHyb Hybridization Solution	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

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**SECTION 4: First aid measures**

<b>Ingestion</b>	: MiracleHyb Probe Preparation Buffer	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.
	MiracleHyb Hybridization Solution	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.
<b>Protection of first-aiders</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No action shall be taken involving any personal risk or without suitable training. 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

<b>Eye contact</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Inhalation</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No known significant effects or critical hazards. No known significant effects or critical hazards.

Over-exposure signs/symptoms

<b>Eye contact</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific data. No specific data.
<b>Inhalation</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific data. No specific data.
<b>Skin contact</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific data. No specific data.
<b>Ingestion</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific data. No specific data.

**4.3 Indication of any immediate medical attention and special treatment needed**

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**SECTION 4: First aid measures**

<b>Notes to physician</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	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.
<b>Specific treatments</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific treatment. No specific treatment.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

<b>Suitable extinguishing media</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	None known. None known.

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

<b>Hazards from the substance or mixture</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous combustion products</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific data. Decomposition products may include the following materials:  carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides

**5.3 Advice for firefighters**

<b>Special precautions for fire-fighters</b>	: MiracleHyb Probe Preparation Buffer  MiracleHyb Hybridization Solution	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. 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.
<b>Special protective equipment for fire-fighters</b>	: MiracleHyb Probe Preparation Buffer  MiracleHyb Hybridization Solution	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. 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

<b>For non-emergency personnel</b>	MiracleHyb Probe Preparation Buffer	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.
	MiracleHyb Hybridization Solution	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.
<b>For emergency responders</b>	MiracleHyb Probe Preparation Buffer	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".
	MiracleHyb Hybridization Solution	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

MiracleHyb Probe Preparation Buffer	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).
MiracleHyb Hybridization Solution	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

<b>Methods for cleaning up</b>	MiracleHyb Probe Preparation Buffer	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.
	MiracleHyb Hybridization Solution	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.
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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	MiracleHyb Probe Preparation Buffer	Put on appropriate personal protective equipment (see Section 8).
	MiracleHyb Hybridization Solution	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	MiracleHyb Probe Preparation Buffer	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.
	MiracleHyb Hybridization Solution	Eating, drinking and smoking should be prohibited in areas



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## SECTION 7: Handling and storage

Solution	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.
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### 7.2 Conditions for safe storage, including any incompatibilities

<b>Storage</b>	:	MiracleHyb Probe Preparation Buffer	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.
		MiracleHyb Hybridization Solution	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.

### 7.3 Specific end use(s)

<b>Recommendations</b>	:	MiracleHyb Probe Preparation Buffer	Industrial applications, Professional applications.
		MiracleHyb Hybridization Solution	Industrial applications, Professional applications.
<b>Industrial sector specific solutions</b>	:	MiracleHyb Probe Preparation Buffer	Not applicable.
		MiracleHyb Hybridization Solution	Not applicable.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

No exposure limit value known.

<b>Recommended monitoring procedures</b>	:	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.

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## SECTION 8: Exposure controls/personal protection

### PNECs

No PNECs available

### 8.2 Exposure controls

**Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

### 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: 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.

**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.

**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

<b>Physical state</b>	: MiracleHyb Probe Preparation Buffer	Liquid.
	MiracleHyb Hybridization Solution	Liquid.
<b>Colour</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Odour</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Odour threshold</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.



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**SECTION 9: Physical and chemical properties**

<b>pH</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	5.5
<b>Melting point/freezing point</b>	: MiracleHyb Probe Preparation Buffer	0°C
	MiracleHyb Hybridization Solution	Not available.
<b>Initial boiling point and boiling range</b>	: MiracleHyb Probe Preparation Buffer	100°C
	MiracleHyb Hybridization Solution	Not available.
<b>Flash point</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Evaporation rate</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Flammability (solid, gas)</b>	: MiracleHyb Probe Preparation Buffer	Not applicable.
	MiracleHyb Hybridization Solution	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Vapour pressure</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Vapour density</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Relative density</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Solubility(ies)</b>	: MiracleHyb Probe Preparation Buffer	Easily soluble in the following materials: cold water and hot water.
	MiracleHyb Hybridization Solution	Soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Auto-ignition temperature</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Decomposition temperature</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.

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**SECTION 9: Physical and chemical properties**

<b>Viscosity</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Explosive properties</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.
<b>Oxidising properties</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	MiracleHyb Hybridization Solution	Not available.

**9.2 Other information**

No additional information.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	: MiracleHyb Probe Preparation Buffer	No specific test data related to reactivity available for this product or its ingredients.
	MiracleHyb Hybridization Solution	No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: MiracleHyb Probe Preparation Buffer	The product is stable.
	MiracleHyb Hybridization Solution	The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: MiracleHyb Probe Preparation Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	MiracleHyb Hybridization Solution	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: MiracleHyb Probe Preparation Buffer	No specific data.
	MiracleHyb Hybridization Solution	No specific data.
<b>10.5 Incompatible materials</b>	: MiracleHyb Probe Preparation Buffer	May react or be incompatible with oxidising materials.
	MiracleHyb Hybridization Solution	May react or be incompatible with oxidising materials.
<b>10.6 Hazardous decomposition products</b>	: MiracleHyb Probe Preparation Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	MiracleHyb Hybridization Solution	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

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**SECTION 11: Toxicological information**

Product/ingredient name	Result	Species	Dose	Exposure
<b>MiracleHyb Hybridization Solution</b>				
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Lithium chloride	LC50 Inhalation Dusts and mists	Rat	>5.57 mg/l	4 hours
	LD50 Dermal	Rabbit	1629 mg/kg	-
	LD50 Dermal	Rat	1488 mg/kg	-
	LD50 Oral	Rat	526 mg/kg	-
Heparin	LD50 Oral	Rat	1950 mg/kg	-
Sodium dodecyl sulphate	LD50 Oral	Rat	1288 mg/kg	-

**Acute toxicity estimates**

Route	ATE value
<b>MiracleHyb Hybridization Solution</b>	
Oral	11144.5 mg/kg
Dermal	43517 mg/kg
Inhalation (dusts and mists)	150 mg/l

**Irritation/Corrosion**

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>MiracleHyb Hybridization Solution</b>					
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-
Lithium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 Micrograms	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Guinea pig	-	24 hours 25 milligrams	-
	Skin - Moderate irritant	Mouse	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 milligrams	-

**Sensitiser**

**Conclusion/Summary** : Not available.

**Mutagenicity**

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

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## SECTION 11: Toxicological information

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
MiracleHyb Hybridization Solution Sodium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on likely routes of exposure** :  
 : MiracleHyb Probe Preparation Buffer Not available.  
 : MiracleHyb Hybridization Solution Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

**Inhalation** :  
 : MiracleHyb Probe Preparation Buffer No known significant effects or critical hazards.  
 : MiracleHyb Hybridization Solution No known significant effects or critical hazards.

**Ingestion** :  
 : MiracleHyb Probe Preparation Buffer No known significant effects or critical hazards.  
 : MiracleHyb Hybridization Solution No known significant effects or critical hazards.

**Skin contact** :  
 : MiracleHyb Probe Preparation Buffer No known significant effects or critical hazards.  
 : MiracleHyb Hybridization Solution No known significant effects or critical hazards.

**Eye contact** :  
 : MiracleHyb Probe Preparation Buffer No known significant effects or critical hazards.  
 : MiracleHyb Hybridization Solution No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Inhalation** :  
 : MiracleHyb Probe Preparation Buffer No specific data.  
 : MiracleHyb Hybridization Solution No specific data.

**Ingestion** :  
 : MiracleHyb Probe Preparation Buffer No specific data.  
 : MiracleHyb Hybridization Solution No specific data.

**Skin contact** :  
 : MiracleHyb Probe Preparation Buffer No specific data.  
 : MiracleHyb Hybridization Solution No specific data.

**Eye contact** :  
 : MiracleHyb Probe Preparation Buffer No specific data.  
 : MiracleHyb Hybridization Solution No specific data.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

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## SECTION 11: Toxicological information

**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

<b>General</b>	: MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Mutagenicity</b>	: MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Teratogenicity</b>	: MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Developmental effects</b>	: MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Fertility effects</b>	: MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
MiracleHyb Hybridization Solution	Acute EC50 18299 µg/l Marine water	Algae - Nitzschia pungens	96 hours
	Acute LC50 37.437 mg/l Marine water	Crustaceans - Artemia sp.	48 hours
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Lithium chloride	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 3323 µg/l Marine water	Algae - Nitzschia pungens	96 hours
	Acute EC50 112 mg/l Fresh water	Algae	72 hours
	Acute EC50 249 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 17000 µg/l Fresh water	Fish - Ptychocheilus lucius - Swim-up	96 hours
Sodium dodecyl sulphate	Acute NOEC 25 mg/l Fresh water	Algae	72 hours
	Acute NOEC 63.4 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 59.4 mg/l Fresh water	Fish	96 hours
	Acute EC50 1200 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 900 µg/l Marine water	Crustaceans - Artemia salina - Adult	48 hours

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**SECTION 12: Ecological information**

	Acute LC50 1400 µg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - Cirrhinus mrigala - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Chronic NOEC 1 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	21 days
	Chronic NOEC 3.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC >1357 µg/l Fresh water	Fish - Pimephales promelas	42 days

**12.2 Persistence and degradability**

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
MiracleHyb Hybridization Solution Lithium chloride	-	-	Readily

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
MiracleHyb Hybridization Solution Dimethyl sulfoxide	-1.35	3.16	low
Sodium dodecyl sulphate	-2.03	-	low

**12.4 Mobility in soil**

Soil/water partition coefficient (K<sub>oc</sub>) : 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** : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

**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.



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## SECTION 13: Disposal considerations

**Special precautions** : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

**ADR/RID / IMDG / IATA** : Not regulated.

**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.

<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	<b>MiracleHyb Probe</b>	Not applicable.
	<b>Preparation Buffer</b>	
	<b>MiracleHyb Hybridization Solution</b>	Not applicable.

#### Other EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Listed

#### Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

#### Seveso Directive

This product is not controlled under the Seveso Directive.

#### 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.

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## SECTION 15: Regulatory information

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

<b>Australia</b>	: All components are listed or exempted.
<b>Canada</b>	: All components are listed or exempted.
<b>China</b>	: Not determined.
<b>Europe</b>	: All components are listed or exempted.
<b>Japan</b>	: <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: All components are listed or exempted.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Thailand</b>	: <input checked="" type="checkbox"/> Not determined.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: Not determined.
<b>Viet Nam</b>	: <input checked="" type="checkbox"/> 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]

Classification	Justification
<input checked="" type="checkbox"/> Not classified.	

### Full text of abbreviated H statements

<input checked="" type="checkbox"/> <b>MiracleHyb Hybridization Solution</b> H228 H302 H312 H315 H318 H319 H332 H335 H400 H411 H412	Flammable solid. Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye damage. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects.
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### Full text of classifications [CLP/GHS]

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## SECTION 16: Other information

### MiracleHyb Hybridization Solution

Acute Tox. 4, H302

Acute Tox. 4, H312

Acute Tox. 4, H332

Aquatic Acute 1, H400

Aquatic Chronic 2, H411

Aquatic Chronic 3, H412

Eye Dam. 1, H318

Eye Irrit. 2, H319

Flam. Sol. 2, H228

Skin Irrit. 2, H315

STOT SE 3, H335

ACUTE TOXICITY (oral) - Category 4

ACUTE TOXICITY (dermal) - Category 4

ACUTE TOXICITY (inhalation) - Category 4

SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1

LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2

LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2

FLAMMABLE SOLIDS - Category 2

SKIN CORROSION/IRRITATION - Category 2

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE  
(Respiratory tract irritation) - Category 3

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### Notice to reader

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