

# SAFETY DATA SHEET

MiracleHyb Hybridization Solution, Part Number 201222

## Section 1. Identification

### 1.1 Product identifier

**Product name** : MiracleHyb Hybridization Solution, Part Number 201222  
**Part no. (chemical kit)** : 201222  
**Part no.** : MiracleHyb Probe Preparation Buffer 201222-24  
 MiracleHyb Hybridization Solution 201222-14  
**Validation date** : 11/23/2018

### 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

**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** :  MiracleHyb Probe Preparation Buffer  
 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.  
 MiracleHyb Hybridization Solution  
 This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

#### MiracleHyb Hybridization Solution

H319 EYE IRRITATION - Category 2A  
 H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (cardiovascular system, central nervous system (CNS), kidneys, thyroid) - Category 2  
 H402 AQUATIC HAZARD (ACUTE) - Category 3

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

## Section 2. Hazards identification

### 2.2 GHS label elements

<b>Hazard pictograms</b>	: MiracleHyb Hybridization Solution	
<b>Signal word</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No signal word. Warning
<b>Hazard statements</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No known significant effects or critical hazards.  H319 - Causes serious eye irritation. H373 - May cause damage to organs through prolonged or repeated exposure. (cardiovascular system, central nervous system (CNS), kidneys, thyroid) H402 - Harmful to aquatic life.
<b>Precautionary statements</b>		
<b>Prevention</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable.  P280 - Wear eye or face protection. P273 - Avoid release to the environment. P260 - Do not breathe vapor. P264 - Wash hands thoroughly after handling.
<b>Response</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable.  P314 - Get medical attention if you feel unwell. 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.
<b>Storage</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. Not applicable.
<b>Disposal</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Supplemental label elements</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	None known. None known.
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	None known. None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : MiracleHyb Probe Preparation Buffer Mixture  
MiracleHyb Hybridization Solution Mixture

Ingredient name	%	CAS number
<b>MiracleHyb Hybridization Solution</b>		
Dimethyl sulfoxide	≤10	67-68-5
Lithium chloride	≤3	7447-41-8
Heparin	≤3	9005-49-6
Sodium dodecyl sulphate	≤1.4	151-21-3

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

<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. Continue to rinse for at least 10 minutes. Get medical attention.
<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. 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 following exposure or if feeling unwell. 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.
<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. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. Wash clothing before reuse. Clean shoes thoroughly before reuse.

## 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 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 following exposure or if feeling unwell. 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.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

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

#### Over-exposure signs/symptoms

<b>Eye contact</b>	: MiracleHyb Probe Preparation Buffer	No specific data.
	MiracleHyb Hybridization Solution	Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: MiracleHyb Probe Preparation Buffer	No specific data.
	MiracleHyb Hybridization Solution	No specific data.
<b>Skin contact</b>	: MiracleHyb Probe Preparation Buffer	No specific data.
	MiracleHyb Hybridization Solution	No specific data.
<b>Ingestion</b>	: MiracleHyb Probe Preparation Buffer	No specific data.
	MiracleHyb Hybridization Solution	No specific data.

## Section 4. First aid measures

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

<b>Notes to physician</b>	: MiracleHyb Probe Preparation Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	MiracleHyb Hybridization Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: MiracleHyb Probe Preparation Buffer	No specific treatment.
	MiracleHyb Hybridization Solution	No specific treatment.
<b>Protection of first-aiders</b>	: MiracleHyb Probe Preparation Buffer	No action shall be taken involving any personal risk or without suitable training.
	MiracleHyb Hybridization Solution	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.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

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

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

<b>Specific hazards arising from the chemical</b>	: <input checked="" type="checkbox"/> MiracleHyb Probe Preparation Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	MiracleHyb Hybridization Solution	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
<b>Hazardous thermal decomposition products</b>	: MiracleHyb Probe Preparation Buffer	No specific data.
	MiracleHyb Hybridization Solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides

### 5.3 Advice for firefighters

## Section 5. Fire-fighting measures

<b>Special protective actions for fire-fighters</b>	MiracleHyb Probe Preparation Buffer	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.
	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.
<b>Special protective equipment for fire-fighters</b>	MiracleHyb Probe Preparation Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	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.

## 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 spilled 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	MiracleHyb Probe Preparation Buffer	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".
	MiracleHyb Hybridization Solution	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

	MiracleHyb Probe Preparation Buffer	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).
	MiracleHyb Hybridization Solution	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). Water polluting material. May be harmful to the environment if released in large quantities.


## Section 6. Accidental release measures

### 6.3 Methods and materials 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.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	:  MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	: MiracleHyb Probe Preparation Buffer  MiracleHyb Hybridization Solution	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. 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

:  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 unlabeled 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

## Section 7. Handling and storage

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)

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

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>MiracleHyb Hybridization Solution</b> Dimethyl sulfoxide  Lithium chloride Heparin Sodium dodecyl sulphate	<b>AIHA WEEL (United States, 5/2018).</b> TWA: 250 ppm 8 hours. None. None. None.

### 8.2 Exposure controls

**Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**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: safety glasses with side-shields.

#### Skin protection



## Section 8. Exposure controls/personal 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

<b>Physical state</b>	: MiracleHyb Probe Preparation Buffer	Liquid.
	: MiracleHyb Hybridization Solution	Liquid.
<b>Color</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	: MiracleHyb Hybridization Solution	Not available.
<b>Odor</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	: MiracleHyb Hybridization Solution	Not available.
<b>Odor threshold</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	: MiracleHyb Hybridization Solution	Not available.
<b>pH</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	: MiracleHyb Hybridization Solution	5.5
<b>Melting point</b>	: MiracleHyb Probe Preparation Buffer	0°C (32°F)
	: MiracleHyb Hybridization Solution	Not available.
<b>Boiling point</b>	: MiracleHyb Probe Preparation Buffer	100°C (212°F)
	: 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>Lower and upper explosive (flammable) limits</b>	: MiracleHyb Probe Preparation Buffer	Not available.
	: MiracleHyb Hybridization Solution	Not available.

## Section 9. Physical and chemical properties

<b>Vapor pressure</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.
<b>Vapor density</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.
<b>Relative density</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.
<b>Solubility</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.
<b>Auto-ignition temperature</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.
<b>Decomposition temperature</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.
<b>Viscosity</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Not available. Not available.

## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	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.
<b>10.2 Chemical stability</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	The product is stable. The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	No specific data. No specific data.
<b>10.5 Incompatible materials</b>	: MiracleHyb Probe Preparation Buffer MiracleHyb Hybridization Solution	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.

## Section 10. Stability and reactivity

<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

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	-

#### 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	-

#### Sensitization

Not available.

#### Mutagenicity

## Section 11. Toxicological information

**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)

Name	Category	Route of exposure	Target organs
<b>MiracleHyb Hybridization Solution</b> Lithium chloride	Category 3	Not applicable.	Respiratory tract irritation
Sodium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
<b>MiracleHyb Hybridization Solution</b> Lithium chloride	Category 2	Not determined	cardiovascular system, central nervous system (CNS), kidneys and thyroid

### Aspiration hazard

Not available.

### Information on the likely routes of exposure

MiracleHyb Probe Preparation Buffer : Not available.  
MiracleHyb Hybridization Solution : Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

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

**Inhalation** :  
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.

**Ingestion** :  
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

## Section 11. Toxicological information

<b>Eye contact</b>	: MiracleHyb Probe Preparation	No specific data.
	Buffer	
	MiracleHyb Hybridization Solution	Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: MiracleHyb Probe Preparation	No specific data.
	Buffer	
	MiracleHyb Hybridization Solution	No specific data.
<b>Skin contact</b>	: MiracleHyb Probe Preparation	No specific data.
	Buffer	
	MiracleHyb Hybridization Solution	No specific data.
<b>Ingestion</b>	: MiracleHyb Probe Preparation	No specific data.
	Buffer	
	MiracleHyb Hybridization Solution	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

<b>General</b>	: MiracleHyb Probe Preparation	No known significant effects or critical hazards.
	Buffer	
	MiracleHyb Hybridization Solution	May cause damage to organs through prolonged or repeated exposure.
<b>Carcinogenicity</b>	: MiracleHyb Probe Preparation	No known significant effects or critical hazards.
	Buffer	
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Mutagenicity</b>	: MiracleHyb Probe Preparation	No known significant effects or critical hazards.
	Buffer	
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Teratogenicity</b>	: MiracleHyb Probe Preparation	No known significant effects or critical hazards.
	Buffer	
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Developmental effects</b>	: MiracleHyb Probe Preparation	No known significant effects or critical hazards.
	Buffer	
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.
<b>Fertility effects</b>	: MiracleHyb Probe Preparation	No known significant effects or critical hazards.
	Buffer	
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

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

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>MiracleHyb Hybridization Solution</b>			
Dimethyl sulfoxide	Acute EC50 18299 µg/l Marine water Acute LC50 37.437 mg/l Marine water Acute LC50 25000 ppm Fresh water	Algae - Nitzschia pungens Crustaceans - Artemia sp. Daphnia - Daphnia magna - Neonate	96 hours 48 hours 48 hours
Lithium chloride	Acute LC50 34000000 µg/l Fresh water Chronic NOEC 3323 µg/l Marine water Acute EC50 112 mg/l Fresh water Acute EC50 249 mg/l Fresh water Acute LC50 17000 µg/l Fresh water	Fish - Pimephales promelas Algae - Nitzschia pungens Algae Daphnia Fish - Ptychocheilus lucius - Swim-up	96 hours 96 hours 72 hours 48 hours 96 hours
Sodium dodecyl sulphate	Acute NOEC 25 mg/l Fresh water Acute NOEC 63.4 mg/l Fresh water Acute NOEC 59.4 mg/l Fresh water Acute EC50 1200 µg/l Marine water Acute LC50 900 µg/l Marine water  Acute LC50 1400 µg/l Fresh water  Acute LC50 590 µg/l Fresh water Chronic NOEC 1.25 mg/l Marine water Chronic NOEC 1 mg/l Fresh water  Chronic NOEC 3.2 mg/l Fresh water  Chronic NOEC >1357 µg/l Fresh water	Algae - Skeletonema costatum Crustaceans - Artemia salina - Adult Daphnia - Daphnia pulex - Neonate Fish - Cirrhinus mrigala - Larvae Algae - Ulva fasciata - Zoea Crustaceans - Pseudosida ramosa - Neonate Daphnia - Daphnia magna - Neonate Fish - Pimephales promelas	96 hours 48 hours 96 hours 96 hours 48 hours  48 hours  96 hours 96 hours 21 days  21 days  42 days

### 12.2 Persistence and degradability

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

### 12.3 Bioaccumulative potential

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

## Section 12. Ecological information

### 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 / TDG / Mexico / IMDG / IATA : Not regulated.

**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: Edetic acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

## Section 15. Regulatory information

**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** : **MiracleHyb Probe Preparation Buffer** Not applicable.  
**MiracleHyb Hybridization Solution** EYE IRRITATION - Category 2A  
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (cardiovascular system, central nervous system (CNS), kidneys, thyroid) - Category 2

#### Composition/information on ingredients

Name	%	Classification
<b>MiracleHyb Hybridization Solution</b>		
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2A
Lithium chloride	≤3	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (cardiovascular system, central nervous system (CNS), kidneys, thyroid) - Category 2
Heparin	≤3	ACUTE TOXICITY (oral) - Category 4
Sodium dodecyl sulphate	≤1.4	FLAMMABLE SOLIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: DIMETHYL SULFOXIDE; METHANE, SULFINYLBIS-

**Pennsylvania** : None of the components are listed.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.



## Section 15. Regulatory information

### [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](#)

<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.

## Section 16. Other information

### [History](#)

<b>Date of issue</b>	: 11/23/2018
<b>Date of previous issue</b>	: 10/19/2016
<b>Version</b>	: 5

### [Procedure used to derive the classification](#)

Classification	Justification
<input checked="" type="checkbox"/> <b>MiracleHyb Hybridization Solution</b> EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (cardiovascular system, central nervous system (CNS), kidneys, thyroid) - Category 2 AQUATIC HAZARD (ACUTE) - Category 3	Calculation method Calculation method Calculation method

Indicates information that has changed from previously issued version.

### [Notice to reader](#)

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