







## Section 2. Hazards identification

<b>Hazard statements</b>	:  MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	H319 - Causes serious eye irritation.
<b>Precautionary statements</b>		
<b>Prevention</b>	:  MiracleHyb Probe Preparation Buffer	Not applicable.
	MiracleHyb Hybridization Solution	P280 - Wear eye or face protection.
<b>Response</b>	:  MiracleHyb Probe Preparation Buffer	Not applicable.
	MiracleHyb Hybridization Solution	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 advice or attention.
<b>Storage</b>	: MiracleHyb Probe Preparation Buffer	Not applicable.
	MiracleHyb Hybridization Solution	Not applicable.
<b>Disposal</b>	:  MiracleHyb Probe Preparation Buffer	Not applicable.
	MiracleHyb Hybridization Solution	Not applicable.
<b>Supplemental label elements</b>	: MiracleHyb Probe Preparation Buffer	None known.
	MiracleHyb Hybridization Solution	None known.
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	: MiracleHyb Probe Preparation Buffer	None known.
	MiracleHyb Hybridization Solution	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: 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	≤2.2	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 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 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.
<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. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	:  MiracleHyb Probe Preparation Buffer	Wash out mouth with water. 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. 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.

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

#### Potential acute health effects

## Section 4. First aid measures

<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.

### 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 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>Specific hazards arising from the chemical</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 thermal decomposition 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 protective actions 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. 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  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. Put on appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate
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## Section 6. Accidental release measures

**For emergency responders :** MiracleHyb Probe Preparation Buffer

MiracleHyb Hybridization Solution

ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions :** MiracleHyb Probe Preparation Buffer

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).

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

### 6.3 Methods and materials for containment and cleaning up

**Methods for cleaning up :** MiracleHyb Probe Preparation Buffer


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.

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

**Protective measures :**  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 ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. 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.

**Advice on general occupational hygiene :** 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

## Section 7. Handling and storage

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 and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

#### Recommendations

: MiracleHyb Probe Preparation Buffer  
MiracleHyb Hybridization Solution

Industrial applications, Professional applications.

Industrial applications, Professional applications.

#### Industrial sector specific solutions

: MiracleHyb Probe Preparation Buffer  
MiracleHyb Hybridization Solution

Not available.

Not available.

## 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>OARS WEEL (United States, 4/2022).</b> TWA: 250 ppm 8 hours. None. None. None.

#### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls



## Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: 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.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.


### 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/freezing point</b> | MiracleHyb Probe Preparation Buffer | 0°C (32°F)     |
|                                     | MiracleHyb Hybridization Solution   | Not available. |



## Section 9. Physical and chemical properties and safety characteristics



**Boiling point, initial boiling point, and boiling range** : MiracleHyb Probe Preparation 100°C (212°F)  
Buffer  
MiracleHyb Hybridization Solution Not available.

Flash point	Ingredient name	Closed cup			Open cup		
		°C	°F	Method	°C	°F	Method
	 <b>MiracleHyb Hybridization Solution</b>						
	Dimethyl sulfoxide	87	188.6	ASTM D 93	87	188.6	-
	Sodium dodecyl sulphate	170	338	-	-	-	-

**Evaporation rate** : MiracleHyb Probe Preparation Not available.  
Buffer  
MiracleHyb Hybridization Solution Not available.



**Flammability** : MiracleHyb Probe Preparation Not applicable.  
Buffer  
MiracleHyb Hybridization Solution Not applicable.


**Lower and upper explosion limit/flammability limit** : MiracleHyb Probe Preparation Not available.  
Buffer  
MiracleHyb Hybridization Solution Not available.

Vapor pressure	Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	 <b>MiracleHyb Probe Preparation Buffer</b>						
	water	17.5	2.3	-	92.258	12.3	-
	 <b>MiracleHyb Hybridization Solution</b>						
	water	17.5	2.3	-	92.258	12.3	-

**Relative vapor density** : MiracleHyb Probe Preparation Not available.  
Buffer  
MiracleHyb Hybridization Solution Not available.

**Relative density** : MiracleHyb Probe Preparation Not available.  
Buffer  
MiracleHyb Hybridization Solution Not available.

Solubility(ies)	Media		Result
	 <b>MiracleHyb Probe Preparation Buffer</b>		
	water		Soluble
	 <b>MiracleHyb Hybridization Solution</b>		
	water		Soluble

**Partition coefficient: n-octanol/water** :  MiracleHyb Probe Preparation Not applicable.  
Buffer  
MiracleHyb Hybridization Solution Not applicable.

**Auto-ignition temperature** :

## Section 9. Physical and chemical properties and safety characteristics

	Ingredient name	°C	°F	Method
	MiracleHyb Hybridization Solution			
	Dimethyl sulfoxide	300 to 302	572 to 575.6	-
	Sodium dodecyl sulphate	310.5	590.9	VDI 2263
Decomposition temperature	: MiracleHyb Probe Preparation Buffer	Not available.		
	MiracleHyb Hybridization Solution	Not available.		
Viscosity	: MiracleHyb Probe Preparation Buffer	Not available.		
	MiracleHyb Hybridization Solution	Not available.		
<u>Particle characteristics</u>				
Median particle size	: MiracleHyb Probe Preparation Buffer	Not applicable.		
	MiracleHyb Hybridization Solution	Not applicable.		

## 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 oxidizing materials.
	MiracleHyb Hybridization Solution	May react or be incompatible with oxidizing 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

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 - Male, Female	>5.57 mg/l	4 hours
	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	-	100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Lithium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 mg	-
Sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 ug	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Skin - Mild irritant	Guinea pig	-	24 hours 25 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 mg	-
	Skin - Moderate irritant	Mouse	-	24 hours 25 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 mg	-

#### Sensitization

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)

## Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
<b>MiracleHyb Hybridization Solution</b> Sodium dodecyl sulphate	Category 3	-	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### 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, Eyes.

### 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

- Eye contact** : MiracleHyb Probe Preparation Buffer No specific data.  
MiracleHyb Hybridization Solution Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : 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.
- Ingestion** : MiracleHyb Probe Preparation Buffer No specific data.  
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

## Section 11. Toxicological information

**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>Reproductive toxicity</b>	MiracleHyb Probe Preparation Buffer	No known significant effects or critical hazards.
	MiracleHyb Hybridization Solution	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
<b>MiracleHyb Hybridization Solution</b>					
MiracleHyb Hybridization Solution	11144.5	N/A	N/A	N/A	150.0
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
Lithium chloride	526	N/A	N/A	N/A	N/A
Heparin	1950	N/A	N/A	N/A	N/A
Sodium dodecyl sulphate	1288	N/A	N/A	N/A	1.5

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>MiracleHyb Hybridization Solution</b>			
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - <i>Ulva lactuca</i>	72 hours
	Chronic NOEC 100 µl/L Fresh water	Daphnia - <i>Daphnia magna</i> - Juvenile (Fledgling, Hatchling, Weanling)	21 days
Lithium chloride	Acute EC50 112 mg/l Fresh water	Algae - <i>Desmodesmus subspicatus</i>	72 hours
	Acute EC50 249 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute NOEC 25 mg/l Fresh water	Algae - <i>Desmodesmus subspicatus</i>	72 hours
Sodium dodecyl sulphate	Acute NOEC 63.4 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute NOEC 59.4 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
	Acute EC50 1200 µg/l Marine water	Algae - <i>Skeletonema costatum</i>	96 hours
	Acute LC50 900 µg/l Marine water	Crustaceans - <i>Artemia salina</i> - Adult	48 hours

## Section 12. Ecological information

	Acute LC50 1400 µg/l Fresh water	Daphnia - <i>Daphnia pulex</i> - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - <i>Cirrhinus mrigala</i> - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water	Algae - <i>Ulva fasciata</i> - Zoea	96 hours
	Chronic NOEC 1 mg/l Fresh water	Crustaceans - <i>Pseudosida ramosa</i> - Neonate	21 days
	Chronic NOEC 3.2 mg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	21 days
	Chronic NOEC 0.8 mg/l Fresh water	Fish - <i>Gambusia holbrooki</i>	28 days

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<b>MiracleHyb Hybridization Solution</b> Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
Sodium dodecyl sulphate	OECD 301B Ready Biodegradability - CO <sub>2</sub> Evolution Test	95 % - Readily - 28 days	20 mg/l	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>MiracleHyb Hybridization Solution</b> Dimethyl sulfoxide	-	-	Not readily
Lithium chloride	-	-	Readily
Sodium dodecyl sulphate	-	-	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

### 12.4 Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

## Section 13. Disposal considerations

**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. 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 IMO instruments** : 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

**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.



## Section 15. Regulatory information

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : MiracleHyb Probe Preparation Buffer Not applicable.  
MiracleHyb Hybridization Solution EYE IRRITATION - Category 2A

### Composition/information on ingredients

Name	%	Classification
<b>MiracleHyb Hybridization Solution</b>		
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
Lithium chloride	≤3	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A
Heparin	≤3	ACUTE TOXICITY (oral) - Category 4
Sodium dodecyl sulphate	≤2.2	FLAMMABLE SOLIDS - Category 2 COMBUSTIBLE DUSTS 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, SULFINYLBI-  
**Pennsylvania** : None of the components are listed.  
**California Prop. 65**

This product does not require a Safe Harbor warning under California Prop. 65.

### International regulations

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

Not listed.

#### Montreal Protocol

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** : Not determined.  
**Japan** : **Japan inventory (CSCL)**: Not determined.  
**Japan inventory (ISHL)**: Not determined.  
**New Zealand** : All components are listed or exempted.  
**Philippines** : Not determined.

## Section 15. Regulatory information

<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Thailand</b>	: Not determined.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: Not determined.
<b>Viet Nam</b>	: <input checked="" type="checkbox"/> All components are listed or exempted.

## Section 16. Other information

### Procedure used to derive the classification

Classification	Justification
<b>MiracleHyb Hybridization Solution</b> EYE IRRITATION - Category 2A	Calculation method

### History

<b>Date of issue/Date of revision</b>	: 02/16/2024
<b>Date of previous issue</b>	: 03/26/2021
<b>Version</b>	: 7

<b>Key to abbreviations</b>	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available UN = United Nations
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☒ Indicates information that has changed from previously issued version.

### Notice to reader

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