



**Pwo SuperYield DNA Polymerase - 500 U**

Version 3.1                      Revision Date: 02-06-2021                      Date of last issue: 09-26-2019  
Date of first issue: 09-25-2015

**SECTION 1. IDENTIFICATION**

Product name                      : Pwo SuperYield DNA Polymerase - 500 U  
Product code                      : 04340850001

**Manufacturer or supplier's details**

Company name of supplier      : Roche Diagnostics Deutschland GmbH

Address                              : 116 Sandhoferstrasse  
Mannheim, 68305  
Germany

Telephone                          : +496217590  
Telefax                              : +496217592890  
E-mail address                    : mannheim.umweltschutz@roche.com  
Emergency telephone  
In case of emergencies:      : CHEMTREC                              +1 703-741-5970 /  
1-800-424-9300

**Recommended use of the chemical and restrictions on use**

Restrictions on use              : For professional users only.

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**SECTION 2. HAZARDS IDENTIFICATION**

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

The product is a kit consisting of individual ingredients. The classification of the ingredients can be obtained from section 3. Section GHS Label elements contains the resulting labelling for the kit

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards**

None known.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

***Pwo SuperYield, DNA Polymerase***

**GHS Classification**

Not a hazardous substance or mixture.

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
glycerol	56-81-5	>= 50 - < 70

Actual concentration is withheld as a trade secret

***Pwo SuperYield, PCR Buffer 10x***



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**GHS Classification**

Not a hazardous substance or mixture.

**Components**

No hazardous ingredients

**GC-RICH solution, 5x conc.**

**GHS Classification**

Not a hazardous substance or mixture.

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Methane, 1,1'-sulfinylbis-	67-68-5	>= 20 - < 30

Actual concentration is withheld as a trade secret

**SECTION 4. FIRST AID MEASURES**

- General advice : Do not leave the victim unattended.
- If inhaled : Move to fresh air.  
If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
- In case of skin contact : If on skin, rinse well with water.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
Remove contact lenses.  
Protect unharmed eye.  
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.  
Rinse mouth with water.
- Most important symptoms and effects, both acute and delayed : No information available.
- Notes to physician : The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.



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- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent product from entering drains.
- Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece). Keep in suitable, closed containers for disposal.

**SECTION 7. HANDLING AND STORAGE**

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.
- Conditions for safe storage : Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.
- Further information on storage conditions : See label, package insert or internal guidelines
- Materials to avoid : No materials to be especially mentioned.
- Further information on storage stability : No decomposition if stored and applied as directed.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

***Pwo SuperYield, DNA Polymerase***

**Ingredients with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
glycerol	56-81-5	TWA (mist, respirable fraction)	5 mg/m3	OSHA Z-1



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		TWA (mist, total dust)	15 mg/m3	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m3	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m3	OSHA P0

**Pwo SuperYield, PCR Buffer 10x**

**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

**GC-RICH solution, 5x conc.**

**Ingredients with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methane, 1,1'-sulfinylbis-	67-68-5	TWA	250 ppm	US WEEL

**Engineering measures** : No data available

**Personal protective equipment**

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

In case of contact through splashing:

- Material : Nitrile rubber
- Break through time : > 30 min
- Glove thickness : > 0.11 mm

In case of full contact:

- Material : butyl-rubber
- Break through time : > 480 min
- Glove thickness : > 0.4 mm

Remarks : Wear appropriate protective gloves to prevent skin contact. Replace torn or punctured gloves promptly.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Pwo SuperYield, DNA Polymerase**

Appearance : liquid

Color : clear, colorless

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Odor : none

Odor Threshold : No data available

pH : 8.0 (39 °F / 4 °C)

Melting point/range : No data available

Boiling point/boiling range : No data available

Flash point : does not flash

Evaporation rate : No data available

Flammability (liquids) : Does not sustain combustion.  
The product is not flammable.

Self-ignition : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : No data available

Density : 1.16 g/cm<sup>3</sup>

Solubility(ies)  
Water solubility : completely miscible

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity  
Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : The substance or mixture is not classified as oxidizing.



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***Pwo SuperYield, PCR Buffer 10x***

- Appearance : liquid
  
- Color : clear, colorless
  
- Odor : none
  
- Odor Threshold : No data available
  
- pH : 8.4 - 8.6 (77 °F / 25 °C)
  
- Melting point/range : No data available
  
- Boiling point/boiling range : No data available
  
  
- Flash point : No data available
  
- Evaporation rate : No data available
  
- Flammability (liquids) : Does not sustain combustion.  
The product is not flammable.
  
- Self-ignition : No data available
  
- Upper explosion limit / Upper flammability limit : No data available
  
- Lower explosion limit / Lower flammability limit : No data available
  
- Vapor pressure : No data available
  
- Relative vapor density : No data available
  
- Relative density : No data available
  
- Solubility(ies)
  - Water solubility : completely miscible
  
  - Solubility in other solvents : No data available
  
- Partition coefficient: n-octanol/water : No data available
  
- Autoignition temperature : No data available
  
- Decomposition temperature : No data available

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Viscosity  
Viscosity, dynamic : No data available  
Viscosity, kinematic : No data available  
Explosive properties : Not explosive  
Oxidizing properties : The substance or mixture is not classified as oxidizing.

### ***GC-RICH solution, 5x conc.***

Appearance : liquid  
Color : clear, colorless  
Odor : none  
Odor Threshold : No data available  
pH : No data available  
Melting point/range : No data available  
Boiling point/boiling range : No data available  
Flash point : No data available  
Evaporation rate : No data available  
Flammability (liquids) : Does not sustain combustion.  
The product is not flammable.  
Self-ignition : No data available  
Upper explosion limit / Upper flammability limit : No data available  
Lower explosion limit / Lower flammability limit : No data available  
Vapor pressure : No data available  
Relative vapor density : No data available  
Relative density : No data available  
Density : 1.02 g/cm<sup>3</sup>  
Solubility(ies)



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- Water solubility : completely miscible
- Solubility in other solvents : No data available
- Partition coefficient: n-octanol/water : No data available
- Autoignition temperature : No data available
- Decomposition temperature : No data available
- Viscosity
  - Viscosity, dynamic : No data available
  - Viscosity, kinematic : No data available
- Explosive properties : Not explosive
- Oxidizing properties : The substance or mixture is not classified as oxidizing.

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**SECTION 10. STABILITY AND REACTIVITY**

- Reactivity : No dangerous reaction known under conditions of normal use.
- Chemical stability : Stable under normal conditions.
- Possibility of hazardous reactions : Reacts with the following substances:
  - Alkali metals
  - Oxidizing agents
  - Nitriles
  - Acid chlorides
  - Acid anhydrides
  - Sulfur compounds
  - Phosphorus compoundsStable under recommended storage conditions.  
No hazards to be specially mentioned.
- Conditions to avoid : No data available
- Incompatible materials : Strong oxidizing agents
- Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
  - Nitrogen oxides (NOx)
  - Sulfur oxides
  - Carbon oxides





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**SECTION 11. TOXICOLOGICAL INFORMATION**

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**Acute toxicity**

Not classified based on available information.

**Components:**

**glycerol:**

- Acute oral toxicity : LD50 Oral (Rat): 12,600 mg/kg  
LD50 Oral (Mouse): 4,090 mg/kg
- Acute inhalation toxicity : Acute toxicity estimate: > 30 mg/l  
Test atmosphere: vapor  
Method: Expert judgment
- Acute dermal toxicity : LD50 (Guinea pig, male and female): 56,750 mg/kg  
GLP: no

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**glycerol:**

- Species : Rabbit
- Exposure time : 24 h
- Result : No skin irritation
- GLP : no

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:**

**glycerol:**

- Species : Rabbit
- Result : No eye irritation
- Exposure time : 7 d
- GLP : no

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:**

**glycerol:**

- Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation



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**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**glycerol:**

Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Result: negative  
GLP: No information available.

Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
GLP: No information available.

**Carcinogenicity**

Not classified based on available information.

**Components:**

**glycerol:**

Species : Rat, male and female  
Application Route : Oral  
Exposure time : 2 Years  
Frequency of Treatment : daily  
GLP : No information available.  
Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**glycerol:**

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Application Route: Oral  
Dose: 2000 mg/kg bw/day  
Fertility: NOAEL: 2,000 mg/kg body weight



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GLP: no

Effects on fetal development : Species: Rabbit, female  
Application Route: Oral  
Dose: 11.8, 54.8, 254.5, 1180 mg/kg bw/day  
Duration of Single Treatment: 29 d  
Developmental Toxicity: NOAEL: 1,180 mg/kg bw/day  
GLP: no

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Repeated dose toxicity**

**Components:**

**glycerol:**

Species : Rat, male and female  
NOAEL : 4580 mg/kg  
NOAEL : 4,580 mg/kg  
Application Route : Oral  
Exposure time : 90 d  
Number of exposures : daily  
Dose : 4580 - 25,800 mg/kg/day  
GLP : no

Species : Rat, male and female  
Application Route : Inhalation  
Test atmosphere : dust/mist  
Exposure time : 13 Weeks  
Number of exposures : 6 hours/day, 5 days/week  
Dose : 33, 165 and 660 mg/m3  
GLP : No information available.

Species : Rat  
NOAEL : 5040 mg/kg  
NOAEL : 5,040 mg/kg  
Application Route : dermal  
Exposure time : 45 Weeks  
Number of exposures : 8 hours/day, 5 days/week  
Dose : 0.5-4.0 ml/kg  
GLP : no

Repeated dose toxicity - Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation

**Aspiration toxicity**

Not classified based on available information.

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### Acute toxicity

Not classified based on available information.

### Skin corrosion/irritation

Not classified based on available information.

### Serious eye damage/eye irritation

Not classified based on available information.

### Respiratory or skin sensitization

#### Skin sensitization

Not classified based on available information.

#### Respiratory sensitization

Not classified based on available information.

### Germ cell mutagenicity

Not classified based on available information.

### Carcinogenicity

Not classified based on available information.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### Reproductive toxicity

Not classified based on available information.

### STOT-single exposure

Not classified based on available information.

### STOT-repeated exposure

Not classified based on available information.

### Aspiration toxicity

Not classified based on available information.

## ***GC-RICH solution, 5x conc.***

### Acute toxicity

Not classified based on available information.

### Components:

#### **Methane, 1,1'-sulfinylbis-:**

Acute oral toxicity : LD50 (Rat, male and female): 28,300 mg/kg  
Method: OECD Test Guideline 401  
GLP: no

Acute inhalation toxicity : LC0 (Rat, male and female): > 5.33 mg/l  
Exposure time: 4 h



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Test atmosphere: vapor  
Method: OECD Test Guideline 403  
GLP: yes

Acute dermal toxicity : LD50 Dermal (Rat, male and female): 40,000 mg/kg  
GLP: no

### Skin corrosion/irritation

Not classified based on available information.

#### Components:

##### Methane, 1,1'-sulfinylbis-:

Species : Rabbit  
Exposure time : 4 h  
Method : OECD Test Guideline 404  
GLP : yes  
Remarks : Mild skin irritation

### Serious eye damage/eye irritation

Not classified based on available information.

#### Components:

##### Methane, 1,1'-sulfinylbis-:

Species : Rabbit  
Exposure time : 24 h  
Method : OECD Test Guideline 405  
GLP : No information available.  
Remarks : Mild eye irritation

### Respiratory or skin sensitization

#### Skin sensitization

Not classified based on available information.

#### Respiratory sensitization

Not classified based on available information.

#### Components:

##### Methane, 1,1'-sulfinylbis-:

Test Type : Local lymph node assay (LLNA)  
Species : Mouse  
Assessment : Does not cause skin sensitization.  
Method : OECD Test Guideline 429  
GLP : No information available.

Assessment : Mild eye irritation, Mild skin irritation

### Germ cell mutagenicity

Not classified based on available information.



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**Components:**

**Methane, 1,1'-sulfinylbis-:**

Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: No information available.

Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
GLP: No information available.

Test Type: sister chromatid exchange assay  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 479  
Result: negative  
GLP: No information available.

Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Species: Rat (male and female)  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Exposure time: daily  
Dose: 200, 1000, 5000 mg/kg/d  
Method: OECD Test Guideline 474  
GLP: yes

**Carcinogenicity**

Not classified based on available information.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**Methane, 1,1'-sulfinylbis-:**

Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
Dose: 100, 300 and 1000 mg/kg/day  
Fertility: NOAEL: 1,000 mg/kg body weight  
Method: OECD Test Guideline 421

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GLP: yes

Effects on fetal development : Species: Rat, female  
Application Route: Oral  
Dose: 200, 1000, 5000 mg/kg  
Duration of Single Treatment: 10 d  
Developmental Toxicity: NOAEL: 1,000 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

### STOT-single exposure

Not classified based on available information.

### STOT-repeated exposure

Not classified based on available information.

### Components:

#### Methane, 1,1'-sulfinylbis-:

Repeated dose toxicity - Assessment : Mild eye irritation, Mild skin irritation

#### Aspiration toxicity

Not classified based on available information.

## SECTION 12. ECOLOGICAL INFORMATION

### *Pwo SuperYield, DNA Polymerase*

#### Ecotoxicity

#### Components:

##### glycerol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 54,000 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: static test  
GLP: no

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1,955 mg/l  
End point: mortality  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: no  
GLP: no

Toxicity to algae/aquatic plants : (Scenedesmus quadricauda (Green algae)): > 10,000 mg/l  
End point: Growth rate  
Exposure time: 8 d  
Test Type: static test  
GLP: no

Toxicity to microorganisms : EC50 (Pseudomonas putida): > 10,000 mg/l



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End point: Growth rate  
Exposure time: 16 h  
Test Type: static test  
GLP: No information available.

**Ecotoxicology Assessment**

- Acute aquatic toxicity : This product has no known ecotoxicological effects.
- Chronic aquatic toxicity : This product has no known ecotoxicological effects.
- Toxicity Data on Soil : Not expected to adsorb on soil.
- Other organisms relevant to the environment : No data available

**Persistence and degradability**

**Components:**

**glycerol:**

- Biodegradability : aerobic  
Inoculum: activated sludge  
Concentration: 226 mg/l  
Result: Readily biodegradable.  
Biodegradation: 94 %  
Exposure time: 24 h  
GLP: no

**Bioaccumulative potential**

**Components:**

**glycerol:**

- Partition coefficient: n-octanol/water : log Pow: -1.75 (77 °F / 25 °C)  
pH: 7.4  
Method: OECD Test Guideline 107  
GLP: no

**Mobility in soil**

No data available

**Other adverse effects**

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**Ecotoxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available



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### Mobility in soil

No data available

### Other adverse effects

## GC-RICH solution, 5x conc.

### Ecotoxicity

#### Components:

#### **Methane, 1,1'-sulfinylbis-:**

- |                                                     |   |                                                                                                                                                                                                                           |
|-----------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | : | LC50 (Danio rerio (zebra fish)): > 25,000 mg/l<br>End point: mortality<br>Exposure time: 96 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 203<br>GLP: yes                      |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 24,600 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 202<br>GLP: No information available.                        |
| Toxicity to algae/aquatic plants                    | : | EC50 (Pseudokirchneriella subcapitata (green algae)): 17,000 mg/l<br>End point: Growth rate<br>Exposure time: 72 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 201<br>GLP: yes |
| Toxicity to microorganisms                          | : | EC50 (activated sludge): 10 - 100 mg/l<br>Exposure time: 0.5 h<br>Analytical monitoring: no<br>Method: ISO 8192<br>GLP: No information available.                                                                         |

### Ecotoxicology Assessment

- |                                             |   |                                 |
|---------------------------------------------|---|---------------------------------|
| Toxicity Data on Soil                       | : | Not expected to adsorb on soil. |
| Other organisms relevant to the environment | : | No data available               |

### Persistence and degradability

#### Components:

#### **Methane, 1,1'-sulfinylbis-:**

- |                  |   |                                       |
|------------------|---|---------------------------------------|
| Biodegradability | : | aerobic<br>Inoculum: activated sludge |
|------------------|---|---------------------------------------|

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Concentration: 2 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 31 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D  
GLP: yes

### Bioaccumulative potential

#### Components:

##### **Methane, 1,1'-sulfinylbis-:**

Partition coefficient: n-octanol/water : log Pow: -1.35 (68 °F / 20 °C)  
pH: 7  
GLP: No information available.

### Mobility in soil

No data available

### Other adverse effects

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.

---

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### **UNRTDG**

Not regulated as a dangerous good

#### **IATA-DGR**

Not regulated as a dangerous good

#### **IMDG-Code**

Not regulated as a dangerous good

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

### Domestic regulation

#### **49 CFR**

Not regulated as a dangerous good



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**SECTION 15. REGULATORY INFORMATION**

***Pwo SuperYield, DNA Polymerase***

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

glycerol	56-81-5	>= 50 - < 70 %
----------	---------	----------------

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations**

**Massachusetts Right To Know**

glycerol	56-81-5
----------	---------

**Pennsylvania Right To Know**

glycerol	56-81-5
Water	7732-18-5

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals



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**California Permissible Exposure Limits for Chemical Contaminants**

glycerol

56-81-5

**The ingredients of this product are reported in the following inventories:**

- DSL : This product contains the following components listed on the Canadian NDSL. All other components are on the Canadian DSL.  
  
DNA-dependent DNA polymerase
- AICS : Not in compliance with the inventory
- NZIoC : On the inventory, or in compliance with the inventory
- ENCS : Not in compliance with the inventory
- ISHL : Not in compliance with the inventory
- KECI : Not in compliance with the inventory
- PICCS : Not in compliance with the inventory
- IECSC : Not in compliance with the inventory
- TCSI : On the inventory, or in compliance with the inventory
- TSCA : All substances listed as active on the TSCA inventory

**TSCA list**

The following substance(s) is/are subject to a Significant New Use Rule:  
Poly(oxy-1,2-ethanediy), .alpha.-(nonylphenyl)-.omega.-hydroxy- 9016-45-9

No substances are subject to TSCA 12(b) export notification requirements.

***Pwo SuperYield, PCR Buffer 10x***

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.



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**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations**

**Massachusetts Right To Know**

Sulfuric acid ammonium salt (1:2) 7783-20-2

**Pennsylvania Right To Know**

Water 7732-18-5

1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, hydrochloride (1:1) 1185-53-1

Sulfuric acid ammonium salt (1:2) 7783-20-2

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The ingredients of this product are reported in the following inventories:**

- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- NZIoC : On the inventory, or in compliance with the inventory
- ENCS : Not in compliance with the inventory
- ISHL : Not in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory
- TCSI : On the inventory, or in compliance with the inventory



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TSCA : All substances listed as active on the TSCA inventory

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

**GC-RICH solution, 5x conc.**

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Methane, 1,1'-sulfinylbis- 67-68-5 >= 20 - < 30 %

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations**

**Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know**

Water 7732-18-5  
Betaine monohydrate 590-47-6



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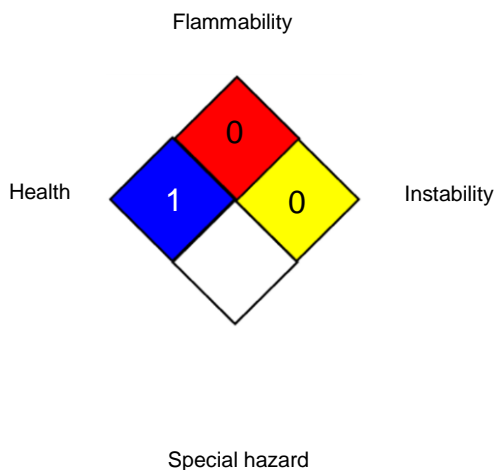
Revision Date:  
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**SECTION 16. OTHER INFORMATION**

**Further information**

**NFPA 704:**

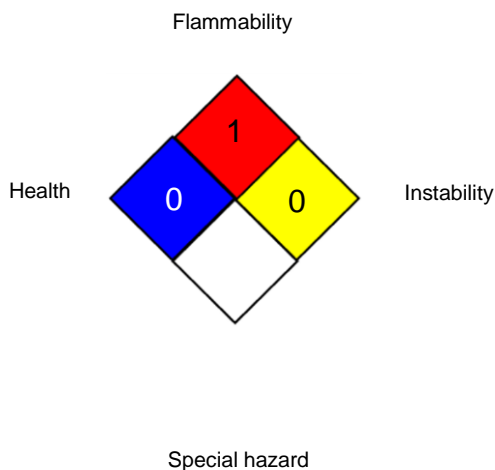


**HMIS® IV:**

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>	0	
<b>PHYSICAL HAZARD</b>	0	

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

**NFPA 704:**



**HMIS® IV:**

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>	0	
<b>PHYSICAL HAZARD</b>	0	

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.



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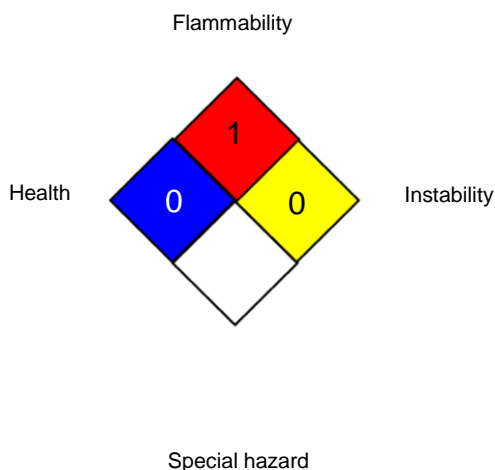
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### NFPA 704:



### HMIS® IV:

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>		0
<b>PHYSICAL HAZARD</b>		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

### Distributor

MilliporeSigma  
3050 Spruce Street  
SAINT LOUIS  
MO 63103 USA

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation,

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Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 02-06-2021

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8 / 2004





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**GHS Classification**

Not a hazardous substance or mixture.

**Components**

No hazardous ingredients

**GC-RICH solution, 5x conc.**

**GHS Classification**

Not a hazardous substance or mixture.

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Methane, 1,1'-sulfinylbis-	67-68-5	>= 20 - < 30

Actual concentration is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

- General advice : Do not leave the victim unattended.
  
- If inhaled : Move to fresh air.  
If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
  
- In case of skin contact : If on skin, rinse well with water.
  
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
Remove contact lenses.  
Protect unharmed eye.  
If eye irritation persists, consult a specialist.
  
- If swallowed : Keep respiratory tract clear.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.  
Rinse mouth with water.
  
- Most important symptoms and effects, both acute and delayed : No information available.
  
- Notes to physician : The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

---

**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
  
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.



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- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent product from entering drains.
- Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece). Keep in suitable, closed containers for disposal.

**SECTION 7. HANDLING AND STORAGE**

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.
- Conditions for safe storage : Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.
- Further information on storage conditions : See label, package insert or internal guidelines
- Materials to avoid : No materials to be especially mentioned.
- Further information on storage stability : No decomposition if stored and applied as directed.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

***Pwo SuperYield, DNA Polymerase***

**Ingredients with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
glycerol	56-81-5	TWA (mist, respirable fraction)	5 mg/m3	OSHA Z-1



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		TWA (mist, total dust)	15 mg/m3	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m3	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m3	OSHA P0

**Pwo SuperYield, PCR Buffer 10x**

**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

**GC-RICH solution, 5x conc.**

**Ingredients with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methane, 1,1'-sulfinylbis-	67-68-5	TWA	250 ppm	US WEEL

**Engineering measures** : No data available

**Personal protective equipment**

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

In case of contact through splashing:

- Material : Nitrile rubber
- Break through time : > 30 min
- Glove thickness : > 0.11 mm

In case of full contact:

- Material : butyl-rubber
- Break through time : > 480 min
- Glove thickness : > 0.4 mm

Remarks : Wear appropriate protective gloves to prevent skin contact. Replace torn or punctured gloves promptly.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Pwo SuperYield, DNA Polymerase**

Appearance : liquid

Color : clear, colorless

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Odor : none

Odor Threshold : No data available

pH : 8.0 (39 °F / 4 °C)

Melting point/range : No data available

Boiling point/boiling range : No data available

Flash point : does not flash

Evaporation rate : No data available

Flammability (liquids) : Does not sustain combustion.  
The product is not flammable.

Self-ignition : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : No data available

Density : 1.16 g/cm<sup>3</sup>

Solubility(ies)  
Water solubility : completely miscible

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity  
Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : The substance or mixture is not classified as oxidizing.



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### *Pwo SuperYield, PCR Buffer 10x*

Appearance	:	liquid
Color	:	clear, colorless
Odor	:	none
Odor Threshold	:	No data available
pH	:	8.4 - 8.6 (77 °F / 25 °C)
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (liquids)	:	Does not sustain combustion. The product is not flammable.
Self-ignition	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available



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Viscosity  
Viscosity, dynamic : No data available  
Viscosity, kinematic : No data available  
Explosive properties : Not explosive  
Oxidizing properties : The substance or mixture is not classified as oxidizing.

### ***GC-RICH solution, 5x conc.***

Appearance : liquid  
Color : clear, colorless  
Odor : none  
Odor Threshold : No data available  
pH : No data available  
Melting point/range : No data available  
Boiling point/boiling range : No data available  
Flash point : No data available  
Evaporation rate : No data available  
Flammability (liquids) : Does not sustain combustion.  
The product is not flammable.  
Self-ignition : No data available  
Upper explosion limit / Upper flammability limit : No data available  
Lower explosion limit / Lower flammability limit : No data available  
Vapor pressure : No data available  
Relative vapor density : No data available  
Relative density : No data available  
Density : 1.02 g/cm<sup>3</sup>  
Solubility(ies)



**Pwo SuperYield DNA Polymerase - 100 U**

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- Water solubility : completely miscible
- Solubility in other solvents : No data available
- Partition coefficient: n-octanol/water : No data available
- Autoignition temperature : No data available
- Decomposition temperature : No data available
- Viscosity
  - Viscosity, dynamic : No data available
  - Viscosity, kinematic : No data available
- Explosive properties : Not explosive
- Oxidizing properties : The substance or mixture is not classified as oxidizing.

---

**SECTION 10. STABILITY AND REACTIVITY**

- Reactivity : No dangerous reaction known under conditions of normal use.
- Chemical stability : Stable under normal conditions.
- Possibility of hazardous reactions : Reacts with the following substances:
  - Alkali metals
  - Oxidizing agents
  - Nitriles
  - Acid chlorides
  - Acid anhydrides
  - Sulfur compounds
  - Phosphorus compoundsStable under recommended storage conditions.  
No hazards to be specially mentioned.
- Conditions to avoid : No data available
- Incompatible materials : Strong oxidizing agents
- Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
  - Nitrogen oxides (NOx)
  - Sulfur oxides
  - Carbon oxides



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**SECTION 11. TOXICOLOGICAL INFORMATION**

***Pwo SuperYield, DNA Polymerase***

**Acute toxicity**

Not classified based on available information.

**Components:**

**glycerol:**

- Acute oral toxicity : LD50 Oral (Rat): 12,600 mg/kg  
LD50 Oral (Mouse): 4,090 mg/kg
- Acute inhalation toxicity : Acute toxicity estimate: > 30 mg/l  
Test atmosphere: vapor  
Method: Expert judgment
- Acute dermal toxicity : LD50 (Guinea pig, male and female): 56,750 mg/kg  
GLP: no

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**glycerol:**

- Species : Rabbit
- Exposure time : 24 h
- Result : No skin irritation
- GLP : no

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:**

**glycerol:**

- Species : Rabbit
- Result : No eye irritation
- Exposure time : 7 d
- GLP : no

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:**

**glycerol:**

- Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation



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**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**glycerol:**

Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Result: negative  
GLP: No information available.

Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
GLP: No information available.

**Carcinogenicity**

Not classified based on available information.

**Components:**

**glycerol:**

Species : Rat, male and female  
Application Route : Oral  
Exposure time : 2 Years  
Frequency of Treatment : daily  
GLP : No information available.  
Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**glycerol:**

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Application Route: Oral  
Dose: 2000 mg/kg bw/day  
Fertility: NOAEL: 2,000 mg/kg body weight



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GLP: no

Effects on fetal development : Species: Rabbit, female  
 Application Route: Oral  
 Dose: 11.8, 54.8, 254.5, 1180 mg/kg bw/day  
 Duration of Single Treatment: 29 d  
 Developmental Toxicity: NOAEL: 1,180 mg/kg bw/day  
 GLP: no

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Repeated dose toxicity**

**Components:**

**glycerol:**

Species : Rat, male and female  
 NOAEL : 4580 mg/kg  
 NOAEL : 4,580 mg/kg  
 Application Route : Oral  
 Exposure time : 90 d  
 Number of exposures : daily  
 Dose : 4580 - 25,800 mg/kg/day  
 GLP : no

Species : Rat, male and female  
 Application Route : Inhalation  
 Test atmosphere : dust/mist  
 Exposure time : 13 Weeks  
 Number of exposures : 6 hours/day, 5 days/week  
 Dose : 33, 165 and 660 mg/m3  
 GLP : No information available.

Species : Rat  
 NOAEL : 5040 mg/kg  
 NOAEL : 5,040 mg/kg  
 Application Route : dermal  
 Exposure time : 45 Weeks  
 Number of exposures : 8 hours/day, 5 days/week  
 Dose : 0.5-4.0 ml/kg  
 GLP : no

Repeated dose toxicity - Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation

**Aspiration toxicity**

Not classified based on available information.

***Pwo SuperYield, PCR Buffer 10x***



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**Acute toxicity**

Not classified based on available information.

**Skin corrosion/irritation**

Not classified based on available information.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

Not classified based on available information.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

***GC-RICH solution, 5x conc.***

**Acute toxicity**

Not classified based on available information.

**Components:**

**Methane, 1,1'-sulfinylbis-:**

Acute oral toxicity : LD50 (Rat, male and female): 28,300 mg/kg  
Method: OECD Test Guideline 401  
GLP: no

Acute inhalation toxicity : LC0 (Rat, male and female): > 5.33 mg/l  
Exposure time: 4 h

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Method: OECD Test Guideline 403  
GLP: yesAcute dermal toxicity : LD50 Dermal (Rat, male and female): 40,000 mg/kg  
GLP: no**Skin corrosion/irritation**

Not classified based on available information.

**Components:****Methane, 1,1'-sulfinylbis-:**Species : Rabbit  
Exposure time : 4 h  
Method : OECD Test Guideline 404  
GLP : yes  
Remarks : Mild skin irritation**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****Methane, 1,1'-sulfinylbis-:**Species : Rabbit  
Exposure time : 24 h  
Method : OECD Test Guideline 405  
GLP : No information available.  
Remarks : Mild eye irritation**Respiratory or skin sensitization****Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:****Methane, 1,1'-sulfinylbis-:**Test Type : Local lymph node assay (LLNA)  
Species : Mouse  
Assessment : Does not cause skin sensitization.  
Method : OECD Test Guideline 429  
GLP : No information available.

Assessment : Mild eye irritation, Mild skin irritation

**Germ cell mutagenicity**

Not classified based on available information.

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### Components:

#### **Methane, 1,1'-sulfinylbis-:**

- Genotoxicity in vitro :
- Test Type: Microbial mutagenesis assay (Ames test)
  - Test system: Salmonella typhimurium
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 471
  - Result: negative
  - GLP: No information available.
- Test Type: Chromosome aberration test in vitro
- Test system: Chinese hamster ovary cells
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 473
  - Result: negative
  - GLP: No information available.
- Test Type: sister chromatid exchange assay
- Test system: Chinese hamster ovary cells
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 479
  - Result: negative
  - GLP: No information available.
- Genotoxicity in vivo :
- Test Type: In vivo micronucleus test
  - Species: Rat (male and female)
  - Cell type: Bone marrow
  - Application Route: Intraperitoneal injection
  - Exposure time: daily
  - Dose: 200, 1000, 5000 mg/kg/d
  - Method: OECD Test Guideline 474
  - GLP: yes

### **Carcinogenicity**

Not classified based on available information.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### **Reproductive toxicity**

Not classified based on available information.

### Components:

#### **Methane, 1,1'-sulfinylbis-:**

- Effects on fertility :
- Species: Rat, male and female
  - Application Route: Oral
  - Dose: 100, 300 and 1000 mg/kg/day
  - Fertility: NOAEL: 1,000 mg/kg body weight
  - Method: OECD Test Guideline 421



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GLP: yes

Effects on fetal development : Species: Rat, female  
Application Route: Oral  
Dose: 200, 1000, 5000 mg/kg  
Duration of Single Treatment: 10 d  
Developmental Toxicity: NOAEL: 1,000 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

### STOT-single exposure

Not classified based on available information.

### STOT-repeated exposure

Not classified based on available information.

### Components:

#### Methane, 1,1'-sulfinylbis-:

Repeated dose toxicity - Assessment : Mild eye irritation, Mild skin irritation

#### Aspiration toxicity

Not classified based on available information.

## SECTION 12. ECOLOGICAL INFORMATION

### *Pwo SuperYield, DNA Polymerase*

#### Ecotoxicity

#### Components:

##### glycerol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 54,000 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: static test  
GLP: no

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1,955 mg/l  
End point: mortality  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: no  
GLP: no

Toxicity to algae/aquatic plants : (Scenedesmus quadricauda (Green algae)): > 10,000 mg/l  
End point: Growth rate  
Exposure time: 8 d  
Test Type: static test  
GLP: no

Toxicity to microorganisms : EC50 (Pseudomonas putida): > 10,000 mg/l



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End point: Growth rate  
Exposure time: 16 h  
Test Type: static test  
GLP: No information available.

**Ecotoxicology Assessment**

- Acute aquatic toxicity : This product has no known ecotoxicological effects.
- Chronic aquatic toxicity : This product has no known ecotoxicological effects.
- Toxicity Data on Soil : Not expected to adsorb on soil.
- Other organisms relevant to the environment : No data available

**Persistence and degradability**

**Components:**

**glycerol:**

- Biodegradability : aerobic  
Inoculum: activated sludge  
Concentration: 226 mg/l  
Result: Readily biodegradable.  
Biodegradation: 94 %  
Exposure time: 24 h  
GLP: no

**Bioaccumulative potential**

**Components:**

**glycerol:**

- Partition coefficient: n-octanol/water : log Pow: -1.75 (77 °F / 25 °C)  
pH: 7.4  
Method: OECD Test Guideline 107  
GLP: no

**Mobility in soil**

No data available

**Other adverse effects**

***Pwo SuperYield, PCR Buffer 10x***

**Ecotoxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

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### Mobility in soil

No data available

### Other adverse effects

## GC-RICH solution, 5x conc.

### Ecotoxicity

#### Components:

#### **Methane, 1,1'-sulfinylbis-:**

- |                                                     |   |                                                                                                                                                                                                                           |
|-----------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | : | LC50 (Danio rerio (zebra fish)): > 25,000 mg/l<br>End point: mortality<br>Exposure time: 96 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 203<br>GLP: yes                      |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 24,600 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 202<br>GLP: No information available.                        |
| Toxicity to algae/aquatic plants                    | : | EC50 (Pseudokirchneriella subcapitata (green algae)): 17,000 mg/l<br>End point: Growth rate<br>Exposure time: 72 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 201<br>GLP: yes |
| Toxicity to microorganisms                          | : | EC50 (activated sludge): 10 - 100 mg/l<br>Exposure time: 0.5 h<br>Analytical monitoring: no<br>Method: ISO 8192<br>GLP: No information available.                                                                         |

### Ecotoxicology Assessment

- |                                             |   |                                 |
|---------------------------------------------|---|---------------------------------|
| Toxicity Data on Soil                       | : | Not expected to adsorb on soil. |
| Other organisms relevant to the environment | : | No data available               |

### Persistence and degradability

#### Components:

#### **Methane, 1,1'-sulfinylbis-:**

- |                  |   |                                       |
|------------------|---|---------------------------------------|
| Biodegradability | : | aerobic<br>Inoculum: activated sludge |
|------------------|---|---------------------------------------|

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Concentration: 2 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 31 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D  
GLP: yes

### Bioaccumulative potential

#### Components:

##### **Methane, 1,1'-sulfinylbis-:**

Partition coefficient: n-octanol/water : log Pow: -1.35 (68 °F / 20 °C)  
pH: 7  
GLP: No information available.

#### **Mobility in soil**

No data available

#### **Other adverse effects**

---

## SECTION 13. DISPOSAL CONSIDERATIONS

### **Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.

---

## SECTION 14. TRANSPORT INFORMATION

### **International Regulations**

#### **UNRTDG**

Not regulated as a dangerous good

#### **IATA-DGR**

Not regulated as a dangerous good

#### **IMDG-Code**

Not regulated as a dangerous good

#### **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable

#### **Domestic regulation**

#### **49 CFR**

Not regulated as a dangerous good



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**SECTION 15. REGULATORY INFORMATION**

***Pwo SuperYield, DNA Polymerase***

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

glycerol	56-81-5	>= 50 - < 70 %
----------	---------	----------------

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations**

**Massachusetts Right To Know**

glycerol	56-81-5
----------	---------

**Pennsylvania Right To Know**

glycerol	56-81-5
Water	7732-18-5

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals



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**California Permissible Exposure Limits for Chemical Contaminants**

glycerol

56-81-5

**The ingredients of this product are reported in the following inventories:**

- DSL : This product contains the following components listed on the Canadian NDSL. All other components are on the Canadian DSL.  
  
DNA-dependent DNA polymerase
- AICS : Not in compliance with the inventory
- NZIoC : On the inventory, or in compliance with the inventory
- ENCS : Not in compliance with the inventory
- ISHL : Not in compliance with the inventory
- KECI : Not in compliance with the inventory
- PICCS : Not in compliance with the inventory
- IECSC : Not in compliance with the inventory
- TCSI : On the inventory, or in compliance with the inventory
- TSCA : All substances listed as active on the TSCA inventory

**TSCA list**

The following substance(s) is/are subject to a Significant New Use Rule:  
Poly(oxy-1,2-ethanediyl), .alpha.-(nonylphenyl)-.omega.-hydroxy- 9016-45-9

No substances are subject to TSCA 12(b) export notification requirements.

***Pwo SuperYield, PCR Buffer 10x***

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.



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Date of last issue: 09-26-2019  
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**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations**

**Massachusetts Right To Know**

Sulfuric acid ammonium salt (1:2) 7783-20-2

**Pennsylvania Right To Know**

Water 7732-18-5

1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, hydrochloride (1:1) 1185-53-1

Sulfuric acid ammonium salt (1:2) 7783-20-2

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The ingredients of this product are reported in the following inventories:**

- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- NZIoC : On the inventory, or in compliance with the inventory
- ENCS : Not in compliance with the inventory
- ISHL : Not in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory
- TCSI : On the inventory, or in compliance with the inventory



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TSCA : All substances listed as active on the TSCA inventory

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

**GC-RICH solution, 5x conc.**

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Methane, 1,1'-sulfinylbis- 67-68-5 >= 20 - < 30 %

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations**

**Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know**

Water 7732-18-5  
Betaine monohydrate 590-47-6





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Methane, 1,1'-sulfinylbis-                      67-68-5

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The ingredients of this product are reported in the following inventories:**

DSL : This product contains the following components that are not on the Canadian DSL nor NDSL.

Betaine monohydrate

AICS : Not in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

ISHL : On the inventory, or in compliance with the inventory

KECI : Not in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : Not in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

TSCA : Product contains substance(s) not listed on TSCA inventory.

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

***Pwo SuperYield, DNA Polymerase***

**GHS label elements**

Not a hazardous substance or mixture.

***Pwo SuperYield, PCR Buffer 10x***

**GHS label elements**

Not a hazardous substance or mixture.

***GC-RICH solution, 5x conc.***

**GHS label elements**

Not a hazardous substance or mixture.

**Pwo SuperYield DNA Polymerase - 100 U**

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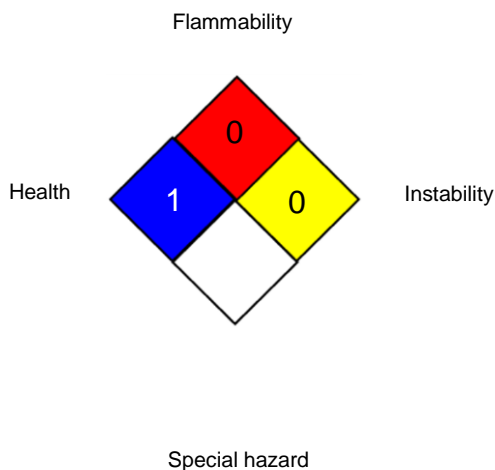
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**SECTION 16. OTHER INFORMATION**

**Further information**

**NFPA 704:**

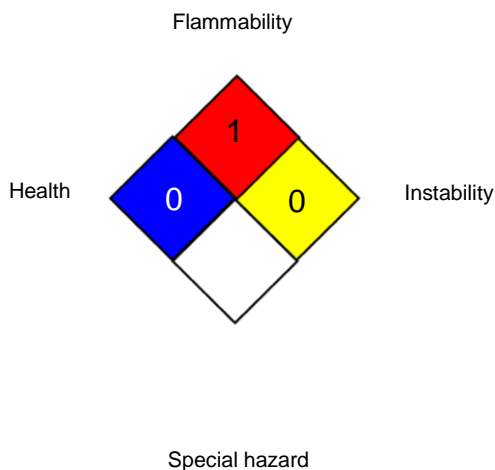


**HMIS® IV:**

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>		0
<b>PHYSICAL HAZARD</b>		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

**NFPA 704:**



**HMIS® IV:**

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>		0
<b>PHYSICAL HAZARD</b>		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

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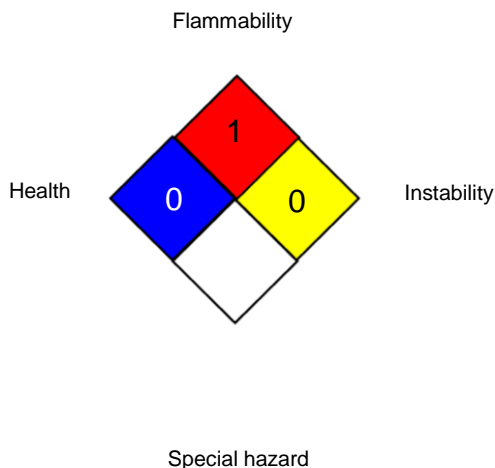
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3.1

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### NFPA 704:



### HMIS® IV:

HEALTH	/	0
FLAMMABILITY		0
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

### Distributor

MilliporeSigma  
3050 Spruce Street  
SAINT LOUIS  
MO 63103 USA

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation,



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Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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