



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
Regulation (EC) No. 1907/2006 as amended by Regulation (EU) No. 2020/878, and  
Regulation (EC) No. 1272/2008

Revision date 29-Aug-2024

Version 1

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

### 1.1. Product identifier

**Product No** M0766  
**Product name** Thymine-DNA Glycosylase (TDG)

### Other means of identification

**Pure substance/mixture** Mixture

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

**Recommended use** This product is for research and development only  
**Uses advised against** No information available

### 1.3. Details of the supplier of the safety data sheet

#### Supplier Address

New England BioLabs  
240 County Road  
Ipswich, MA 01938  
USA

#### For further information, please contact

**Company Phone Number** 978-927-5054, 800-632-5227 (toll free)  
**Telefax** 978-921-1350  
**E-mail address** info@neb.com

### 1.4. Emergency telephone number

24 Hour Emergency Phone Number Chemtrec +44 20 3885 0382

|        |                 |
|--------|-----------------|
| Europe | +1 978-380-2125 |
|--------|-----------------|

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

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

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

**2.2. Label elements****Hazard statements**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

EUH210 - Safety data sheet available on request

**2.3. Other hazards**

No information available.

**PBT or vPvB properties**

No information available.

**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

Not applicable

**3.2 Mixtures**

| Chemical name                | Weight-% | REACH registration number | EC No. (Index No.) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | Notes |
|------------------------------|----------|---------------------------|--------------------|-----------------------------------------------------------------|------------------------------------|----------|----------------------|-------|
| Sodium Chloride<br>7647-14-5 | 3 - 7    | No data available         | 231-598-3          | No data available                                               | -                                  | -        | -                    | -     |

**Full text of H- and EUH-phrases: see section 16****Acute Toxicity Estimate**

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

| Chemical name                | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapor - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|------------------------------|-----------------|-------------------|---------------------------------------------|-----------------------------------------|--------------------------------------|
| Sodium Chloride<br>7647-14-5 | 3550            | 10000             | No data available                           | No data available                       | No data available                    |

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

|              |                                                                                                                      |
|--------------|----------------------------------------------------------------------------------------------------------------------|
| Inhalation   | Remove to fresh air.                                                                                                 |
| Eye contact  | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician. |
| Skin contact | Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.                 |
| Ingestion    | Rinse mouth.                                                                                                         |

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure None.

### 4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

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

Specific hazards arising from the chemical No information available.

### 5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** See Section 12 for additional Ecological Information.

### 6.3. Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

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

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place.

**Storage class (TRGS 510)** Storage class 10.

### 7.3. Specific end use(s)

**Risk management methods [RMM]** The information required is contained in this Safety Data Sheet.

## **SECTION 8: Exposure controls/personal protection**

### 8.1. Control parameters

#### **Exposure Limits**

| Chemical name                | Ireland | Latvia                   | Lithuania                | Luxembourg |
|------------------------------|---------|--------------------------|--------------------------|------------|
| Sodium Chloride<br>7647-14-5 | -       | TWA: 5 mg/m <sup>3</sup> | TWA: 5 mg/m <sup>3</sup> | -          |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### **Derived No Effect Level (DNEL) - Workers**

| Chemical name                | Oral | Dermal                                                     | Inhalation                                                             |
|------------------------------|------|------------------------------------------------------------|------------------------------------------------------------------------|
| Glycerol<br>56-81-5          | -    | -                                                          | 56 mg/m <sup>3</sup> [5] [6]                                           |
| Sodium Chloride<br>7647-14-5 | -    | 295.52 mg/kg bw/day [4] [6]<br>295.52 mg/kg bw/day [4] [7] | 2068.62 mg/m <sup>3</sup> [4] [6]<br>2068.62 mg/m <sup>3</sup> [4] [7] |

| Chemical name                    | Oral | Dermal                     | Inhalation                                                                                                                   |
|----------------------------------|------|----------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Tris-HCl<br>1185-53-1            | -    | 216.6 mg/kg bw/day [4] [6] | 152.8 mg/m <sup>3</sup> [4] [6]                                                                                              |
| Na <sub>2</sub> EDTA<br>139-33-3 | -    | -                          | 1.5 mg/m <sup>3</sup> [4] [6]<br>3 mg/m <sup>3</sup> [4] [7]<br>1.5 mg/m <sup>3</sup> [5] [6]<br>3 mg/m <sup>3</sup> [5] [7] |

**Notes**

|     |                          |
|-----|--------------------------|
| [4] | Systemic health effects. |
| [5] | Local health effects.    |
| [6] | Long term.               |
| [7] | Short term.              |

**Derived No Effect Level (DNEL) - General Public**

| Chemical name                    | Oral                                                       | Dermal                                                     | Inhalation                                                           |
|----------------------------------|------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------|
| Glycerol<br>56-81-5              | 229 mg/kg bw/day [4] [6]                                   | -                                                          | 33 mg/m <sup>3</sup> [5] [6]                                         |
| Sodium Chloride<br>7647-14-5     | 126.65 mg/kg bw/day [4] [6]<br>126.65 mg/kg bw/day [4] [7] | 126.65 mg/kg bw/day [4] [6]<br>126.65 mg/kg bw/day [4] [7] | 443.28 mg/m <sup>3</sup> [4] [6]<br>443.28 mg/m <sup>3</sup> [4] [7] |
| Tris-HCl<br>1185-53-1            | 10.8 mg/kg bw/day [4] [6]                                  | -                                                          | 37.7 mg/m <sup>3</sup> [4] [6]                                       |
| Na <sub>2</sub> EDTA<br>139-33-3 | 25 mg/kg bw/day [4] [6]                                    | -                                                          | 0.6 mg/m <sup>3</sup> [5] [6]<br>1.2 mg/m <sup>3</sup> [5] [7]       |

**Notes**

|     |                          |
|-----|--------------------------|
| [4] | Systemic health effects. |
| [5] | Local health effects.    |
| [6] | Long term.               |
| [7] | Short term.              |

**Predicted No Effect Concentration (PNEC)**

| Chemical name                    | Freshwater | Freshwater<br>(intermittent release) | Marine water | Marine water<br>(intermittent release) | Air |
|----------------------------------|------------|--------------------------------------|--------------|----------------------------------------|-----|
| Glycerol<br>56-81-5              | 0.885 mg/L | 8.85 mg/L                            | 0.0885 mg/L  | -                                      | -   |
| Sodium Chloride<br>7647-14-5     | 5 mg/L     | -                                    | -            | -                                      | -   |
| Na <sub>2</sub> EDTA<br>139-33-3 | 2.5 mg/L   | -                                    | 0.25 mg/L    | -                                      | -   |

| Chemical name                    | Freshwater<br>sediment   | Marine sediment           | Sewage treatment | Soil                | Food chain |
|----------------------------------|--------------------------|---------------------------|------------------|---------------------|------------|
| Glycerol<br>56-81-5              | 3.3 mg/kg sediment<br>dw | 0.33 mg/kg<br>sediment dw | 1000 mg/L        | 0.141 mg/kg soil dw | -          |
| Sodium Chloride<br>7647-14-5     | -                        | -                         | 500 mg/L         | 4.86 mg/kg soil dw  | -          |
| Na <sub>2</sub> EDTA<br>139-33-3 | -                        | -                         | 50 mg/L          | 1.1 mg/kg soil dw   | -          |

**8.2. Exposure controls**

|                                                                       |                                                                                                                                                                          |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering controls                                                  | No information available.                                                                                                                                                |
| Individual protection measures, such as personal protective equipment |                                                                                                                                                                          |
| Eye/face protection                                                   | No special protective equipment required.                                                                                                                                |
| Skin and body protection                                              | No special protective equipment required.                                                                                                                                |
| Respiratory protection                                                | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |
| Environmental exposure controls                                       | No information available.                                                                                                                                                |

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

|                |                          |
|----------------|--------------------------|
| Appearance     | Clear                    |
| Physical state | Liquid                   |
| Color          | No information available |
| Odor           | None                     |
| Odor threshold | No information available |

| <b>Property</b>                                          | <b>Values</b>            | <b>Remarks • Method</b> |
|----------------------------------------------------------|--------------------------|-------------------------|
| Melting point / freezing point                           | No data available        | None known              |
| Boiling point or initial boiling point and boiling range | No data available        | None known              |
| Flammability (solid, gas)                                | No data available        | None known              |
| Lower and upper explosion limit/flammability limit       |                          | None known              |
| Lower explosion limit                                    | No data available        |                         |
| Upper explosion limit                                    | No data available        |                         |
| Flash point                                              | No data available        | None known              |
| Autoignition temperature                                 | No data available        | None known              |
| Decomposition temperature                                |                          | None known              |
| SADT (°C)                                                | No data available        | None known              |
| pH                                                       | 7.4                      | None known              |
| pH (as aqueous solution)                                 | No data available        | None known              |
| Kinematic viscosity                                      | No data available        | None known              |
| Dynamic viscosity                                        | No data available        | None known              |
| Solubility                                               | No data available        | None known              |
| Water solubility                                         | No data available        | None known              |
| Partition coefficient n-octanol/water (log value)        | No data available        | None known              |
| Vapor pressure                                           | No data available        | None known              |
| Density and/or relative density                          | No data available        | None known              |
| Bulk density                                             | No data available        |                         |
| Liquid Density                                           | No data available        |                         |
| Vapor density                                            | No data available        | None known              |
| Particle characteristics                                 |                          |                         |
| Particle Size                                            | No information available |                         |
| Particle Size Distribution                               | No information available |                         |

## 9.2. Other information

### **9.2.1. Information with regard to physical hazard classes**

No information available

### **9.2.2. Other safety characteristics**

No information available

## **SECTION 10: Stability and reactivity**

### 10.1. Reactivity

**Reactivity** No information available.

### 10.2. Chemical stability

**Stability** Stable under normal conditions.

#### **Explosion data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** None under normal processing.

### 10.4. Conditions to avoid

**Conditions to avoid** None known based on information supplied.

### 10.5. Incompatible materials

**Incompatible materials** None known based on information supplied.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** None known based on information supplied.

## **SECTION 11: Toxicological information**

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Information on likely routes of exposure

##### **Product Information**

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** Specific test data for the substance or mixture is not available.

**Ingestion** Specific test data for the substance or mixture is not available.

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

**Symptoms** No information available.

**Acute toxicity** Based on available data, the classification criteria are not met.

**Numerical measures of toxicity**

**Component Information**

| Chemical name   | Oral LD50            | Dermal LD50              | Inhalation LC50       |
|-----------------|----------------------|--------------------------|-----------------------|
| Sodium Chloride | = 3550 mg/kg ( Rat ) | > 10000 mg/kg ( Rabbit ) | > 42 mg/L ( Rat ) 1 h |

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

**Skin corrosion/irritation** No information available.

**Serious eye damage/eye irritation** No information available.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

**11.2. Information on other hazards**

**11.2.1. Endocrine disrupting properties**

**Endocrine disrupting properties** No information available.

**11.2.2. Other information**

**Other adverse effects** No information available.

**SECTION 12: Ecological information**

**12.1. Toxicity**

| Chemical name   | Fish                                                                                                                                                                                                                                                                                                                                                      | Crustacea                                                                                            | Algae/aquatic plants | Toxicity to microorganisms |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------|----------------------------|
| Sodium Chloride | LC50: 5560 - 6080mg/L (96h, <i>Lepomis macrochirus</i> )<br>LC50: =12946mg/L (96h, <i>Lepomis macrochirus</i> )<br>LC50: 6020 - 7070mg/L (96h, <i>Pimephales promelas</i> )<br>LC50: =7050mg/L (96h, <i>Pimephales promelas</i> )<br>LC50: 6420 - 6700mg/L (96h, <i>Pimephales promelas</i> )<br>LC50: 4747 - 7824mg/L (96h, <i>Oncorhynchus mykiss</i> ) | EC50: =1000mg/L (48h, <i>Daphnia magna</i> )<br>EC50: 340.7 - 469.2mg/L (48h, <i>Daphnia magna</i> ) | -                    | -                          |

| Chemical name   | Earthworm                                                                                     | Avian | Honeybees |
|-----------------|-----------------------------------------------------------------------------------------------|-------|-----------|
| Sodium Chloride | Acute Toxicity: LC50 0.1 - 1 mg/cm <sup>2</sup> ( <i>Eisenia foetida</i> , 48 h filter paper) | -     | -         |

**12.2. Persistence and degradability** No information available.

**12.3. Bioaccumulative potential**

**12.4. Mobility in soil** No information available.

**12.5. Results of PBT and vPvB assessment** No information available.

| Chemical name   | PBT and vPvB assessment |
|-----------------|-------------------------|
| Sodium Chloride | Not PBT/vPvB            |

**12.6. Endocrine disrupting properties** Based on available data, the classification criteria are not met.

**12.7. Other adverse effects** No information available.

**PMT or vPvM properties** Based on available data, the classification criteria are not met.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging

Do not reuse empty containers.

**SECTION 14: Transport information****IATA**

|                                   |                |
|-----------------------------------|----------------|
| 14.1 UN number or ID number       | Not regulated  |
| 14.2                              |                |
| 14.3 Transport hazard class(es)   | Not regulated  |
| 14.4 Packing group                | Not regulated  |
| 14.5 Environmental hazard         | Not applicable |
| 14.6 Special precautions for user |                |
| Special Provisions                | None           |

**IMDG**

|                                                              |                          |
|--------------------------------------------------------------|--------------------------|
| 14.1 UN number or ID number                                  | Not regulated            |
| 14.2                                                         |                          |
| 14.3 Transport hazard class(es)                              | Not regulated            |
| 14.4 Packing group                                           | Not regulated            |
| 14.5 Environmental hazard                                    | Not applicable           |
| 14.6 Special precautions for user                            |                          |
| Special Provisions                                           | None                     |
| 14.7 Maritime transport in bulk according to IMO instruments | No information available |

**RID**

|                                   |                |
|-----------------------------------|----------------|
| 14.1 UN number or ID number       | Not regulated  |
| 14.2                              |                |
| 14.3 Transport hazard class(es)   | Not regulated  |
| 14.4 Packing group                | Not regulated  |
| 14.5 Environmental hazard         | Not applicable |
| 14.6 Special precautions for user |                |
| Special Provisions                | None           |

**ADR**

|                                   |                |
|-----------------------------------|----------------|
| 14.1 UN number or ID number       | Not regulated  |
| 14.2                              |                |
| 14.3 Transport hazard class(es)   | Not regulated  |
| 14.4 Packing group                | Not regulated  |
| 14.5 Environmental hazard         | Not applicable |
| 14.6 Special precautions for user |                |
| Special Provisions                | None           |

**ADN**

|                                   |               |
|-----------------------------------|---------------|
| 14.1                              |               |
| 14.2                              |               |
| 14.3 Transport hazard class(es)   | Not regulated |
| 14.4                              |               |
| 14.5                              |               |
| 14.6 Special precautions for user |               |

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****France**

**Occupational Illnesses (R-463-3, France)**

| Chemical name                | French RG number |
|------------------------------|------------------|
| Sodium Chloride<br>7647-14-5 | RG 78            |

**Chemical Prohibition Ordinance (ChemVerbotsV)**

Not applicable.

TRGS 905

Not applicable

**Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018**

Not applicable

**Storage of Hazardous Material**

SC Non-hazardous material

**WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20**

Class B

**Major Accidents Ordinance SR 814.012**

Not applicable

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorizations and/or restrictions on use:**

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) Regulation (EU) 2024/590**

Not applicable.

**EU - Plant Protection Products (1107/2009/EC)**

| Chemical name                | EU - Plant Protection Products (1107/2009/EC) |
|------------------------------|-----------------------------------------------|
| Sodium Chloride<br>7647-14-5 | Plant protection agent                        |

**Biocidal Products Regulation (EU) No 528/2012 (BPR)**

| Chemical name                | Biocidal Products Regulation (EU) No 528/2012 (BPR) |
|------------------------------|-----------------------------------------------------|
| Sodium Chloride<br>7647-14-5 | Product-type 1: Human hygiene                       |

**Explosives Precursors Marketing and Use (2019/1148)**

Not applicable.

**International Inventories**

TSCA

Contact supplier for inventory compliance status

DSL/NDL

Contact supplier for inventory compliance status

EINECS/ELINCS

Contact supplier for inventory compliance status

ENCS

Contact supplier for inventory compliance status

IECSC

Contact supplier for inventory compliance status

KECL

Contact supplier for inventory compliance status

PICCS

Contact supplier for inventory compliance status

AIIC

Contact supplier for inventory compliance status

NZIoC  
TCSI

Contact supplier for inventory compliance status  
Contact supplier for inventory compliance status

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing Chemicals Inventory  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances  
**NZIoC** - New Zealand Inventory of Chemicals  
**TCSI** - Taiwan Chemical Substance Inventory

**15.2. Chemical safety assessment**

**Chemical Safety Report** No information available

**SECTION 16: Other information****Key or legend to abbreviations and acronyms used in the safety data sheet****Key or legend to abbreviations and acronyms used in the safety data sheet**

List may include phrases which are not applicable to this product

|           |                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------|
| ACGIH     | American Conference of Governmental Industrial Hygienists                                           |
| AIDII     | Italian Association of Industrial Hygienists                                                        |
| ADN       | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)     |
| ADR       | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)                 |
| AIIC      | Australian Inventory of Industrial Chemicals                                                        |
| ATE       | Acute Toxicity Estimate                                                                             |
| ASTM      | American Society for the Testing of Materials                                                       |
| bar       | Biological Reference Values for Chemical Compounds in the Work Area                                 |
| BAT       | Biological tolerance values for occupational exposure                                               |
| BEL       | Biological exposure limits                                                                          |
| bw        | Body weight                                                                                         |
| Ceiling   | Maximum limit value                                                                                 |
| CLP       | Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008                    |
| CMR       | Carcinogen, Mutagen or Reproductive Toxicant                                                        |
| DFG       | German Research Foundation                                                                          |
| DOT       | Department of Transportation (United States)                                                        |
| DSL       | Domestic Substances List (Canada)                                                                   |
| ECHA      | European Chemicals Agency                                                                           |
| EC Number | European Community number                                                                           |
| EmS       | Emergency Schedule                                                                                  |
| ENCS      | Existing and New Chemical Substances (Japan)                                                        |
| EPA       | U.S. Environmental Protection Agency                                                                |
| EWC       | European Waste Codes                                                                                |
| GHS       | Globally Harmonized 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 |
| ICAO      | International Civil Aviation Organization                                                           |
| IECSC     | Inventory of Existing Chemical Substances in China                                                  |

|         |                                                                                                         |
|---------|---------------------------------------------------------------------------------------------------------|
| IMDG    | International Maritime Dangerous Goods                                                                  |
| IMO     | International Maritime Organization                                                                     |
| ISO     | International Organization for Standardization                                                          |
| KECI    | Korean Existing Chemicals Inventory                                                                     |
| LC50    | Lethal Concentration to 50% of a test population                                                        |
| LD50    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                            |
| MAK     | Maximum Concentration at the Workplace                                                                  |
| MAL     | Measuring Technical Hygienic Air Needs                                                                  |
| MARPOL  | International Convention for the Prevention of Pollution from Ships                                     |
| MDLPS   | Ministry of Labor and Social Policy                                                                     |
| n.o.s.  | Not Otherwise Specified                                                                                 |
| NOAEC   | No Observed Adverse Effect Concentration                                                                |
| NOAEL   | No Observed Adverse Effect Level                                                                        |
| NOELR   | No Observable Effect Loading Rate                                                                       |
| NZIoC   | New Zealand Inventory of Chemicals                                                                      |
| OECD    | Organization for Economic Cooperation and Development                                                   |
| OEL     | Occupational exposure limits                                                                            |
| PBT     | Persistent, Bioaccumulative and Toxic substance                                                         |
| PICCS   | Philippines Inventory of Chemicals and Chemical Substances                                              |
| PMT     | Persistent, Mobile and Toxic                                                                            |
| PPE     | Personal protective equipment                                                                           |
| QSAR    | Quantitative Structure Activity Relationship                                                            |
| REACH   | Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006) |
| RID     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)                     |
| SADT    | Self-Accelerating Decomposition Temperature                                                             |
| SAR     | Structure-activity relationship                                                                         |
| SDS     | Safety Data Sheet                                                                                       |
| SL      | Surface Limit                                                                                           |
| STEL    | Short Term Exposure Limit                                                                               |
| STOT RE | Specific target organ toxicity - Repeated exposure                                                      |
| STOT SE | Specific target organ toxicity - Single exposure                                                        |
| SVHC    | Substance of very high concern                                                                          |
| TCSI    | Taiwan Chemical Substance Inventory                                                                     |
| TDG     | Transport of Dangerous Goods (Canada)                                                                   |
| TRGS    | Technical Rule for Hazardous Substances                                                                 |
| TSCA    | Toxic Substances Control Act (United States)                                                            |
| TWA     | Time-Weighted Average                                                                                   |
| UN      | United Nations                                                                                          |
| VOC     | Volatile organic compounds                                                                              |
| vPvB    | Very Persistent and Very Bioaccumulative                                                                |
| vPvM    | Very Persistent and Very Mobile                                                                         |
| As      | Allergenic substance                                                                                    |
| C       | Carcinogen                                                                                              |
| DS      | Dermal Sensitizer                                                                                       |
| Ot      | Ototoxicant                                                                                             |
| pOt     | Ototoxicant - potential to cause hearing disorders                                                      |
| PS      | Photosensitizer                                                                                         |
| RS      | Respiratory Sensitizer                                                                                  |
| S       | Sensitizer                                                                                              |
| poS     | Sensitizer - capable of causing occupational asthma                                                     |
| Sa      | Simple asphyxiant                                                                                       |
| Sd      | Skin designation                                                                                        |
| pSd     | Skin designation - potential for cutaneous absorption                                                   |
| Sdv     | Skin designation - vacated                                                                              |
| Sk      | Skin notation                                                                                           |

|     |                                                    |
|-----|----------------------------------------------------|
| dSk | Skin notation - danger of cutaneous absorption     |
| pSk | Skin notation - potential for cutaneous absorption |

**Key literature references and sources for data used to compile the SDS**

U.S. Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)  
European Chemicals Agency (ECHA) (ECHA\_API)  
U.S. Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications  
International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program  
International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set  
United Nations World Health Organization (WHO)

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**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

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**End of Safety Data Sheet**