

MATERIAL SAFETY DATA SHEET

IDENTIFICATION

Details of the supplier of the safety data sheet :

Company : Nanohelix Co., Ltd.
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Telephone Number : +82-42-867-9055
Fax Number : +82-42-867-9057
<http://www.nanohelix.net>

Information department :

Quality control, Nanohelix Co., Ltd.
E-mail : info@nanohelix.net

Product Name : dUTP 100mM

U.N.Number : None allocated.

Dangerous Goods Class : None allocated.

and Subsidiary Risk

Hazchem Code : None allocated.

Poison Schedule : None allocated.

Use : use dNTP Mixture

2 HAZARDS IDENTIFICATION

GHS Classification : Not a hazardous substance or mixture.

GHS Label element : Not a hazardous substance or mixture.

Other hazards : None known.

COMPOSITION/ INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Description : The product is a mixture of the non hazardous substances. The exact concentration percentages of the non hazardous substances may be withheld as a Nanohelix Co., Ltd. trade secret.

4 FIRST-AID MEASURES

General advice : Show this material safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air. If symptoms persist, call a physician.

In case of skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

In case of eye contact : Remove contact lenses. Protect unharmed eye. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed : If accidentally swallowed obtain immediate medical attention. Rinse mouth with water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed : No information available.

Notes to physician : No information available.

FIRE FIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

<i>Specific hazards during fire fighting</i>	: Exposure to decomposition products may be a hazard to health.
<i>Hazardous combustion products</i>	: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Carbon oxides Nitrogen oxides (NOx).
<i>Specific extinguishing methods</i>	: In the event of fire and/or explosion do not breathe fumes.
<i>Special protective equipment for fire-fighters</i>	: Wear self-contained breathing apparatus for firefighting if necessary.

ACCIDENTAL RELEASE MEASURES

<i>Personal precautions, protective equipment and emergency procedures</i>	: Use personal protective equipment. Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
<i>Environmental precautions</i>	: Prevent further leakage or spillage if safe to do so.
<i>Methods and material for containment and cleaning up</i>	: Keep in suitable, closed containers for disposal.

HANDLING AND STORAGE

<i>Advice on protection against fire and explosion</i>	: Normal measures for preventive fire protection.
<i>Advice on safe handling</i>	: Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
<i>Conditions for safe storage</i>	: Keep container tightly closed in a dry and well-ventilated place.
<i>Materials to avoid</i>	: Do not store near acids.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

<i>Ingredients with workplace control parameters</i>	: Contains no substances with occupational exposure limit values.
<i>Personal protective equipment</i>	
<i>Hand protection</i>	Remarks : The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
<i>Eye protection</i>	: Safety glasses
<i>Skin and body protection</i>	: Choose body protection according to the amount and concentration of the dangerous substance at the work place. Footwear protecting against chemicals.
<i>Hygiene measures</i>	: Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance</i>	: Liquid
<i>Color</i>	: No data available.
<i>Odor</i>	: Characteristic
<i>Odor Threshold</i>	: No data available.
<i>pH</i>	: No data available.
<i>Melting point/range</i>	: No data available.
<i>Boiling point</i>	: 95~100°C
<i>Flash point</i>	: Not applicable.

<i>Evaporation</i>	: No data available.
<i>Burning rate</i>	: Non flammable.
<i>Upper explosion limit</i>	: No data available.
<i>Lower explosion limit</i>	: No data available.
<i>Vapor pressure</i>	: No data available.
<i>Relative density</i>	: No data available.
<i>Relative density</i>	: No data available.
<i>Density</i>	: No data available.
Solubility(ies)	
<i>Water solubioity</i>	: No data available.
<i>Solubility in other solvents</i>	: No data available.
<i>Partition coefficient: n-octanol/water</i>	: No data available.
<i>Autoignition temperature</i>	: Not determined.
<i>Thermal decomposition</i>	: No data available.
Viscosity	
<i>Viscosity, dynamic</i>	: No data available.
<i>Viscosity, kinematic</i>	: No data available.
<i>Explosibe properties</i>	: No data available.
<i>Oxicizing properties</i>	: No data available.

10 STABILITY AND REACTIVITY

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: Stable under recommended storage conditions.
Conditions to avoid	: No data available.
Incompatible materials	: No data available.
Hazardous decomposition products	: No decomposition if stored and applied as directed.

11 TOXICOLOGICAL INFORMATION

Acute toxicity	: Not classified based on available information.
<u>Product</u>	
<i>Acute oral toxicity</i>	: No data available.
<i>Acute inhalation toxicity</i>	: No data available.
<i>Acute dermal toxicity</i>	: No data available.
Skin corrosion/irritation	: Not classified based on available information.
<u>Product</u>	: May cause skin irritation and/or dermatitis.
Serious eye damage/eye irritation	: Not classified based on available information.
<u>Product</u>	: Remarks - The product causes irritation of eyes, skin and mucous membranes.
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 ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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.
Further information	: No data available.

12 ECOLOGICAL INFORMATION

Ecotoxicity

Product

Toxicity to fish : No data available.

Toxicity to algae : No data available.

Toxicity to bacteria : No data available.

Persistence and degradability : No data available.

Bioaccumulative potential

Product : Bioaccumulation – No data available.

Mobility in soil : No data available.

Other adverse effects

Product

Ozone-Depletion Potential : Regulation - 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks - 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).

Additional ecological information : No data available.

13 DISPOSAL CONSIDERATION

Disposal methods

Waste from residues : Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging : Dispose of as unused product. Do not re-use empty containers.

14 TRANSPORT INFORMATION

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 : No data available.

Domestic regulation
49 CFR : Not regulated as a dangerous good.

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Domestic regulation

California Prop. 65

: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

TSCA list

No substances are subject to a Significant New Use Rule.

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

16 OTHER INFORMATION

The data provided in this Material Safety Data Sheet is based on current experience and knowledge. The purpose of this Material Safety Data Sheet is to describe products in terms of their safety requirements. This data given is designed only as a guidance for safe handling, use, storage, transportation, disposal and is not to be considered quality specification or warranty. The above details do not imply any guarantee concerning composition or performance of this product.