

MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Details of the supplier of the safety data sheet :

Company : Nanohelix Co., Ltd.
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Information department :

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

Product Name : D-solution

U.N.Number : None allocated

Dangerous Goods Class : None allocated

and Subsidiary Risk

Hazchem Code : None allocated

Poison Schedule : None allocated

Use : Laboratory chemicals

2 HAZARDS IDENTIFICATION

GHS Label element

Hazard pictograms



Signal word

: Danger

Hazard statements

: H302 - Harmful if swallowed.

: H314 - Causes severe skin burns and eye damage.

Precautionary statements

: P260 - Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

: P264 - Wash exposed skin thoroughly after handling.

: P270 - Do not eat, drink or smoke when using this product.

: P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.

: P301 + P312 + P330 - IF SWALLOWED : Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

: P303 + P361 + P353 - IF ON SKIN (or hair) : Take off immediately all contaminated clothing. Rinse skin with water/shower.

: P304 + P340 + P310 - IF INHALED : Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

: P305 + P351 + P338 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

: P363 - Wash contaminated clothing before reuse.

: P405 - Store locked up.

: P501 - Dispose of contents/ container according to waste-related laws.

3 | COMPOSITION/ INFORMATION ON INGREDIENTS

Substance / Mixture Description	: Mixture : The product is a mixture of the hazardous substances listed below along with unlisted nonhazardous substances. The exact concentration percentages of the hazardous substances may be withheld as a Nanohelix Co., Ltd. trade secret.
Synonyms	: Caustic potash Potassium hydrate
Formula	: KOH
Molecular weight	: 56.106 g/mol
Hazardous ingredients	

Name	CAS No.	EC No.	Weight (%)
Potassium hydroxide	1310-58-3	215-181-3	>=1 - <4

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. Wash off with soap and plenty of water. Consult 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.

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	: Exposure to decomposition products may be a hazard to health.
Hazardous combustion products	: Potassium oxides
Specific extinguishing methods	: In the event of fire and/or explosion do not breathe fumes.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus for firefighting if necessary.

6 | ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
Methods and materials for containment and cleaning up	: Keep in suitable, closed containers for disposal.

7 | HANDLING AND STORAGE

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : 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.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.

8 | EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Potassium hydroxide	1310-58-3	C	2 mg/m ³	KR OEL

Personal protective equipment

Hand protection 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).

Eye protection : Safety glasses

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place. Footwear protecting against chemicals.

Hygiene measures : 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.

9 | PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid

Color : No data available.

Odor : Characteristic

Odor Threshold : No data available.

pH : No data available.

Melting point/range : No data available.

Boiling point/boiling range : >40°C

Flash Point : >101°C (Closed-cup)

Evaporation rate : No data available.

Burning rate : No data available.

Upper explosion limit : No data available.

Lower explosion limit : No data available.

Vapor pressure : No data available.

Relative vapor density : No data available.

Relative density : No data available.

Density : No data available.

Solubility(ies)

Water solubility : No data available.

Solubility in other solvents : No data available.

Partition coefficient:

n-octanol/water : No data available.

Autoignition temperature : Not determined.

Decomposition temperature	: No data available.
Viscosity	
<i>Viscosity, dynamic</i>	: No data available.
<i>Viscosity, kinematic</i>	: No data available.
Explosive properties	: No data available.
Oxidizing properties	: No data available.

10 STABILITY AND REACTIVITY

Reactivity	: No data available.
Chemical stability	: Heat of solution is very high, and with limited amounts of water, violent boiling may occur. Stable under recommended storage conditions.
Possibility of hazardous reactions	: No data available.
Conditions to avoid	: Do not heat above melting point.
Incompatible materials	: Nitro compounds, Organic materials, Magnesium, Copper, Water, reacts violently with: Metals, Light metals, Contact with aluminum, tin and zinc liberates hydrogen gas.
Hazardous decomposition products	: No data available.

11 TOXICOLOGICAL INFORMATION

Acute toxicity	
<u>Product</u>	
<i>Acute oral toxicity</i>	: LD ₅₀ Oral - Rat - 333 mg/kg
<i>Acute inhalation toxicity</i>	: No data available.
<i>Acute dermal toxicity</i>	: No data available.
Skin corrosion/irritation	: Skin - Rabbit Result: Severe skin irritation - 24 h (OECD Test Guideline 405)
Serious eye damage/eye irritation	: Eyes – Rabbit Result: Corrosive to eyes
Respiratory or skin sensitisation	: No data available.
Germ cell mutagenicity	: No data available.
Carcinogenicity	: No data available.
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.
Reproductive toxicity	: No data available.
STOT-single exposure	: No data available.
STOT-repeated exposure	: No data available.
Aspiration toxicity	: No data available.
Further information	: No data available.

12 ECOLOGICAL INFORMATION

Ecotoxicity	
<u>Product</u>	
<i>Toxicity to fish</i>	: LC ₅₀ - Gambusia affinis (Mosquito fish) - 80 mg/l - 96 h
<i>Toxicity to algae</i>	: No data available.
<i>Toxicity to microorganisms</i>	: No data available.
Persistence and degradability	: The methods for determining the biological degradability are not

	applicable to inorganic substances.
Bioaccumulative potential	: No data available.
Mobility in soil	: No data available.
Results of PBT and vPvB assessment	: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects	: No data available.

13 DISPOSAL CONSIDERATION

Disposal methods

<i>Waste from residues</i>	: Dispose of contents/container in accordance with local regulation.
<i>Contaminated packaging</i>	: 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.

15 REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

SARA 304	: This material does not contain any components with a section 304 EHS RQ.
SARA 311/312 Hazards	: No SARA Hazards.
SARA 302	: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
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.
US State Regulations	
<i>California Prop 65</i>	: 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

a. List of references

b. Issuing date : Jan. 30, 2019

c. Version : 4

d. Revision Date : Dec. 7, 2023

e. Further 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.