dynamic BIOSENSORS

# Safety Data Sheet

according to 29 CFR 1910.1200(g)

**Regeneration solution**



## 1. Identification

**Product identifier**

Regeneration solution

**Further trade names**

This product is part of a kit.

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

**Use of the substance/mixture**

Use as laboratory reagent.
The product is intended for research, analysis and scientific education.

**Uses advised against**

Any non-intended use.

**Details of the supplier of the safety data sheet**

| | | |
|---|---|---|
| Company name: | Dynamic Biosensors Inc. | |
| Street: | 300 Trade Center, Suite 1400 | |
| Place: | USA-01801 Woburn, MA | |
| Telephone: | +1 781 404 6126 | |
| Responsible Department: | Dr. Gans-Eichler | e-mail: info@tge-consult.de |
| | Chemieberatung GmbH | Tel.: +49(0)2534 6441185 |
| | Otto-Hahn-Str. 36 | www.tge-consult.de |
| | D-48161 Münster | |

**Emergency phone number:** CONTACT (24-Hour-Number): GBK GmbH 01149-6132-84463

## 2. Hazard(s) identification

**Classification of the chemical**

**29 CFR Part 1910.1200**

Corrosive to metals: Met. Corr. 1
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2A

**Label elements**

**29 CFR Part 1910.1200**

**Signal word:** Warning

**Pictograms:**

**Hazard statements**

May be corrosive to metals
Causes skin irritation
Causes serious eye irritation

**Precautionary statements**

Keep only in original container.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin: Wash with plenty of water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.

If eye irritation persists: Get medical advice/attention.
Absorb spillage to prevent material damage.
Store in corrosive resistant container with a resistant inner liner.

**Hazards not otherwise classified**

No information available.

## 3. Composition/information on ingredients

**Mixtures**

**Chemical characterization**

Laboratory chemicals

**Hazardous components**

| CAS No | Components | Quantity |
|---|---|---|
| 1310-73-2 | sodium hydroxide; caustic soda | < 1 % |

## 4. First-aid measures

**Description of first aid measures**

**General information**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

**After inhalation**

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of respiratory tract irritation, consult a physician. In the case of lung irritation: Primary treatment using corticoide spray, eg. Auxiloson spray, Pulmicort-dosage-spray. (Auxiloson and Pulmicort are registered trademarks).

**After contact with skin**

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing. In case of skin irritation, seek medical treatment.

**After contact with eyes**

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

**After ingestion**

Do NOT induce vomiting. Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect). Observe risk of aspiration if vomiting occurs. Never give anything by mouth to an unconscious person or a person with cramps. When in doubt or if symptoms are observed, get medical advice.

**Most important symptoms and effects, both acute and delayed**

refer to section 2 and 11.

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**

The product itself does not burn.
Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

High power water jet.

**Specific hazards arising from the chemical**

Can be released in case of fire: Hydrogen chloride (HCl)

**Special protective equipment and precautions for fire-fighters**

In case of fire and/or explosion do not breathe fumes. In case of fire: Wear self-contained breathing apparatus.

**Additional information**

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Co-ordinate fire-fighting measures to the fire surroundings.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**General advice**

Do not breathe vapor or spray. Avoid contact with skin, eyes and clothes.

**For non-emergency personnel**

Wear personal protection equipment (refer to section 8).

**For emergency responders**

No special measures are necessary.

**Environmental precautions**

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). Do not allow to enter into soil/subsoil.

**Methods and material for containment and cleaning up**

**For containment**

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.

**For cleaning up**

Clean contaminated objects and areas thoroughly observing environmental regulations.

**Reference to other sections**

Safe handling: see section 7
Disposal: see section 13

## 7. Handling and storage

**Precautions for safe handling**

**Advice on safe handling**

Provide adequate ventilation.
Wear suitable protective clothing. ( See section 8.)
Avoid contact with skin, eyes and clothes.

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**Advice on general occupational hygiene**

The usual precautions for handling chemicals should be considered.
Always close containers tightly after the removal of product. Do not eat, drink, smoke or sneeze at the workplace. Wash hands before breaks and after work. Remove contaminated clothing immediatley and dispose off safely. Wash contaminated clothing prior to re-use.

**Further information on handling**

General protection and hygiene measures: See section 8.

**Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Keep only in the original container in a cool, well-ventilated place. Store locked up.
Suitable floor material: Material, leachate-proof.
Unsuitable container/equipment material: Metal

**Hints on joint storage**

Do not store together with: Explosives. Oxidizing solids. Oxidizing liquids. Organic peroxides. Self-reactive

substances and mixtures. Radioactive substances.. Infectious substances.

**Further information on storage conditions**

Recommended storage temperature: 2-8°C

Protect against: frost. UV-radiation/sunlight. heat. Humidity

## 8. Exposure controls/personal protection

**Control parameters**

**Exposure limits**

| CAS No | Substance | ppm | mg/m³ | f/cc | Category | Origin |
|---|---|---|---|---|---|---|
| 1310-73-2 | Sodium hydroxide | - | 2 | | TWA (8 h) | PEL |
| | | - | C 2 | | Ceiling | REL |

**Additional advice on limit values**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

**Exposure controls**




**Appropriate engineering controls**

Provide adequate ventilation.

Use extractor hood (laboratory).

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Recommended eye protection brand: Tightly sealed safety glasses. Standards: EN 166 or 29 CFR 1910.133

**Hand protection**

Pull-over gloves of rubber.

Standard: EN 374

Suitable material:

Butyl rubber. (0,5 mm) (Breakthrough time >= 8h)

FKM (fluororubber). (0,4 mm) (Breakthrough time >= 8h)

CR (polychloroprenes, Chloroprene rubber). (0,5 mm) (Breakthrough time >= 8h)

Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

**Skin protection**

Protective clothing.

**Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.

**Environmental exposure controls**

This material and its container must be disposed of in a safe way.

The product is an alkali. Before discharge into sewage plants the product normally needs to be neutralised.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

Physical state: liquid

| | |
|---|---|
| Color: | colourless |
| Odor: | characteristic |

**Changes in the physical state**

| | |
|---|---|
| Melting point/freezing point: | not determined |
| Boiling point or initial boiling point and boiling range: | not determined |
| Sublimation point: | No information available. |
| Softening point: | No information available. |
| Pour point: | not determined |
| Flash point: | not determined |

**Flammability**

| | |
|---|---|
| Solid/liquid: | No information available. |
| Gas: | No information available. |

**Explosive properties**

none

| | |
|---|---|
| Lower explosion limits: | not determined |
| Upper explosion limits: | not determined |
| Auto-ignition temperature: | not determined |

**Self-ignition temperature**

| | |
|---|---|
| Solid: | No information available. |
| Gas: | No information available. |
| Decomposition temperature: | No information available. |
| pH-Value (at 20 °C): | 13 |
| Viscosity / dynamic: | not determined |
| Viscosity / kinematic: | not determined |
| Flow time: | No information available. |
| Water solubility: | No information available. |

**Solubility in other solvents**

No information available.

| | |
|---|---|
| Partition coefficient n-octanol/water: | No information available. |
| Vapor pressure: (at 20 °C) | not determined |
| Vapor pressure: (at 50 °C) | No information available. |
| Density (at 20 °C): | not determined |
| Bulk density: | No information available. |
| Relative vapour density: | No information available. |

**Other information**

**Information with regard to physical hazard classes**

| | |
|---|---|
| Sustaining combustion: | No data available |

Oxidizing properties

none

**Other safety characteristics**

| | |
|---|---|
| Solvent separation test: | No information available. |
| Solvent content: | No information available. |
| Solid content: | not determined |

Evaporation rate: No information available.

**Further Information**

## 10. Stability and reactivity

**Reactivity**

No information available.

**Chemical stability**

Stability: Stable

The product is chemically stable under recommended conditions of storage, use and temperature.

**Possibility of hazardous reactions**

Hazardous reactions: Will not occur

No hazardous reaction when handled and stored according to provisions.
Violent reaction with: Acid
Reacts with : Substances which in contact with water, emit flammable gases. Organic peroxides. Oxidizing substances. Alkali metals. Oxidizing agents.

Refer to chapter 10.5.

**Conditions to avoid**

Protect against direct sunlight.
Keep away from heat.

**Incompatible materials**

Materials to avoid: Substances which in contact with water, emit flammable gases. Organic peroxides. Oxidizing liquids. Oxidizing solids. Alkali metals. Oxidizing agents.

**Hazardous decomposition products**

Can be released in case of fire:Hydrogen chloride (HCl)

## 11. Toxicological information

**Route(s) of Entry**

Ingestion: May be harmful if swallowed. Inhalation: May be harmful if inhaled. Skin contact: Causes skin irritation. Eye contact: Causes serious eye irritation.

**Information on toxicological effects**

**Toxicocinetics, metabolism and distribution**

No information available.

**Acute toxicity**

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

**Irritation and corrosivity**

Causes skin irritation
Causes serious eye irritation

**Sensitizing effects**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

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

**Specific target organ toxicity (STOT) - single exposure**

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

**Specific target organ toxicity (STOT) - repeated exposure**

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

Carcinogenicity (OSHA): No ingredient of this mixture is listed.
Carcinogenicity (IARC): No ingredient of this mixture is listed.

Carcinogenicity (NTP): No ingredient of this mixture is listed.

**Aspiration hazard**

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

**Specific effects in experiment on an animal**

No information available.

**Information on other hazards**

**Endocrine disrupting properties**

No information available.

## 12. Ecological information

**Ecotoxicity**

The product has not been tested.

**Persistence and degradability**

The product has not been tested.

**Bioaccumulative potential**

No indication of bioaccumulation potential.

**Mobility in soil**

No information available.

**Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.
The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

**Other adverse effects**

No information available.

**Further information**

Do not allow uncontrolled discharge of product into the environment.

## 13. Disposal considerations

**Waste treatment methods**

**Disposal recommendations**

Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal.

**RCRA Hazardous wastes (Resource Conservation and Recovery Act)**

D002 Corrosivity

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

## 14. Transport information

**US DOT 49 CFR 172.101**

| | |
|---|---|
| **UN number or ID number:** | UN 1824 |
| **Proper shipping name:** | SODIUM HYDROXIDE SOLUTION |
| **Transport hazard class(es):** | 8 |
| **Packing group:** | III |
| Hazard label: | 8 |


**Marine transport (IMDG)**

| | |
|---|---|
| **UN number or ID number:** | UN 1824 |
| **UN proper shipping name:** | SODIUM HYDROXIDE SOLUTION |
| **Transport hazard class(es):** | 8 |
| **Packing group:** | III |
| Hazard label: | 8 |


| | |
|---|---|
| Special Provisions: | 223 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |
| EmS: | F-A, S-B |
| Segregation group: | 18 - alkalis |

**Air transport (ICAO-TI/IATA-DGR)**

| | |
|---|---|
| **UN number or ID number:** | UN 1824 |
| **UN proper shipping name:** | SODIUM HYDROXIDE SOLUTION |
| **Transport hazard class(es):** | 8 |
| **Packing group:** | III |
| Hazard label: | 8 |


| | |
|---|---|
| Special Provisions: | A3 A803 |
| Limited quantity Passenger: | 1 L |
| Passenger LQ: | Y841 |
| Excepted quantity: | E1 |
| IATA-packing instructions - Passenger: | 852 |
| IATA-max. quantity - Passenger: | 5 L |
| IATA-packing instructions - Cargo: | 856 |
| IATA-max. quantity - Cargo: | 60 L |

**Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**Special precautions for user**

See section 8.

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

not relevant.

## 15. Regulatory information

**U.S. Regulations**

**National Inventory TSCA**

All components are listed in the TSCA 8 (b) inventory as "active" or exempted.
No components are listed under TSCA 12(b)

**National regulatory information**

SARA Section 304 CERCLA:
Sodium hydroxide (1310-73-2): Reportable quantity = 1,000 (454) lbs. (kg)
SARA Section 311/312 Hazards:
Sodium hydroxide (1310-73-2): Immediate (acute) health hazard

**State Regulations**

**Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)**

This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

This preparation is hazardous in the sense of regulation 29 CFR Part 1910.1200.

## 16. Other information

**Hazardous Materials Information Label (HMIS)**

| | |
|---|---|
| Health: | 2 |
| Flammability: | 0 |
| Physical Hazard: | 1 |
| Personal Protection: | B |

**NFPA Hazard Ratings**

| | |
|---|---|
| Health: | 1 |
| Flammability: | 0 |
| Reactivity: | 0 |
| Unique Hazard: | - |


**Changes**

| | |
|---|---|
| Revision date: | 08.12.2022 |
| Revision No: | 3,0 |

Rev. 1.0; 31.08.2015, Initial release
Rev. 1.1; 02.03.2016, Documentation of changes: Material no.: B-20-12. -> SOL-REG-12-1.
Rev. 1.2; 13.03.2017, Documentation of changes: chapter: 1, 16.
Rev. 2.0; 27.04.2021, Documentation of changes: chapter: 1-16
Rev. 3.0; 08.12.2022, Changes in chapter: 1,16

**Abbreviations and acronyms**

ACGIH:American Conference of Governmental Industrial Hygienists
ASTM: American Society for Testing and Materials.
ATE: acute toxicity estimate
BCF: Bio concentration factor
ECHA: European Chemicals Agency
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
DOT: Department of Transportation
d: days
EC50: Half maximal effective concentration
EN: European Norm
EPA: Environmental Protection Agency
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
h: hours
HMIS: Hazardous Materials Identification System
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
IBC: Intermediate Bulk Container
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
MARPOL: marine pollution
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect concentration
NTP: National Toxicology Program
N/A: not applicable
NFPA: National Fire Protection Association
UN: United Nations
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PBT: Persistent bioaccumulative toxic
RTECS: Registry of Toxic Effects of Chemical Substances
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
SARA: Superfund Amendments and Reauthorization Act
STEL: short-term exposure limits
TSCA: Toxic Substances Control Act
TWA: time weighted average
VOC: Volatile Organic Compounds

**Other data**

Classification according 29 CFR Part 1910.1200: - Classification procedure:
Health hazards: Calculation method.
Environmental hazards: Calculation method.
Physical hazards: On basis of test data and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*