Safety Data Sheet

Cat. # 786-1547

Ni-NTA Resin

Size: 25ml Resin
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : Ni-NTA Resin
Product code : 063N_064N_065N_067N_069N
Product group : Blend

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

1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

Emergency number : Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Belfast Centre) Royal Victoria Hospital</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Birmingham Centre) City Hospital</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Cardiff Centre) Gwennyx Ward, Llandough Hospital</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital Trust</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin sensitisation, Category 1 : H317
Carcinogenicity, Category 1A : H350

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

May cause cancer. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
2.2. Label elements

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

Hazard pictograms (CLP):

CLP Signal word: Danger
Hazardous ingredients: nickel dichloride, hexahydrate
Hazard statements (CLP):
- H317 - May cause an allergic skin reaction.
- H350 - May cause cancer.
Precautionary statements (CLP):
- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P272 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 - IF ON SKIN: Wash with plenty of water.
- P308+P313 - IF exposed or concerned: Get medical advice/attention.
- P362+P364 - Take off contaminated clothing and wash it before reuse.
- P405 - Store locked up.
- P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>agarose</td>
<td>(CAS-No.) 9012-36-6 (EC-No.) 232-731-8</td>
<td>50 - 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>10 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td>ethanol</td>
<td>(CAS-No.) 64-17-5 (EC-No.) 200-578-6 (EC Index-No.) 803-002-00-5</td>
<td>10 - 50</td>
<td>Flam. Liq. 2, H225</td>
</tr>
<tr>
<td>nickel dichloride, hexahydrate</td>
<td>(CAS-No.) 7791-20-0 (EC-No.) 231-743-0 (EC Index-No.) 028-011-00-6</td>
<td>&lt; 2</td>
<td>Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Mut. 2, H341 Carc. 1A, H350 Repr. 1B, H360D STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Specific concentration limits:

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>nickel dichloride, hexahydrate</td>
<td>(CAS-No.) 7791-20-0 (EC-No.) 231-743-0 (EC Index-No.) 028-011-00-6</td>
<td>( 0.01 &lt;=C &lt; 100) Skin Sens. 1, H317 ( 0.1 &lt;C &lt; 1) STOT RE 2, H373 ( 1 &lt;=C &lt; 100) STOT RE 1, H372 ( 20 =&lt;C &lt; 100) Skin Irrit. 2, H315</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16
Ni-NTA Resin
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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 4: First aid measures
4.1. Description of first aid measures
First-aid measures general: IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor.

First-aid measures after skin contact: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact: Rinse eyes with water as a precaution.

First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects after inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/effects after skin contact: May cause an allergic skin reaction.

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

SECTION 5: Firefighting measures
5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard: Combustible liquid.

Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Avoid breathing dust/fume/gas/mist/vapours/spray. Only qualified personnel equipped with suitable protective equipment may intervene. No open flames, no sparks, and no smoking.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hygiene measures: Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool. Store locked up.

Storage temperature: 4 °C

7.3. Specific end use(s)
No additional information available
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

nickel dichloride, hexahydrate (7791-20-0)

United Kingdom - Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL TWA (mg/m³)</td>
<td>0.1 mg/m³</td>
</tr>
</tbody>
</table>

ethanol (64-17-5)

United Kingdom - Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL TWA (mg/m³)</td>
<td>1920 mg/m³</td>
</tr>
<tr>
<td>WEL TWA (ppm)</td>
<td>1000 ppm</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : Blue-green.
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butyrate=1) : No data available
Melting point : Not applicable
Freezing point : No data available
Boiling point : No data available
Flash point : 65 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Not applicable
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information

No additional information available
SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
- Acute toxicity (oral): Not classified
- Acute toxicity (dermal): Not classified
- Acute toxicity (inhalation): Not classified

**ethanol (64-17-5)**
- LD50 oral rat: 10740 mg/kg bodyweight (Rat; OECD 401: Acute Oral Toxicity; Experimental value)
- LD50 dermal rabbit: > 16000 mg/kg (Rabbit; Literature study)
- LC50 inhalation rat (mg/l): > 20 mg/l (4 h, Rat, Inhalation)

- Skin corrosion/irritation: Not classified
- Serious eye damage/irritation: Not classified
- Respiratory or skin sensitisation: May cause an allergic skin reaction.
- Germ cell mutagenicity: Not classified
- Carcinogenicity: May cause cancer.

**ethanol (64-17-5)**
- IARC group: 1 - Carcinogenic to humans
- Reproductive toxicity: Not classified
- STOT-single exposure: Not classified
- STOT-repeated exposure: Not classified
- Aspiration hazard: Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

- Acute aquatic toxicity: Not classified
- Chronic aquatic toxicity: Not classified

**ethanol (64-17-5)**
- LC50 fish: 14200 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)
- EC50 Daphnia 1: 9300 mg/l (48 h, Daphnia magna, Pure substance)
- EC50 72h algae (1): 275 mg/l (Equivalent or similar to OECD 201, Chlorella vulgaris, Static system, Fresh water, Experimental value, Growth rate)

12.2. Persistence and degradability
**nickel dichloride, hexahydrate (7791-20-0)**
- Persistence and degradability: Biodegradability: not applicable.
- Chemical oxygen demand (COD): Not applicable
- ThOD: Not applicable
- BOD (% of ThOD): Not applicable
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agarose (9012-36-6)
Persistence and degradability
Biodegradability in water: no data available.

ethanol (64-17-5)
Persistence and degradability
Readily biodegradable in water. Biodegradable in the soil. No (test)data on mobility of the substance available.

Biochemical oxygen demand (BOD)
0.8 - 0.967 g O₂/g substance

Chemical oxygen demand (COD)
1.7 g O₂/g substance

ThOD
2.1 g O₂/g substance

BOD (% of ThOD)
0.43

12.3. Bioaccumulative potential

nickel dichloride, hexahydrate (7791-20-0)

BCF fish 1
40 - 1000 (Pisces, Nickel ion)

BCF other aquatic organisms 1
0.9 - 11.6 (Daphnia magna, Nickel ion)

BCF other aquatic organisms 2
250 - 1700 (Chlorophyta, Nickel ion)

agarose (9012-36-6)
Bioaccumulative potential
No bioaccumulation data available.

ethanol (64-17-5)

BCF fish 1
1 (Other, 72 h, Cyprinus carpio, Static system, Fresh water, Read-across)

Log Pow
-0.35 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 24 °C)

Bioaccumulative potential
Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

agarose (9012-36-6)
Ecology - soil
No (test)data on mobility of the substance available.

ethanol (64-17-5)

Surface tension
0.0245 N/m (20 °C)

Ecology - soil
Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

Component
ethanol (64-17-5)
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods:
Waste treatment methods.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : Not regulated
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated
UN-No. (ADN) : Not regulated
UN-No. (RID) : Not regulated

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Not regulated

5/11/2017 (Version: 1.1) EN (English)
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Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated
Proper Shipping Name (ADN) : Not regulated
Proper Shipping Name (RID) : Not regulated

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR) : Not regulated
IMDG
Transport hazard class(es) (IMDG) : Not regulated
IATA
Transport hazard class(es) (IATA) : Not regulated
ADN
Transport hazard class(es) (ADN) : Not regulated
RID
Transport hazard class(es) (RID) : Not regulated

14.4. Packing group
Packing group (ADR) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated
Packing group (ADN) : Not regulated
Packing group (RID) : Not regulated

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user
Overland transport
Not regulated
Transport by sea
Not regulated
Air transport
Not regulated
Inland waterway transport
Not regulated
Rail transport
Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
15.1.1. EU-Regulations
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out
### Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 3 (Inhalation)</td>
<td>Acute toxicity (inhal.), Category 3</td>
</tr>
<tr>
<td>Acute Tox. 3 (Oral)</td>
<td>Acute toxicity (oral), Category 3</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 1</td>
</tr>
<tr>
<td>Carc. 1A</td>
<td>Carcinogenicity (inhalation) Category 1A</td>
</tr>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids, Category 2</td>
</tr>
<tr>
<td>Muta. 2</td>
<td>Germ cell mutagenicity, Category 2</td>
</tr>
<tr>
<td>Repr. 1B</td>
<td>Reproductive toxicity, Category 1B</td>
</tr>
<tr>
<td>Resp. Sens. 1</td>
<td>Respiratory sensitisation, Category 1</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation, Category 2</td>
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<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitisation, Category 1</td>
</tr>
<tr>
<td>STOT RE 1</td>
<td>Specific target organ toxicity — Repeated exposure, Category 1</td>
</tr>
<tr>
<td>STOT RE 2</td>
<td>Specific target organ toxicity — Repeated exposure, Category 2</td>
</tr>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled.</td>
</tr>
<tr>
<td>H334</td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled.</td>
</tr>
<tr>
<td>H341</td>
<td>Suspected of causing genetic defects.</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer.</td>
</tr>
<tr>
<td>H350i</td>
<td>May cause cancer by inhalation.</td>
</tr>
<tr>
<td>H360D</td>
<td>May damage the unborn child.</td>
</tr>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>H373</td>
<td>May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

**Safety Data Sheet applicable for regions:** GB - United Kingdom

**SDS EU (REACH Annex II)**

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*