

Material Safety Data Sheet (MSDS)

MAGic™ Beads Ni-IMAC

1. Product and Company Information

Product name

MAGic™ Beads Ni-IMAC

General use

Intended for binding and purification of proteins and other molecules through nickel-based affinity interactions. For *in vitro* research use only. Not for animal or human use.

Product number

11xx

Chemical family

Not defined.

CAS number

Not yet assigned.

Manufacturer's name and address

MAGic BioProcessing (Lab-on-a-Bead AB), Virdings Allé 28, SE-75450 Uppsala, Sweden.

Contact person

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Emergency telephone number

Emergency telephone number: 112 (EU emergency number)

Availability: 24 hours

Product use

For *in vitro* isolation and purification of histidine-tagged proteins. Not for animal or human use.

2. Hazards Identification

In accordance with regulation (EC) No.1272/2008(CLP/GHS) and 1907/2006 annex II

Product definition

The product is a mixture.

Signal word

Danger

Classification

Flam. Liq. 3, H226

Acute tox. 3, H301+331

Skin Irr. 2, H315

Skin. Sen. 1, H317

Resp Sens. 1, H334

Muta. 2, H341

Carc. 1A, H350i

Repr. 1B, H360D

STOT RE 1, H372

Aquatic Acute, H400

Aquatic Chronic 3, H410

Label elements

Hazard pictograms

Hazard statement

H226	Flammable liquid and vapor
H301+331	Acute toxicity
H315+H317	May cause an allergic skin reaction
H350i	Suspected of causing cancer
H360D	May damage the unborn child
H372	May cause damage to organs through prolonged or repeated exposure
H400+410	Harmful to aquatic life with lasting effects

Precautionary statements

P201	Obtain special instructions before use
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P260	Do not breathe dust, fume, gas, mist, vapors, or spray
P280	Wear protective gloves, protective clothing and eye or face protection
P380+P313	If exposed or concerned: get medical advice/attention
P403+P235	Store in well-ventilated place. Keep cool

Supplemental hazardous information

Contains: Nickel chloride hexahydrate

Other hazards

This product does not contain any substances that have been identified as PBT or vPvB.

3. Composition/Information on Ingredients

Ingredients/Components

Product/ingredient	%	Classification 1272/2008 (CLPGHS)
Ethanol CAS No: 64-17-5 Index No: 603-002-00-5 EC No: 200-578-6 REACH: 01-2119457610-43	15-20	Flammable liquid, H226
Nickel chloride hexahydrate CAS No: 7791-20-0 Index No: 028-011-00-6 EC No: 231-743-0 REACH: 01-2119486973-20-XXXX	<0.6%	Acute Tox. 3, Skin Irrit. 2, Skin. Sens. 1, Resp. Sens. 1, Muta. 2, Carc. 1A, Repr. 1B, STOT RE 1, Aquatic Acute 1, Aquatic Chronic 1; H301, H331 H315, H317, H334, H341, H350i, H360D, H372, H400, H410
MAGic™ Beads Ni-IMAC	10	N/A

4. First Aid Measures

Generally

If symptoms occur or in case of doubt, seek medical advice. Never give anything by mouth to an unconscious person. Place an unconscious person in the recovery position and maintain an open airway while awaiting medical assistance.

Inhalation

Remove exposed subject to fresh air and rinse nose, mouth and throat with water. Seek immediate medical attention if symptoms appear.

Ingestion

If swallowed, rinse the mouth thoroughly with water. Do not induce vomiting. Provide water to drink if the affected person is conscious. Obtain medical advice if symptoms develop.

Skin

Wash skin with soap and rinse with plenty of water. Seek medical attention if irritation develops.

Eyes

Immediately flush eyes with plenty of water. If symptoms as redness or irritation, seek immediate medical attention.

Protection of first aiders

No action shall be taken involving any personal risk without suitable training.

Most important effects and symptoms, both acute and delayed

Generally: May damage the unborn child

Generally: May cause damage to organs through prolonged and repeated exposure

Skin: Allergic reactions

Inhalation: May cause cancer

Indication of any immediate medical attention and special treatment needed

Note to physician: treat symptomatically. Contact poison treatment specialist if large quantities have been digested or inhaled. When obtaining medical advice, have the product label or this MSDS available.

5. Fire Fighting Measures

Extinguishing media

Use dry chemical, CO₂, water spray (fog) or foam. Do NOT use water jet.

Conditions of flammability:

Flash point: ≥23°C

Initial boiling point: ≥60°C

Auto-ignition temperature: No data available

Hazards from the substance or mixture

Flammable liquid and vapor.

Hazardous combustion products

Flammable vapours may form explosive mixtures with air. Burning may release toxic and environmentally hazardous combustion products, such as carbon monoxide and carbon dioxide. Decomposition of nickel chloride may produce toxic or corrosive fumes, including hydrogen chloride and nickel-containing compounds. Contaminated firefighting water must be contained and prevented from entering drains or waterways and disposed of in accordance with applicable regulations.

Advice for fire-fighters

Firefighters should use appropriate respiratory and protective equipment. Keep exposed containers cool with water spray and prevent contaminated extinguishing water from spreading. Protect nearby materials from heat and fire.

Explosion data

MAGic™Beads Ni-IMAC is not explosive.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Eliminate ignition sources and avoid static discharge. Ensure adequate ventilation and avoid inhalation and contact with skin or eyes. Keep unprotected personnel away and evacuate the affected area as necessary. Use appropriate PPE as specified in Section 8. Wear chemical protective clothing and suitable respiratory protection where required, particularly in oxygen-deficient or unknown atmospheres. Do not operate electrical switches or equipment within the contaminated area.

Environmental precautions

Prevent entry into drains, sewers, basements, pits, waterways, and soil. Contain the release and notify the relevant authorities of significant or uncontrolled discharges.

Method and materials for containment and cleaning up

Stop the release if safe to do so. Contain and absorb liquid with a suitable inert absorbent, such as vermiculite. Collect contaminated material in appropriate containers for disposal as hazardous waste. Use non-sparking equipment and ensure adequate ventilation during cleanup. Dispose of waste in accordance with applicable regulations. Ignition sources and avoid static discharge. Ensure adequate ventilation and avoid inhalation.

7. Handling and Storage

Precautions for safe handling

Keep away from ignition sources, heat, sparks, and open flames. Prevent static discharge by grounding and bonding containers during transfer; use non-sparking equipment. Provide appropriate engineering controls and PPE as specified in Section 8.

Avoid inhalation, spill, and contact with skin or eyes. Do not eat, drink, or smoke during handling. Wash hands after use and remove contaminated clothing; launder before reuse. Keep away from food, children, pets, and incompatible materials. Pregnant women should avoid exposure.

Conditions for safe storage, including any incompatibilities

Store tightly closed in the original container in a cool, dry, well-ventilated, locked area at 4–30 °C. Store as a flammable liquid, away from heat, ignition sources, food, feed, and incompatible materials. Keep out of reach of children and prevent exposure to humans, animals, and sensitive environments. Reseal opened containers securely.

8. Exposure Controls/Personal Protection

Control parameters

Ethanol

- Time-weighted-average exposure limit (TWA) 1000 ppm / 1920 mg/m³.
Ethanol does not meet the classification criteria for acute toxicity based on the available data.

Nickel compounds

- Time-weighted-average exposure limit (TWA) 0.1 mg/m³ (water-soluble nickel compounds (as Ni)) / 0.5 mg/m³ (nickel and water-insoluble nickel compounds (as Ni)).

Derived No-Effect Levels (DNEL)

Product/ingredient name	Exposure group, route	Exposure duration / effect	DNEL
Ethanol	Workers, inhalation	Long-term systemic effects	950 mg/m ³
	Workers, inhalation	Short-term local effects	1,900 mg/m ³
	Workers, dermal	Long-term systemic effects	343 mg/kg bw/day
	General population, inhalation	Long-term systemic effects	114 mg/m ³
	General population, inhalation	Short-term local effects	950 mg/m ³
	General population, dermal	Long-term systemic effects	206 mg/kg bw/day
	General population, dermal	Short-term local effects	87 mg/kg bw/day
	General population, oral	Long-term systemic effects	950 mg/m ³
Nickel compounds	Workers, inhalation	Short-term systemic effects	16 mg/m ³
	Workers, inhalation	Short-term local effects	0.7 mg/m ³
	General population, inhalation	Long-term systemic effects	0.00002 mg/m ³
	General population, inhalation	Short-term local effects	0.4 mg/m ³
	General population, oral	Short-term systemic effects	0.012 mg/kg bw/day

Exposure controls

Appropriate engineering controls

Provide adequate general and, where necessary, local exhaust ventilation to maintain airborne concentrations below applicable exposure limits. Avoid generation and accumulation of vapours, dust or aerosols.

Individual protection measures

Eye/face protection: Wear safety glasses with side protection or chemical splash goggles where there is a risk of splashing.

Skin protection: Wear suitable protective clothing. Use chemical-resistant protective gloves, particularly where prolonged or repeated contact is possible.

Respiratory protection: Ensure adequate ventilation. Where exposure limits may be exceeded or ventilation is insufficient, use suitable respiratory protection appropriate to the contaminant and exposure conditions.

Thermal hazards:

No specific thermal protective equipment required under normal conditions of use. Keep away from ignition sources due to the flammable nature of ethanol.

Environmental exposure controls:

Prevent uncontrolled release to drains, surface water, soil and the wider environment. Apply appropriate containment and waste-management measures.

9. Physical and Chemical Properties

Physical state

MAGic™Beads Ni-IMAC is suspension of solids in water-ethanol mixture with a flash point at $\geq 23^{\circ}\text{C}$.

Odor and appearance

MAGic™Beads Ni-IMAC solution has a sweet alcohol odor. It is a suspension of black particles.

Specific gravity

Approximately 1 kg/L

Vapor pressure

No data available

Evaporation rate

No data available

Boiling point

Not determined

Freezing point/melting point

No data available

pH

Near neutral pH

10. Stability and Reactivity

Reactivity

No hazardous reactivity is expected under normal use or storage. Vapours may form flammable mixtures with air.

Chemical stability

The product is stable under normal storage and handling conditions.

Possibility of hazardous reactions

No hazardous reactions are expected under normal conditions of use and storage.

Conditions to avoid

Keep away from heat, sparks, open flames, and direct sunlight.

Incompatible materials

Avoid contact with strong oxidizing agents.

Hazardous decomposition products

No hazardous decomposition products are expected under normal conditions of use and storage. In the event of fire or thermal decomposition, carbon monoxide and carbon dioxide may be produced.

11. Toxicological Information

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

Information on possible health hazards is based on experience and / or toxicological properties of several components in the product.

Acute toxicity

Toxic if swallowed. Available acute toxicity data for relevant components include:

Skin corrosion/irritation

May cause skin irritation.

Serious eye damage/eye irritation

The product is not classified as causing serious eye damage or eye irritation.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Suspected of causing genetic defects.

Carcinogenicity

May cause cancer by inhalation.

Reproductive toxicity

May damage the unborn child.

Specific target organ toxicity – single exposure (STOT-SE)

The product is not classified as causing specific target organ toxicity following a single exposure.

Specific target organ toxicity – repeated exposure (STOT-RE)

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

The product is not classified as presenting an aspiration hazard.

Endocrine disrupting properties

No data available indicating endocrine-disrupting properties relevant to classification.

12. Ecological Information

Toxicity

Harmful to aquatic life with long-lasting effects. Avoid release to the environment and prevent discharge to soil, surface water, groundwater, sewers, and drains.

Product/ingredient name	Result*	Species*	Exposure*
Ethanol	Acute LC ₅₀ 14200 mg/L	<i>Pimephales promelas</i> (fish)	96 hours
	Acute LC ₅₀ 10000 mg/L	<i>Alburnus alburnus</i> (fish)	96 hours
	Acute LC ₅₀ 11050 mg/L	<i>Poecilia reticulata</i>	7 days
	Acute EC ₅₀ 10000 mg/L	<i>Daphnia magna</i> (aquatic invertebrate)	24 hours
Nickel chloride hexahydrate	Acute EC ₅₀ 11 mg/L	<i>Daphnia magna</i> (aquatic invertebrate)	24 hours
	LOEC 0.14mg/L	<i>Entosiphon sulcatum</i> (microorganism)	72 hours

*ETOX

Degradability

Bioaccumulative potential: No data available on the bioaccumulation potential of the product.

Mobility in soil: No data available on the mobility of the product in soil.

Results of PBT and vPvB assessment: The product does not meet the criteria for classification as PBT or vPvB.

Endocrine disrupting properties: The substance does not contain an endocrine disruptor at a concentration of <0.6%.

Other adverse effects: No data available. Avoid release to the environment, including drains and surface or groundwater.

13. Disposal Considerations

Waste disposal

Prevent discharge to sewers and the environment. Dispose of the product as hazardous waste in accordance with applicable national and regional waste regulations and Directive 2008/98/EC.

Packaging containing product residues shall be treated as hazardous waste. Completely emptied packaging may be recycled where permitted.

Recommended LoW code: 07 07 04 – Other organic solvents, washing liquids and mother liquors.

14. Transport Information

International directives for transportation

The following information applies to ADR (road), RID (rail), ADN (inland waterways), IMDG (sea), and ICAO/IATA (air) transport regulations.

UN number: 1170

UN proper shipping name: Ethanol

Transport hazard class: Class 3 – Flammable liquids

ADR/RID classification code: F1 – Flammable liquids with a flash point of ≤60 °C

IMDG subsidiary risk: None

IATA: Non-hazardous for air transport. According to IATA Special Provision A 58, aqueous solutions containing 24% or less of ethanol is not subject to these regulations.

Packing group:

III

Environmental hazards

Not applicable.

Special precautions for the user

Tunnel restriction code: D/E.

Transport category: 3.

Maximum total quantity per transport unit: 1,000 kg or L (ADR 1.1.3.6).

Maritime transport in bulk according to IMO instruments

Not applicable.

Additional transport information

IMDG stowage category: A.

EmS – Fire: F-E.

EmS – Spillage: S-D.

15. Regulatory Information

This document complies with Controlled Products Regulations and the MSDS contains all the information required by those regulations.

The product is subject to Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP), as amended.

Nickel chloride hexahydrate (CAS 7791-20-0):

Subject to applicable restrictions under REACH Annex XVII, including Entry 27 concerning nickel and its compounds. Applicable restrictions and conditions of use shall be observed.

Ethanol (CAS 64-17-5, ≤20%):

Subject to the requirements of REACH and CLP. Ethanol has a harmonised CLP classification as a flammable liquid (Flam. Liq. 2).

Applicable national and local regulations concerning occupational health, environmental protection, storage, handling and waste management shall be observed.

16. Other Information

WARRANTY

The above information is believed to be correct but does not claim to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. It does not represent any guarantee of the properties of the product. MAGic BioProcessing (Lab-on-a-Bead AB) shall not be held liable for any damage resulting from handling or from contact with the above product.

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