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MATERIAL SAFETY DATA SHEET

Version 1.3
Revision Date 10/26/2023
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SECTION 1: Identification

(a) Product identifier used on the label;

Product Name: *i*CapTag™ bulk resin

Product Form: Mixture

Product Numbers:

1.5. mL of *i*CapTag™ bulk resin 10 mL of *i*CapTag™ bulk resin 25 mL of *i*CapTag™ bulk resin

050001502



655498485602

05001002



655498485527

05002502



655498485510

Brand: Protein Capture Science

(b) Other means of identification;

None

(c) Recommended use of the chemical and restrictions on use;

General usage:

- Laboratory usage
- Scientific research and development
- Analytical chemistry usage; e.g., liquid chromatography

Industrial usage:

- Protein and peptide purification
- Scientific research and development
- Analytical chemistry usage (e.g., high-throughput studies, liquid chromatography (LC), fast protein liquid chromatography (FPLC))

(d) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party;

Company

Address

Phone Number

Email

Protein Capture Science

1275 Kinnear Road, Suite 264

Columbus, OH 43212

United States

+1-855-727-8247

contact@proteincapturescience.com



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SECTION 2: Hazard(s) Identification

(a) Classification of the chemical

GHS Classification by 29 CFR 1910 (OSHA HCS)

Ethanol (ethyl alcohol); actual product mixture 18% ± 2% ethanol

Physical hazard: Flammable liquids (Category 3), GHS classification H226

Health hazard: Serious eye damage/eye irritation (Category 2)

Identification number: UN1170

EU Risk Phrases:

R10 Flammable

R22 Harmful if swallowed

S16 Keep away from sources of ignition – No smoking

S20 When using do not eat or drink

(b) Signal word, hazard statement(s), symbol(s), and precautionary statement(s)

Pictogram:



Signal word: Warning

Precautionary statement(s): Flammable liquid and vapor.

(c) Describe any hazards not otherwise classified that have been identified during the classification process (according to GHS);

Hazard Statement(s)

GHS H226: Flammable liquid and vapor.

Precautionary Statement(s)

GHS P210: Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.

GHS P233: Keep container tightly closed.

GHS P240: Ground and bond container and receiving equipment.

GHS P241: Use explosion-proof electrical/ ventilating/ lighting equipment.

GHS P242: Use non-sparking tools.

GHS P243: Take action to prevent static discharges.

GHS P280: Wear protective gloves/ eye protection/ face protection.

GHS P303, P361, P353: if on skin (or hair), take off immediately all contaminated clothing. Rinse skin with water/ shower.

GHS P370, P378: in case of fire, use dry sand, dry chemical, or alcohol resistant foam to extinguish.

GHS P403, P235: store in a well-ventilated place. Keep cool. Dispose of contents/container(s) to



approved waste disposal containers in accordance with local, regional, national, and international regulations.

- (d) Hazards not otherwise classified (HNOC) or not covered by GHS; Where an ingredient with unknown acute toxicity is used in a mixture at a concentration $\geq 1\%$ and the mixture is not classified based on testing of the mixture as a whole.

None.

SECTION 3: Composition/information on ingredients

Mixture:

Ethanol (Ethyl Alcohol)	Water	6% Cross-linked Agarose
CAS: 64-17-5 EC-No. : 200-578-6 Index-No. (C&L Inventory): 603-002-00-5 Concentration (v/v): 18.0% \pm 2%	CAS: 7732-18-5 EC-No. : 231-791-2	<ul style="list-style-type: none">• Bulk resin: 50% slurry [v/v] in storage solvent in 18% \pm 2% ethanol• OSHA exposure limit of 6% cross-linked agarose: Not established• Non-pathogenic

SECTION 4: First Aid Measures

4.1. Description of first-aid measures

Response if on skin (or hair): Take off immediately all contaminated clothing. Wash off with soap. Rinse skin/hair with water. If skin irritation occurs consult a physician.

Response if in eyes: Rinse cautiously with water for 15 minutes. Remove contact lenses if present. Continue rinsing. If eye irritation persists, consult a physician.

Response if inhaled: Move to fresh air. Get medical attention.

Response if swallowed: Rinse mouth with water and drink plenty of water. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see Section 2.2) and/or in Section 11.

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

No data available.

SECTION 5: Fire Fighting Measures

20% Ethanol

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂) foam, dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.



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5.2. Special hazards arising from the substance or mixture

Carbon oxides.

Mixture with combustible ingredients.

5.3. Special protective equipment and precautions for fire-fighters

In the event of a fire, wear a self-contained breathing apparatus.

5.4. Further information

Remove the container from a danger zone and cool it with water.

WARNING: Containers may burst or explode if heated. If it is possible, move containers away from the heat or fire area.

SECTION 6: Accidental release measures

(a) Personal precautions, protective equipment, and emergency procedures.



It is recommended to wear a lab coat, eye protection with side shields (standard EN 166), and gloves (thickness 0.5 mm, permeation 6 (> 480 minutes), standard EN ISO 374; e.g., nitrile rubber) while working with the material.

Avoid direct contact with a mixture containing ethanol or breathing vapours, aerosols, and mist. Work in an area with adequate ventilation. In case of insufficient ventilation, use respiratory equipment (e.g., gas mask, filter type A, standard EN 14387). Keep away from flames, heat, and sources of ignition.

(b) Methods and materials for containment and cleaning up.

Do not dispose of it in drains.

Use non-flammable absorbent materials to clean a spill (e.g., sand). Don't let spilled material enter soil or drains. If needed, contact a licensed waste disposal contractor.

Follow all applicable federal, state, and local environmental regulations.

SECTION 7: Handling and Storage

(a) Precautions for safe handling.

If the seal was originally around the cap, ensure that the bottle was not open during transportation.

Read the labels. Work with the product in a well-ventilated area using personal precautions and protective equipment, as it was mentioned in Section 6.

(b) Conditions for safe storage, including any incompatibilities.

Store products at lower temperatures (2–8°C/36–46°F) for maximum shelf life. Don't allow the spill of the bottles while storing. For smaller items use an extra plastic zip lock bag or tight container to store products. Keep bottles closed tightly and dry. Use parafilm to seal bottles. Keep away from heat, flames, sparks, or other ignition sources. Keep the mixture away from oxidizing agents, highly flammable materials, and combustible materials.

Suitable packing material: HDPE, iron, carbon steel, synthetic material, metal, polypropylene, stainless steel, glass. Avoid materials such as aluminum, PVC, zinc, and copper.



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Storage class (of products containing 20% ethanol): TRGS 510; class 3, flammable liquids.

SECTION 8: Exposure Controls/Personal Protection

(a) OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

Ethanol [CAS: 64-17-5]

ACGIH Threshold Limit Values (TLV, United States, 3/2015)

STEL: 1000 ppm 15 minute(s)

NIOSH Recommended Exposure Limits (REL, United States, 10/2013)

TWA: 1900 mg/m³ 10 hour(s)

TWA: 1000 ppm 10 hour(s)

OSHA PEL (United States, 2/2013)

TWA: 1900 mg/m³ 8 hour(s)

TWA: 1000 ppm 8 hour(s)

California permissible exposure limits for chemical contaminants (Title 8, Article 107)/OSHA PEL

TWA: 1900 mg/m³ 8 hour(s)

TWA: 1000 ppm 8 hour(s)

(b) Appropriate engineering controls.

Ethanol [CAS: 64-17-5]

Use standard hygiene while working with the product in the lab, including washing hands after working with the resin mixture. In case of a spill, if needed change contaminated clothing and follow the steps in Section 6.

(c) Individual protection measures, such as personal protective equipment.

Ethanol [CAS: 64-17-5]



It is recommended to wear a lab coat, eye protection, and gloves while working with the material.



Don't heat up the mixture containing ethanol. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Instead, equilibrate/wash the resin mixture with buffers (e.g., 150 mM H₃PO₄) to remove ethanol at room temperature before resin usage.



Respiratory protection is required when vapours/aerosols are generated.

See exposure limits Section 8a above.



SECTION 9: Physical and Chemical Properties

Ethanol (ethanol-water mixture)

(a) Appearance (physical state, color, etc.);	Form: liquid Color: colorless
(b) Odor;	Alcohol-like, sweet
(c) Odor threshold;	Data not available
(d) pH;	Data not available
(e) Melting point/freezing point;	19.4 – 21.2 °F (-7 to -6 °C) (for 14-20% ethanol)
(f) Initial boiling point and boiling range;	188.6 – 194 °F (87 – 90 °C) (for 14-20% ethanol)
(g) Flash point;	est. 36-42 °C (97-108 °F) (for 20-16% ethanol, respectively)
(h) Evaporation rate;	Expected to be rapid.
(i) Flammability (solid, gas);	Not applicable.
(j) Upper/lower flammability or explosive limits;	Flammability limit – lower: 3.3 % (for 100% ethanol) Flammability limit – upper: 19 % (for 100% ethanol)
(k) Vapor pressure;	59.5 hPa (for 100% ethanol; 68 °F (20 °C))
(l) Vapor density;	1.6
(m) Relative density;	0.972 – 0.977 g/ml (77 °F (25 °C); for 14-20% ethanol)
(n) Solubility;	Completely soluble in water
(o) Partition coefficient: n-octanol/water;	Data not available
(p) Auto-ignition temperature;	Data not available
(q) Decomposition temperature;	Data not available
(r) Viscosity.	Data not available

SECTION 10: Stability and Reactivity

20% Ethanol

(a) Reactivity;	The product is stable and non-reactive under normal conditions of use, storage, and transport.
(b) Chemical stability;	Material is stable under normal conditions.
(c) Possibility of hazardous reactions;	Risk of explosion/exothermic reaction with (for 100% ethanol): hydrogen peroxide, perchlorates, perchloric acid, nitric acid, mercury(II) nitrate, permanganic acid, nitriles, peroxi compounds,



	strong oxidizing agents, nitrosyl compounds, peroxides, sodium, potassium, halogen oxides, calcium hypochlorite, nitrogen dioxide, metallic oxides, uranium hexafluoride, iodides, chlorine, alkali metals, alkaline earth metals, alkali oxides, ethylene oxide, silver with nitric acid, silver compounds with ammonia, potassium permanganate with conc. sulfuric acid. Risk of ignition or formation of inflammable gases or vapours with (for 100% ethanol): halogen-halogen compounds, chromium(VI) oxide, chromyl chloride, fluorine, hydrides, oxides of phosphorus, platinum, nitric acid with potassium permanganate
(d) Conditions to avoid (e.g., static discharge, shock, or vibration);	Keep away from heat, sparks, flames, ignition sources and hot surfaces. Avoid contact with incompatible materials. Avoid temperatures exceeding the flash point.
(e) Incompatible materials;	Strong oxidizing agents.
(f) Hazardous decomposition products.	No hazardous decomposition products are known.

SECTION II: Toxicological Information

Cross-linked Agarose: any toxicological (health) effects are not known.

Ethanol [CAS: 64-17-5]

(a) Information on the likely routes of exposure (inhalation, ingestion, skin, and eye contact).

- Oral contact
- Dermal contact
- Inhalation contact
- Eye contact

(b) Symptoms related to the physical, chemical, and toxicological characteristics.

Symptoms may include coughing, tearing, redness, and swelling.

(c) Delayed and immediate effects and chronic effects from short- and long-term exposure.

- Oral contact: May cause nausea, and vomiting.
- Dermal contact: Prolonged skin contact may cause temporary irritation.
- Inhalation contact: Short- and long-term exposure may cause slight mucosal irritation and headache.
- Eye contact: Causes serious eye irritation.

(d) Numerical measures of toxicity (such as acute toxicity estimates).

Acute toxicity



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Inhalation (vapor)

LC₅₀ for rat: 117 - 125 mg/L, 4 Hours

Oral

LD₅₀ for rat: 10470 mg/kg

- (e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

Ethanol is not classified as a carcinogen to humans by NTP, OSHA or IARC. Although, the European Chemicals Agency (ECHA) identified that this substance may cause cancer (Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)).

SECTION 12: Ecological Information

Cross-linked Agarose: any ecotoxicity effects are not known. Sections 12 a-e: data not available.

Ethanol [CAS: 64-17-5]

- (a) Ecotoxicity (aquatic and terrestrial, where available);

LC ₅₀ fish (mortality, 96 hours)	13 g/L
LC ₅₀ daphnia (mortality, 96 hours)	>100 mg/L
EC ₅₀ daphnia (intoxication, 48 hours)	9.3 mg/L

- (b) Persistence and degradability;

Biodegradation: 84%.

Biodegradable: in the soil and readily in water

- (c) Bioaccumulative potential;

Data not available.

- (d) Mobility in soil;

Ethanol is poorly absorbed in a soil and evaporates at a rapid rate.

- (e) Other adverse effects (such as hazardous to the ozone layer).

SECTION 13: Disposal Considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.



SECTION 14: Transport Information

(a) UN number;	DOT (US) UN number: 1170 IMDG UN number: 1170 IATA UN number: 1170
(b) UN proper shipping name;	Ethanol solution
(c) Transport hazard class(es);	DOT (US) Class: 3 Poison Inhalation Hazard: No IMDG Class: 3 EMS-No: F-E, S-D IATA Class: 3
(d) Packing group;	DOT (US) Packing group: III IMDG Packing group: III IATA Packing group: III

International Civil Aviation Organization (Dangerous Goods Panel (DGP))

Not classified.

Special Provision A58:

Aqueous solutions containing 24% or less alcohol by volume are not subject to these regulations.

DOT Road Transport

Non-hazardous. Not subject to the requirements of 49CFR per section 173.150(e).

Aqueous solutions of alcohol: An aqueous solution containing 24 percent or less alcohol by volume and no other hazardous material:

- (1) May be reclassified as a combustible liquid.
- (2) Is not subject to the requirements of this subchapter if it contains no less than 50 percent water.

SECTION 15: Regulatory Information

Ethanol [CAS: 64-17-5]

US Federal Regulations:

United States Toxic Substances Control Act (TSCA) 8b: status active



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CERCLA Hazardous Substance List (40 CFR 302.4): not listed

OSHA: Hazardous Chemical

Superfund Amendments and Reauthorization Act (SARA) Title III

SARA 311/312 Hazard Categories:

- an immediate (acute) health hazard
- delayed (chronic) health hazard
- a fire hazard

SARA 313 Reportable Ingredients: not regulated

SARA 302/304 Emergency Planning: not listed

U.S. State Regulations (selected):

- Massachusetts RTK
- New Jersey Hazardous Substances
- New York Acutely Hazardous Substances
- New York Toxic Chemical Release Reporting
- Pennsylvania RTK Hazardous Substances
- Rhode Island Hazardous Substances
- California Proposition 65

International (selected):

- Australia Inventory (AICS)
- China Inventory (IECSC)
- Europe (EINECS)
- Japan Inventory (ENCS)
- Korea Inventory (ECL)
- Philippines Inventory (PICCS)

SECTION 16: Other Information

The date of preparation of the MSDS: 09/14/2023

This MSDS has been developed in accordance with the OSHA Hazard Communication Standard 29 CFR 1910.1200. This MSDS shall be used only as a guide, and it has been developed based on comprehensive references, publicly available data, and publications and experience directly working with the resin.

Therefore, Protein Capture Science makes no warranty or representation about the accuracy or completeness of the information here provided. Moreover, due to the wide range of usage and adoption of this MSDS in a user's laboratory for specific needs, it is the user's responsibility to determine the fit and suitability of provided MSDS data in accordance with local, regional, national, and international regulations necessary to ensure safety. The disposal of chemicals also needs to be performed based on national regulations as well as laboratory norms and standards known to protect the environment and ensure safety. Therefore, Protein Capture Science shall not be held liable for any damage resulting from handling or contact with the above product.



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Key abbreviations:

DOT (US) – U.S. Department of Transportation

EU Risk Phrases – European Risk Phrases are based on COM(93)638 published by the Commission of the European Community.

GHS – Globally Harmonized System of Classification and Labelling of Chemicals

IATA – International Air Transport Association

IMDG – International Maritime Dangerous Goods

NFPA – National Fire Protection Association (NFPA)