

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) revised in 2012 and GHS Rev 03.

Issue date 07/30/2021

Reviewed on 07/30/2021

* 1 Identification

· **Product Identifier**

· **Trade Name:** MagReSyn® TiO₂

· **Product Number:** MR-TID002 (2 ml); MR-TID005 (5 ml); MR-TID010 (2 x 5 ml)

· **Relevant identified uses of the substance or mixture and uses advised against:**

· **Product Description:** Magnetic microparticles for phosphopeptide enrichment

· **Application of the substance / the mixture:**

Magnetic microparticles suspended in an aqueous solution with ethanol. The product is intended for biomolecule (specifically phosphopeptide) immobilization for a variety of subsequent end-user applications in research and development. This product is for research and development use only.

· **Uses advised against**

It is not intended for any animal or human therapeutic or diagnostic use unless otherwise stated.

· **Details of the Supplier of the Safety Data Sheet:**

· **Manufacturer/Supplier:**

ReSyn Biosciences Pty Ltd

Building 20

CSIR

Meiring Naude Road

Brummeria

Pretoria

South Africa

0184

+27128414153

· **Emergency telephone number:** +27128414153

2 Hazard(s) Identification

· **Classification of the substance or mixture:**



Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

· **Label elements:**

· **Hazard pictograms:**



· **Signal word:** Danger

· **Hazard-determining components of labeling:**

Ethanol

· **Hazard statements:**

H225 Highly flammable liquid and vapor.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

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Trade Name: **MagReSyn® TiO₂**

Precautionary statements:

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a poison center/doctor if you feel unwell.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Unknown acute toxicity:

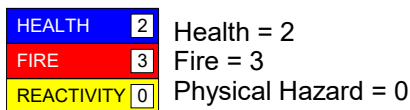
This value refers to knowledge of known, established toxicological or ecotoxicological values. 0 % of the mixture consists of component(s) of unknown toxicity.

Classification system: NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Hazard(s) not otherwise classified (HNOC): None known

* 3 Composition/Information on Ingredients

Chemical characterization: Substance

2.5% MagReSyn® TiO₂ microparticles
Polymer coated microparticles: (25 mg per ml, no CAS number, consists of 60% magnetite and 40% polymer, polymer is a polyethyleneimine derivative)

Description: Mixture of substances listed below with non-hazardous additions.

Dangerous Components:

CAS: 64-17-5 RTECS: KQ 6300000	Ethanol	Flam. Liq. 2, H225; Eye Irrit. 2A, H319; STOT SE 3, H335	15-35%
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· **Additional information:**

The exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

4 First-Aid Measures

· **Description of first aid measures**

· **After inhalation:** In case of unconsciousness place patient stably in the side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation occurs, consult a doctor.

· **After eye contact:**

Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.

If easy to do so, remove contact lenses if worn.

If eye irritation occurs, consult a doctor.

· **After swallowing:** If swallowed and symptoms occur, consult a doctor.

· **Information for doctor**

· **Most important symptoms and effects, both acute and delayed:** No further relevant information available.

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

No further relevant information available.

5 Fire-Fighting Measures

· **Extinguishing media**

· **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.

· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **Special hazards arising from the substance or mixture:** No further relevant information available.

· **Advice for firefighters**

· **Special protective equipment for firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

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

Wear protective equipment. Keep unprotected persons away.

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

Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Dispose of the collected material according to regulations.

· **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· PAC-1:		
64-17-5	Ethanol	1,800 ppm
· PAC-2:		
64-17-5	Ethanol	3300* ppm
· PAC-3:		
64-17-5	Ethanol	15000* ppm

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7 Handling and Storage

- **Handling**
- **Precautions for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s):** No further relevant information available.

8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters:**

· **Components with occupational exposure limits:**

64-17-5 Ethanol

PEL	Long-term value: 1900 mg/m ³ , 1000 ppm
REL	Long-term value: 1900 mg/m ³ , 1000 ppm
TLV	Short-term value: 1880 mg/m ³ , 1000 ppm

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.
- **Exposure controls:**
- **Personal protective equipment**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing and wash before reuse.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

- **Material of gloves:**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

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· **Penetration time of glove material:**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Tightly sealed goggles

· **Limitation and supervision of exposure into the environment:** None

9 Physical and Chemical Properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:

Suspension

Color:

Black

· **Odor:**

Slight

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

Melting point/Melting range:

Not determined.

· **Flash point:**

16 °C (60.8 °F)

· **Flammability (solid, gaseous):**

Not applicable.

· **Ignition temperature:**

Not applicable

· **Decomposition temperature:**

Not determined.

· **Auto igniting:**

Product is not self-igniting.

· **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower:

≥3.5 Vol %

Upper:

≤15 Vol %

· **Vapor pressure @ 20 °C (68 °F):**

≤59 hPa (≤44.3 mm Hg)

· **Density:**

Relative density:

Not determined.

Vapor density:

Not determined.

Evaporation rate:

Not determined.

· **Solubility in / Miscibility with:**

Water:

Miscible

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic:

Not determined.

Kinematic:

Not determined.

· **Solvent content:**

Organic solvents:

20.0 %

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Water: 78.0 %
VOC content: 20.00 %

Solids content: 2.5 %

Other information: No further relevant information available.

10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Product is stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat, flame and ignition sources.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects:**
- **Acute toxicity:**

LD/LC50 values that are relevant for classification:

64-17-5 Ethanol

Oral	LD50	7,060 mg/kg (Rat) Remarks: Lungs, Thorax, or Respiration: Other changes. Carcinogenicity - Mouse - Oral Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors. Blood: Lymphomas including Hodgkin's disease. Central nervous system depression, narcosis, Damage to the heart., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Heart - Irregularities - Based on Human Evidence Central nervous system - Breathing difficulties - Based on Human Evidence Stomach - Irregularities - Based on Human Evidence
Inhalative	LC50/4 h	20,000 mg/l (Rat)
	LC50/96 hours	12,900-15,300 mg/l (Trout)

- **Primary irritant effect:**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

Carcinogenic categories:

IARC (International Agency for Research on Cancer):

The IARC (the International Agency for Research on Cancer) concluded that ethanol found alcoholic beverages to be Group 1 - Carcinogenic to humans. All other instances it is not consider carcinogenic.

64-17-5 Ethanol	1
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NTP (National Toxicology Program):

None of the ingredients are listed.

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· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

12 Ecological Information

· **Toxicity:**

· **Aquatic toxicity:**

64-17-5 Ethanol

EC50 34,900 mg/l (Daphnia)

· **Persistence and degradability:** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential:** No further relevant information available.

· **Mobility in soil:** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Do not allow undiluted product or product that has not been neutralized to reach ground water, water course or sewage system.

· **Results of PBT and vPvB assessment:**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects:** No further relevant information available.

13 Disposal Considerations

· **Waste treatment methods**

· **Recommendation:**

Observe all federal, state and local environmental regulations when disposing of this material.

· **Uncleaned packaging**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport Information

· **UN-Number:**

· **DOT**

· **ADR/ADN, IMDG, IATA**

· **UN proper shipping name:**

· **DOT**

· **ADR/ADN**

· **IMDG, IATA**

· **Transport hazard class(es):**

· **DOT**

UN1170

Limited Quantity

Ethanol mixture

UN1170 ETHANOL (ETHYL ALCOHOL) mixture

Limited Quantity



· **Class:**

3 Flammable liquids

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· **Label:** 3

· **ADR/ADN**



Limited Quantity

· **Class:** 3 (F1) Flammable liquids
 · **Label:** 3

· **IMDG, IATA**



Limited Quantity

· **Class:** 3 Flammable liquids
 · **Label:** 3+ID8000
 · **Packing group:** II
 · **DOT, ADR/ADN, IMDG, IATA** II
 · **Environmental hazards:** Not applicable.
 · **Special precautions for user:** Warning: Flammable liquids
 · **Hazard identification number (Kemler code):** 33
 · **EMS Number:** F-E,S-D
 · **Stowage Category** A
 · **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
 · **Transport/Additional information:**
 · **DOT**
 · **Quantity limitations:** On passenger aircraft/rail: 5 L
 On cargo aircraft only: 60 L

· **ADR/ADN**

· **Excepted quantities (EQ):** Limited quantities of dangerous goods packed in such limited quantities, meeting the provisions of Chapter 3.4 DANGEROUS GOODS PACKED IN LIMITED QUANTITIES are NOT subject to any other provisions of ADR except the relevant provisions of:
 (a) Part 1, Chapters 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 1.9;
 (b) Part 2;
 (c) Part 3, Chapters 3.1, 3.2, 3.3 (except special provisions 61, 178, 181, 220, 274, 625, 633 and 650 (e));
 (d) Part 4, paragraphs 4.1.1.1, 4.1.1.2, 4.1.1.4 to 4.1.1.8;
 (e) Part 5, 5.1.2.1(a) (i) and (b), 5.1.2.2, 5.1.2.3, 5.2.1.10,

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5.4.2;
 (f) Part 6, construction requirements of 6.1.4 and paragraphs 6.2.5.1 and 6.2.6.1 to 6.2.6.3;
 (g) Part 7, Chapter 7.1 and 7.2.1, 7.2.2, 7.5.1 (except 7.5.1.4), 7.5.2.4, 7.5.7, 7.5.8 and 7.5.9;
 (h) 8.6.3.3 and 8.6.4.
 Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

· **IMDG**
 · **Limited quantities (LQ):** 1L
 · **Excepted quantities (EQ):** Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

· **IATA**
 · **Remarks:** Code: E1
 Excepted Quantity Shipment

Code	Maximum Quantity (inner package)	Maximum Quantity per outer package
E0	Not permitted	Not permitted
E1	30g / 30ml	1Kg / 1L
E2	30g / 30ml	500g / 500ml
E3	30g / 30ml	300g / 300ml
E4	1g / 1ml	500g / 500ml
E5	1g / 1ml	300g / 300ml

 · **UN "Model Regulation":** UN 1170 ETHANOL (ETHYL ALCOHOL) MIXTURE, 3, II

15 Regulatory Information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
 No further relevant information available.
 · **SARA (Superfund Amendments and Reauthorization):**

· Section 355 (extremely hazardous substances):
None of the ingredients are listed.

· Section 313 (Specific toxic chemical listings):
None of the ingredients are listed.

· TSCA (Toxic Substances Control Act):	
64-17-5 Ethanol	ACTIVE
7732-18-5 Water, distilled water, deionized water	ACTIVE

· Hazardous Air Pollutants
None of the ingredients are listed.

· **California Proposition 65:**

· Chemicals known to cause cancer:
None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for females:
None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:
None of the ingredients are listed.

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· Chemicals known to cause developmental toxicity:	
64-17-5	Ethanol
· New Jersey Right-to-Know List:	
64-17-5	Ethanol
· New Jersey Special Hazardous Substance List:	
64-17-5	Ethanol
	CA, MU, TE, F3
· Pennsylvania Right-to-Know List:	
64-17-5	Ethanol
· Pennsylvania Special Hazardous Substance List:	
None of the ingredients are listed.	
· Carcinogenic categories:	
· EPA (Environmental Protection Agency):	
None of the ingredients are listed.	
· TLV (Threshold Limit Value established by ACGIH):	
64-17-5	Ethanol
	A3
· NIOSH-Ca (National Institute for Occupational Safety and Health):	
None of the ingredients are listed.	

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms:



· Signal word: Danger

· Hazard-determining components of labeling:

Ethanol

· Hazard statements:

H225 Highly flammable liquid and vapor.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

· Precautionary statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P240 Ground/bond container and receiving equipment.

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

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

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

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a poison center/doctor if you feel unwell.

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Trade Name: MagReSyn® TiO₂

P337+P313	If eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use CO ₂ , powder or water spray to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· National regulations:

The product is not subject to be labelled according with the prevailing version of the regulations on hazardous substances.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· Contact:

· **Date of last revision/ revision number:** 07/30/2021 / 2

· Abbreviations and acronyms:

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety and Health
OSHA: Occupational Safety & Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· * Data compared to the previous version altered.

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