

Safety Data Sheet

CELLINK Vivoink

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: CELLINK Vivoink.

Product number: KTMG0315001.

Brand: CELLINK.

General use: **Medical grade** biomaterial for 3D bioprinting. Produced under aseptic conditions in controlled manufacturing environment. The product includes CELLINK Vivoink bioink and CaCl₂ crosslinking agent. Not for human use.

Address: CELLINK Bioprinting AB
Långfilsgatan 7
SE41276 Gothenburg, Sweden.

Company contact information: +46 31-12 8700 (EU), +1 (833) 235-5465 (US),
support@cellink.com.

Emergency telephone number: 112 (EU), 911 (US).

2. HAZARDS IDENTIFICATION

Potential health effects: No significant health effects expected.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS# | EC No. | EC Class | Concentration % |
|--|------------|-----------|----------------|-----------------|
| CELLINK Vivoink bioink | | | | |
| Cellulose (nanofibrillar form) | 9004-34-6 | 232-674-9 | Not hazardous* | |
| Sodium alginate | 9005-38-3 | 618-415-6 | Not hazardous | |
| D-mannitol | 69-65-8 | 200-711-8 | Not hazardous | |
| CaCl₂ crosslinking agent | | | | |
| Calcium chloride | 10043-52-4 | 233-140-8 | GHS07, H319 | <1% |
| Sodium hydrogen carbonate | 144-55-8 | 205-633-8 | Not hazardous | |

* This information represents a preliminary assessment for a substance that has not yet been tested in safety evaluations.

4. FIRST AID MEASURES

In case of eye contact: Flush eyes with plenty of water. Remove contact lenses.

In case of skin contact: Wash with soap and water.

If swallowed: Rinse mouth thoroughly with water.

If inhaled: Move person into fresh air. If any breathing difficulty or discomfort persists, obtain medical attention.

5. FIRE FIGHTING MEASURES

Extinguishing media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Fire/explosion hazards: No data available.

Firefighting procedures: Wear self-contained breathing apparatus for firefighting if necessary.

Flammable limits: No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Avoid dust formation. Avoid breathing vapors, mist or gas.

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Environmental precautions: Do not let product enter drains.

Methods and materials for containment and cleaning up: Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage: Keep containers tightly closed in a dry and well-ventilated place. 1) CELLINK Vivoink bioink: Store at 4-8°C. DO NOT FREEZE. Avoid temperature fluctuations. 2) CaCl₂ crosslinking agent: Store at 4-25°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits: N/A.

Personal protection equipment:

Eyes and face: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Respiratory: Respiratory protection is not required. Where protection from nuisance levels of dust is desired, use type N95 (US) or P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Clothing: Choose body protection in relation to its type, to the concentration and amounts of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amounts of dangerous substances at the specific workplace.

Gloves: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

9. PHYSICAL AND CHEMICAL PROPERTIES.

| | |
|-----------------------------|--|
| Appearance: | 1) CELLINK Vivoink bioink: White semi-translucent gel; 2) CaCl ₂ crosslinking agent: Clear solution. |
| Odor: | 1) Odorless; 2) Odorless. |
| Odor threshold: | No data available. |
| Vapor pressure: | No data available. |
| Vapor density: | No data available. |
| pH: | 1) 5.4-6.6; 2) 6.7-7.4. |
| Relative density: | 1) 1 g/mL; 2) 1 g/mL. |
| Melting point: | No data available. |
| Solubility in water: | 1) Dispersion; 2) No data available. |
| Boiling point: | 1) Around 100°C; 2) >100°C. |
| Flash point: | No data available. |
| Evaporation rate: | No data available. |
| Flammability: | No data available. |
| Decomposition temp.: | No data available. |
| Viscosity: | 1) 2.1-5.0 kPa·s/0.9-1.4 Pa·s (measured at 0.01 s ⁻¹ /200 s ⁻¹ shear rates); 2) No data available. |

10. STABILITY AND REACTIVITY

Conditions to avoid: Freezing.

Reactivity: No data available.

Stability: Stable under recommended storage conditions.

Possibility of hazardous reactions: No data available.

Incompatible materials: Strong oxidizing agents, strong acids, strong bases.

Hazardous decomposition products: Under fire conditions, carbon oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Oral LD50: No data for the formulation, Sodium Alginate: >5000 mg/kg (rat).

Inhalation: No data available.

Dermal: No data available.

Skin corrosion/irritation: No data available.

Serious eye damage/eye irritation: No data available.

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Germ cell mutagenicity: No data available.

Carcinogenicity:

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as Aldrich - W201502 Page 5 of 6 probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: No data available.

Specific target organ toxicity – single exposure: No data available.

Specific target organ toxicity – repeated exposure: No data available.

Aspiration hazard: No data available.

12. ECOLOGICAL INFORMATION

Toxicity: No data available.

Persistence and degradability: No data available.

Bioaccumulative potential: No data available.

Mobility in soil: No data available.

Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Product: Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging: Dispose of as an unused product.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT): Not dangerous goods.

International Maritime Dangerous Goods (IMDG): Not dangerous goods.

ADR – European agreement concerning the international carriage of dangerous goods by road:

Additional information: Not regulated.

Other information: N/A.

15. REGULATORY INFORMATION

SARA 302 components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 hazards: No SARA Hazards.

Massachusetts Right to Know components: No components are subject to the Massachusetts Right to Know Law.

Pennsylvania Right to Know components: No components are subject to the Pennsylvania Right to Know Law.

New Jersey Right to Know components: No components are subject to the New Jersey Right to Know Law.

California Prop. 65 components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating:

Health hazard: 0.

Chronic health hazard: 0.

Flammability: 0.

Physical hazard: 0.

NFPA Rating:

Health hazard: 0.

Fire hazard: 0.

Reactivity hazard: 0.