SAFETY DATA SHEET

Silk Fibroin Methacrylate (SilkMA)

Methacrylated Silk Fibroin | SKU SilkMA-1G

Document version	1.0
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Basis	Safety assessment for Silk Fibroin Methacrylate research reagent. Product-specific supplier composition and hazard classification require confirmation.

SECTION 1: Identification

1.1 Product identifier	Silk Fibroin Methacrylate (SilkMA)
Catalog number	SilkMA-1G
Product description	Methacrylated silk fibroin, photocrosslinkable protein polymer, supplied as dry material.
1.2 Identified uses	Research use only. Preparation of hydrogels, bioinks and laboratory biomaterials.
Uses advised against	Not for human or veterinary diagnostic, therapeutic or clinical use; not for consumption.
1.3 Supplier / distributor	Carlsbad Bio | American Fork, Utah, USA | www.CarlsbadBio.co | Support@CarlsbadBio.co
1.4 Emergency information	For a medical emergency in the United States, call 911. Poison Control: 1-800-222-1222.

SECTION 2: Hazard(s) identification

2.1 Classification	Silk fibroin (unmodified) is generally not classified as hazardous under GHS. Classification of this methacrylated derivative is not confirmed without supplier-specific SDS and residual reagent data.
2.2 Label elements	No product-specific GHS label elements established. Confirm classification before final approval.
2.3 Other hazards	Dust may cause mechanical irritation. Protein-derived materials may cause allergic reactions in susceptible individuals. Avoid inhalation of dust.

SECTION 3: Composition/information on ingredients

3.1 Substance	Silk fibroin methacrylate (modified silk protein polymer).
Source material	Silk fibroin, typically derived from Bombyx mori silkworm cocoons; confirm actual source.
CAS number	96690-41-4 is associated with unmodified silk fibroin; CAS identification for this methacrylated derivative not established.
Composition / impurities	Degree of methacrylation, residual methacrylation reagents, solvents, salts, additives and impurities not supplied; confirm with manufacturer.

SECTION 4: First-aid measures

4.1 General	Remove from exposure. Obtain medical advice if symptoms persist.
Inhalation	Move to fresh air. Seek medical advice if breathing difficulty or irritation persists.
Skin contact	Wash thoroughly with soap and water. Remove contaminated clothing.
Eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do. Seek medical advice for persistent irritation.
Ingestion	Rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Seek advice if symptoms occur.
4.2 Symptoms / effects	Dust exposure may cause irritation; product-specific toxicological data unavailable.
4.3 Medical attention	Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media	Water spray, foam, carbon dioxide or dry chemical appropriate to the surrounding fire.
5.2 Special hazards	Thermal decomposition of organic protein polymer may produce carbon oxides, nitrogen-containing fumes and irritating smoke.
5.3 Firefighter advice	Wear self-contained breathing apparatus and protective equipment.

SECTION 6: Accidental release measures

6.1 Personal precautions	Avoid dust generation and inhalation. Wear suitable laboratory PPE.
6.2 Environmental precautions	Avoid uncontrolled discharge to drains and waterways.

6.3 Cleanup	Carefully collect powder without dispersing dust. Transfer to closed, labeled container; damp-wipe residue.
6.4 References	See Sections 7, 8 and 13.

SECTION 7: Handling and storage

7.1 Safe handling	Use standard laboratory hygiene. Avoid inhalation, contact with eyes, and generating airborne powder. Protect formulations from unintended light exposure.
7.2 Safe storage	Keep sealed, dry, and protected from light. Store at -20°C as a conservative handling condition used for commercial SilkMA materials; confirm the supplier-specific requirement.
7.3 Specific end uses	Research hydrogel and bioink formulations; consult separate SDSs for photoinitiators and other reagents.

SECTION 8: Exposure controls/personal protection

8.1 Exposure limits	No substance-specific occupational exposure limits identified for SilkMA.
8.2 Engineering controls	Adequate general ventilation; use local exhaust or enclosure if powder dust is generated.
Hand protection	Protective laboratory gloves.
Eye/face protection	Safety glasses or goggles.
Skin protection	Laboratory coat and suitable closed-toe footwear.
Respiratory protection	Use suitable particulate protection where engineering controls cannot adequately limit dust.

SECTION 9: Physical and chemical properties

Physical state	Solid powder or porous sponge (commercial SilkMA forms); confirm supplied form.
Color	White to off-white (typical commercial SilkMA).
Odor	Not determined.
Solubility	Water soluble in reported commercial grades; product-specific solubility not confirmed.
pH	Not determined for supplied product.
Melting / boiling point	Not determined; polymer may decompose before melting.
Flash point / flammability	Not determined for supplied product. Organic powder may burn under fire conditions.
Vapor pressure / density	Not determined.
Other properties	Degree of methacrylation, molecular weight and residual monomer levels: not provided.

SECTION 10: Stability and reactivity

10.1 Reactivity	Methacrylate groups may undergo free-radical polymerization under initiating conditions.
10.2 Chemical stability	Expected to remain stable when stored under appropriate dry, cool, light-protected conditions; supplier-specific stability not established.
10.3 Hazardous reactions	Unintended polymerization may occur in formulations containing photoinitiators under suitable light exposure.
10.4 Conditions to avoid	Excess heat, moisture, dust dispersion and unintended exposure to initiating light systems.
10.5 Incompatible materials	Strong oxidizing agents; incompatible initiator systems.
10.6 Decomposition products	Carbon oxides and potentially nitrogen-containing decomposition products.

SECTION 11: Toxicological information

Acute toxicity	No product-specific quantitative data available.
Skin / eye irritation	Dust may cause mechanical irritation; formal test data unavailable.
Sensitization	Protein-derived material: sensitization potential not established.
Mutagenicity / carcinogenicity	No product-specific data available.
Reproductive toxicity / STOT	No product-specific data available.
Other information	Unmodified silk fibroin hazard data cannot establish the safety of residual methacrylation reagents in SilkMA.

SECTION 12: Ecological information

12.1 Ecotoxicity	No product-specific data available.
12.2 Persistence / degradability	Protein backbone may be biodegradable; no verified data for the modified supplied product.

12.3 Bioaccumulation	No data available.
12.4 Mobility in soil	No data available.
12.5 PBT / vPvB	Not assessed.
12.6 Other effects	Avoid release to the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment	Dispose of unused material, contaminated packaging and prepared mixtures in accordance with applicable local, state and federal regulations. Evaluate photoinitiator-containing waste separately.

SECTION 14: Transport information

14.1 UN number	Not assigned based on information currently available; verify against manufacturer SDS.
14.2 Proper shipping name	Not established.
14.3 Transport hazard class	Not expected to be regulated as dangerous goods for a clean dry protein polymer; verify DOT/IATA/IMDG status for the supplied grade.
14.4 Packing group	Not established.
14.5 Environmental hazards	Not determined.
14.6 Special precautions	Protect packaging from moisture and heat; follow validated cold-chain requirements if applicable.

SECTION 15: Regulatory information

15.1 Regulatory information	Supplier-specific OSHA Hazard Communication and TSCA inventory or R&D exemption status have not been verified.
15.2 Chemical safety assessment	No product-specific chemical safety assessment available.

SECTION 16: Other information

Document status	Version 1.0
Scope	Safety information for Silk Fibroin Methacrylate (SilkMA-1G) distributed by Carlsbad Bio.
Limitations	The nonhazardous classification of unmodified silk fibroin does not automatically apply to modified SilkMA. Confirm residual reagents, grade-specific hazards, storage and transport with the manufacturer.
Disclaimer	Information is provided in good faith for laboratory safety planning. It does not guarantee specific product properties or replace applicable regulations.