


# American Polymer Standards Corporation Safety Data Sheet

Section 1: Identification		
<b>Product Name:</b> Chitosan	<b>EC Number:</b> 618-480-0	<b>CAS Number:</b> 9012-76-4
<b>Product Nos.:</b> CH141K; CH160K; CH217K; CH218K; CH326K		
<b>Relevant Identified Uses of the Substance or mixture and uses advised against:</b> <b>Identified Uses:</b> Laboratory Use		
<b>Supplier/Manufacture:</b> American Polymer Standards Corporation, 8680 Tyler Blvd., Mentor, OH 44060 Phone: 440-255-2211 * Fax: 440-255-8397 * Email: apsc@ampolymer.com		
<b>In Case of Emergency:</b> (440) 255-2211		

Section 2: Hazardous Identification								
<b>Signal Word:</b> Warning								
<b>GHS: H411</b> – Toxic to aquatic life with long lasting effects; <b>P273</b> – Avoid release to the environment; <b>P391</b> – Collect spillage; <b>P501</b> – Dispose of contents/container to an approved waste disposal plant. Acute aquatic toxicity (Category 2), <b>H401</b> ; Chronic aquatic toxicity (Category 2), <b>H411</b>								
<b>Label Elements:</b>								
<b>Pictogram:</b> 	<b>HMIS Classification:</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;"><b>Health Hazards:</b> 0</td></tr> <tr><td style="text-align: center;"><b>Flammability:</b> 0</td></tr> <tr><td style="text-align: center;"><b>Physical Hazards:</b> 0</td></tr> </table>	<b>Health Hazards:</b> 0	<b>Flammability:</b> 0	<b>Physical Hazards:</b> 0	<b>NFPA Rating:</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;"><b>Health Hazard:</b> 0</td></tr> <tr><td style="text-align: center;"><b>Fire:</b> 0</td></tr> <tr><td style="text-align: center;"><b>Reactivity Hazards:</b> 0</td></tr> </table>	<b>Health Hazard:</b> 0	<b>Fire:</b> 0	<b>Reactivity Hazards:</b> 0
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<b>Flammability:</b> 0								
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<b>Health Hazard:</b> 0								
<b>Fire:</b> 0								
<b>Reactivity Hazards:</b> 0								
<b>Potential Health Effects:</b>								
<b>Inhalation:</b> May be harmful if inhaled. May cause respiratory tract irritation.								
<b>Skin:</b> May be harmful if absorbed through skin. May cause skin irritation.								
<b>Eyes:</b> May cause eye irritation.								
<b>Ingestion:</b> May be harmful if swallowed.								
Low hazard in normal laboratory use. The small quantities supplied in our products are unlikely to cause server or immediate health effects. Use only as directed and in accordance with safe laboratory practices.								

Section 3: Composition/Information on Ingredients	
<b>Substance/Mixture:</b> Substance <b>Chemical Name:</b> Chitosan	<b>Synonyms:</b> Poly(D-glucosamine)

Section 4: First-Aid Measures	
<b>Description of Necessary First-Aid Measures</b>	
<b>Inhalation:</b>	Move person to fresh air; if effects occur, consult a physician
<b>Skin:</b>	Wash skin with plenty of water. Seek first-aid or medical attentions as needed. If molten material comes in contact with skin, do not apply ice but cool under ice water of running stream of eater. DO NOT attempt to remove the material from skin. Removal could result in severe tissue damage. Seek medical attention immediately. Suitable emergency safety shower facility should be immediately available.
<b>Eyes:</b>	Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
<b>Ingestion:</b>	If swallowed, seek medical attention. May cause gastrointestinal blockage. Do not give laxatives. Do not induce vomiting unless directed to do so by medical personnel.
<b>Description of Symptoms/Effects (both acute and delayed) &amp; Symptoms of Overexposure:</b>	
<b>Inhalation:</b>	No known significant effects of critical hazards. No specific data regarding symptoms of overexposure.
<b>Skin:</b>	No known significant effects of critical hazards. No specific data regarding symptoms of overexposure.
<b>Eyes:</b>	No known significant effects of critical hazards. No specific data regarding symptoms of overexposure.
<b>Ingestion:</b>	No known significant effects of critical hazards. No specific data regarding symptoms of overexposure.
<b>Indication of Immediate Medical Attention &amp; Special Treatment Needed, If Necessary:</b>	
<b>Note to Physician:</b>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific Treatments:</b>	No specific treatment
<b>Protection of First-Aiders:</b>	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

# American Polymer Standards Corporation

## Safety Data Sheet

### Section 5: Fire-Fighting Measures

<b>Suitable Extinguishing Media:</b>	Use dry chemical powder, water spray (fog), foam or CO <sub>2</sub>
<b>Unsuitable Extinguishing Media:</b>	Do not use water jet.
<b>Specific Hazards Arising from the Chemical:</b>	Carbon oxides, nitrogen oxides (NO <sub>x</sub> )
<b>Hazardous Thermal Decomposition Products:</b>	Carbon oxides, nitrogen oxides (NO <sub>x</sub> )
<b>Special Protective Actions for Fire-Fighters:</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
<b>Special Protective Equipment for Fire-Fighters:</b>	Fire-Fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### Section 6: Accidental Release Measures

<b>Personal Precautions, Protective Equipment &amp; Emergency Procedures:</b>	Spilled material may cause a slipping hazard. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8: Exposure Controls & Personal Protection.
<b>Environmental Precautions:</b>	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. For additional information, refer to Section 12: Ecological Information.
<b>Methods &amp; Materials for Containment &amp; Clean Up:</b>	Contain spilled material if possible. Sweep up. Collect in suitable and properly labeled containers. For additional information, refer to Section 13: Disposal Considerations.
<b>Reference to other sections:</b>	See Section 1 for emergency contact information See Section 8 for information on appropriate personal protective equipment See Section 13 for additional waste treatment information

### Section 7: Handling & Storage

<b>Precautions for Safe Handling:</b>	No smoking, open flames or sources of ignition in handling and storage areas. Wear appropriate personal protective equipment (refer to Section 8). Avoid inhalation. Avoid contact with eyes, skin and clothing. Avoid creation of dust. Ensure adequate ventilation. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming in contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material.
<b>Protective Measures:</b>	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See Sections 8 for additional information on hygiene measures.
<b>Advice on General Occupational Hygiene:</b>	
<b>Conditions for Safe Storage:</b>	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight. Keep container tightly closed in a dry and well-ventilated place, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### Section 8: Exposure Controls & Personal Protection

<b>Exposure Limits:</b>	Contains no substances with occupational exposure limit values.
<b>Engineering Controls:</b>	Safety shower and eye bath. Mechanical exhaust required.
<b>Personal Protective Measures:</b>	
<b>Respiratory:</b>	Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (SU) or CEN (EU).
<b>Hand:</b>	Protective gloves
<b>Eye:</b>	Chemical safety goggles
<b>Skin:</b>	Personal protective equipment for the body should be selected based on the task being performed and the risk involved.
<b>Hygiene Measures:</b>	Wash thoroughly after handling.

# American Polymer Standards Corporation

## Safety Data Sheet

### Section 9: Physical & Chemical Properties

<b>Appearance: Physical State &amp; Color:</b>	Solid	<b>Lower &amp; Upper Flammability/Explosive Limits:</b>	Not Available
<b>Odor:</b>	Odorless	<b>Vapor Pressure:</b>	Not Available
<b>Odor Threshold:</b>	Not Available	<b>Vapor Density:</b>	Not Available
<b>pH:</b>	Not Available	<b>Relative Density:</b>	Not Available
<b>Melting Point:</b>	Not Available	<b>Solubility:</b>	Not Available
<b>Boiling Point:</b>	Not Available	<b>Partition coefficient: n-octanol/water:</b>	Not Available
<b>Flash Point:</b>	Not Available	<b>Auto-ignition Temperature:</b>	Not Available
<b>Evaporation Rate:</b>	Not Available	<b>Decomposition Temperature:</b>	Not Available
<b>Flammability (solid, gas):</b>	Not Available	<b>Viscosity:</b>	Not Available

### Section 10: Stability & Reactivity

<b>Reactivity:</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical Stability:</b>	The product is stable.
<b>Possibility of Hazardous Reactions:</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to Avoid:</b>	None Known
<b>Incompatible materials:</b>	None Known
<b>Hazardous Decomposition Products:</b>	Strong oxidizing agents

### Section 11: Toxicology Information

**Acute Toxicity:**

<b>Oral LD50:</b>	Rat - > 10,000mg/kg
<b>Inhalation LC50:</b>	No Data Available
<b>Dermal LD50:</b>	No Data Available

<b>Skin Corrosion/Irritation:</b>	Prolonged contact is essentially nonirritating to skin. Repeated contact may cause flaking and softening of skin
<b>Serious Eye Damage/Irritation:</b>	May cause slight temporary eye irritation. Corneal injury is unlikely.
<b>Respiratory or Skin Sensitization:</b>	No Data Available
<b>Germ Cell Mutagenicity:</b>	No Data Available
<b>Reproductive Toxicity:</b>	No Data Available
<b>Teratogenicity:</b>	No Data Available
<b>Specific Target Organ Toxicity-Single Exposure:</b>	No Data Available
<b>Specific Target Organ Toxicity-Repeated Exposure:</b>	No Data Available
<b>Aspiration Hazard:</b>	No Data Available

**Carcinogenicity:**

<b>IARC:</b>	No component of this product, present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<b>ACGIH:</b>	No component of this product, present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.
<b>NTP:</b>	No component of this product, present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.
<b>OSHA:</b>	No component of this product, present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

**Potential Health Effects:**

<b>Inhalation:</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion:</b>	May be harmful if swallowed.
<b>Skin:</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes:</b>	Cause eye irritation.

# American Polymer Standards Corporation

## Safety Data Sheet

### Section 12: Ecological Information

<b>Toxicity:</b>	Toxicity to fish: LC50-Oncorhynchus mykiss (rainbow trout)-1.73mg/1 -96h Toxicity to daphnia & other aquatic invertebrates: EC50-Daphnia pulex (Water flea)-13.69mg/1 -48h
<b>Persistence &amp; Degradability:</b>	No Data Available
<b>Bio-accumulative Potential:</b>	No Data Available
<b>Mobility in Soil:</b>	No Data Available
<b>Results of PET &amp; vPvB assessment:</b>	<b>PET:</b> No Data Available <b>vPvB:</b> No Data Available
<b>Other Adverse Effects:</b>	No known significant effect or critical hazards

### Section 13: Disposal Considerations

<b>Product:</b>	
<b>Disposal Methods:</b>	The generation of waste should be avoided or minimized whenever possible. Disposal practices must be in compliance with all Federal, State and Local laws and regulations. DO NOT DUMP INTO ANY SEWERS, ON THE GROUND OR INTO ANY BODY OF WATER. Contact a licensed professional waste disposal service to ensure proper disposal.
<b>Hazardous Waste:</b>	Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC
<b>Packaging:</b>	
<b>Disposal Methods:</b>	The generation of waste should be avoided or minimized whenever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
<b>Special Precautions:</b>	This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersals of split material and runoff and contact with soil, waterways, drains and sewers.

### Section 14: Transport Information

<b>DOT (US):</b>	Not Regulated
<b>IMDG:</b>	Not Regulated
<b>IATA:</b>	Not Regulated
<b>ADR/RID:</b>	Not Regulated
<b>Transport in bulk according to Annex II of Marpol and IBC Code:</b>	Not Available

### Section 15: Regulatory Information

<b>U.S. Toxic Substances Control Act:</b>	All components of this product are either listed on the U.S. Toxic Substances Control Act (TSCA) inventory of chemicals or are otherwise compliant with TSCA regulations.	
<b>SARA 302 Components:</b>	No chemical in this material are subject to reporting requirements of SARA Title III, Section 302.	
<b>SARA 311/312 Components:</b>	No SARA Hazards	
<b>SARA 313 Components:</b>	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.	
<b>EU Regulation (EC) No. 1907/2006 (REACH)</b>		
<b>Annex XIV – List of substance authorization:</b>	<b>Annex XIV</b>	None of the components are listed
	<b>Substances of very high concern:</b>	None of the components are listed
<b>Annex XVII Restrictions on the manufacture placing on the market and use of certain dangerous substances, mixtures and articles:</b>		Not Applicable
<b>Other EU Regulations:</b>		
<b>Ozone depleting substance (1005/2009/EU):</b>	Not Listed	
<b>Prior Informed Consent (PIC) (649/2012/EU):</b>	Not Listed	
<b>Seveso Directive:</b>	This product is not controlled under the Seveso Directive	
<b>International Regulations:</b>		
<b>Chemical Weapon Convention List Schedules I, II &amp; III Chemicals:</b>	Not Listed	
<b>Montreal Protocol (Annexes A, B, C, E):</b>	Not Listed	
<b>Stockholm Convention on Persistent Organic Pollutants:</b>	Not Listed	
<b>Rotterdam Convention of Prior Informed Consent (PIC):</b>	Not Listed	
<b>UNECE Aarhus Protocol on POPs and Heavy Metals:</b>	Not Listed	

# American Polymer Standards Corporation

## Safety Data Sheet

### Section 15: Regulatory Information

**Right to Know Components:**

**Massachusetts:** No components of the material are subject to Massachusetts Right to Know Act.

**New Jersey:** Chitosan CAS # 9012-76-4

**Pennsylvania:** Chitosan CAS # 9012-76-4

**California Prop 65:** No components found.

**Inventory List:**

**Australia** This material is listed or exempted.

**Canada** This material is listed or exempted.

**China** This material is listed or exempted.

**Europe** This material is listed or exempted.

**Inventory List continued:**

**Japan** **Japan inventory (ENCS):** This material is listed or exempted.

**Japan inventory (ISHL):** This material is listed or exempted.

**New Zealand** This material is listed or exempted.

**Philippines** This material is listed or exempted.

**Republic of Korea** This material is listed or exempted.

**Taiwan** This material is listed or exempted.

**Turkey** This material is listed or exempted.

**United States** This material is listed or exempted.

### Section 16: Other Information

**Date of Issue:** April 23, 2014

**Last Revision Date:** March 8, 2019

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