

## SeaPure® Agarose

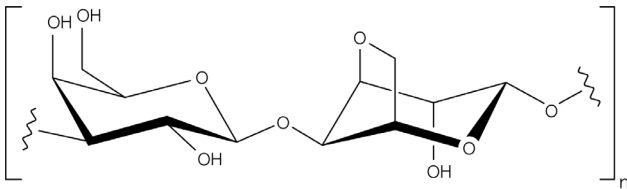
### Technical Specifications

**INCI/CTFA Name:** Agarose  
**CAS No:** 9012-36-6  
**EINECS No:** 232-731-8

### Source and description

SeaPure® Agarose is a unique, highly purified, neutral, gelling polysaccharide polymer derived from red seaweed (Rhodophyta). This proprietary stabilizing polymer provides high gel strength at very low concentrations. SeaPure® Agarose does not require salts for gelation, so it is compatible with a broader range of ingredients than typical stabilizers. SeaPure® Agarose is clear, colorless and odorless, and its broad liquid temperature range makes it easy to use in any formulation.

### Chemical Structure



**Agarobiose – basic repeating unit of agarose**  
 - D-galactose and 3,6-anhydro-L-galactose

**Linear polymer –**  
 molecular weight 120,000 Daltons

### Properties

<b>Appearance / Color</b>	Powder: dry granular white powder, white to off-white color Gel: Clear, colorless
<b>Water solubility</b>	High at room temperature and boiling
<b>Requirements for gelation</b>	No counterions, pH changes, or other polymers or initiators required
<b>Gel strength</b>	g/cm <sup>2</sup> @ 1%: ≥ 1200
<b>Gel purity</b>	High. Very low % of residual charged groups (sulfates, pyruvates, methoxyls)*
<b>Hysteresis</b>	Wide hysteresis range. Gel formation (T <sub>g</sub> ) and gel melting (T <sub>m</sub> ) occur at different temperatures
<b>pH range</b>	6.0 – 8.5
<b>Thermoreversibility</b>	Gelled agarose melts at 92°C
<b>Stability</b>	Powder stable for 5 years at room temperature with no degradation
<b>Hygroscopicity</b>	Non-hygroscopic
<b>Toxicity</b>	Non-toxic. Consult the product MSDS for complete health and safety info
<b>Compatibility</b>	Broad, including highly anionic and cationic materials
<b>Tactile characteristics</b>	Non-greasy, good rub-out, minimal residue. Forms soft, elastic gels or hard brittle gels, depending upon grade and concentration
<b>Packaging</b>	Bottles or drums

## Testing

Each lot of SeaPure® Agarose is tested for the following relevant properties:

- Gel strength
- Gelling temperature
- Moisture
- Sulfate

## Preparation

1. Choose a beaker 2 – 4 times the volume of the solution; add amount of distilled water required to achieve desired concentration.
2. Dissolve pre-measured agarose by dispersing slowly into distilled water using constant agitation. Care should be taken when adding agarose powder to prevent formation of clumps.
3. Place beaker containing agarose slurry into a water bath and gradually heat to a minimum of 80°C with occasional stirring and hold until solution is clear.
4. Once solution is clear, gently swirl to mix thoroughly and add sufficient warm water to compensate for any evaporative loss.
5. Cool solution to 60°C to 70°C with slow stirring prior to further processing or incorporation of other ingredients.

**NOTE:** If using other gums (e.g.: Xanthan Gum, CMC, etc.) in combination with SeaPure® Agarose, a dry blend pre-mix may be prepared prior to dispersion.

**NOTE:** If glycerin (5 – 10%) is used in the formulation, dry agarose may be dispersed in glycerin first, followed by the addition of distilled water required to achieve desired concentration.

- a) If preparing formed gels, pour into molds at desired thickness and allow to gel at room temperature.
- b) If using agarose as a thickener, continue agitation as solution cools to prevent gel formation during the cooling phase.

Adjust mixing shear to achieve desired texture in the finished solution. Gelation is complete when temperature reaches 20°C to 25°C, gelation is complete and mixing can be stopped.

6. Pour thickened liquid into desired containers.

## About Lonza

Lonza is the world's leading expert in agarose chemistry. For over 50 years, Lonza agarose has been a staple of molecular biology research. Our customers trust us for:

- Lot-to-lot consistency
- Large lot manufacturing capability
- ISO 9001:2015 certified Quality Management System
- Proven performance history in life science research market

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MB-DS003 11/24