

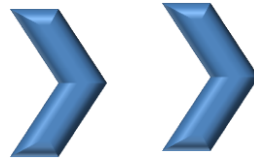
Algi-White (Algi-Fiber)

Introduction

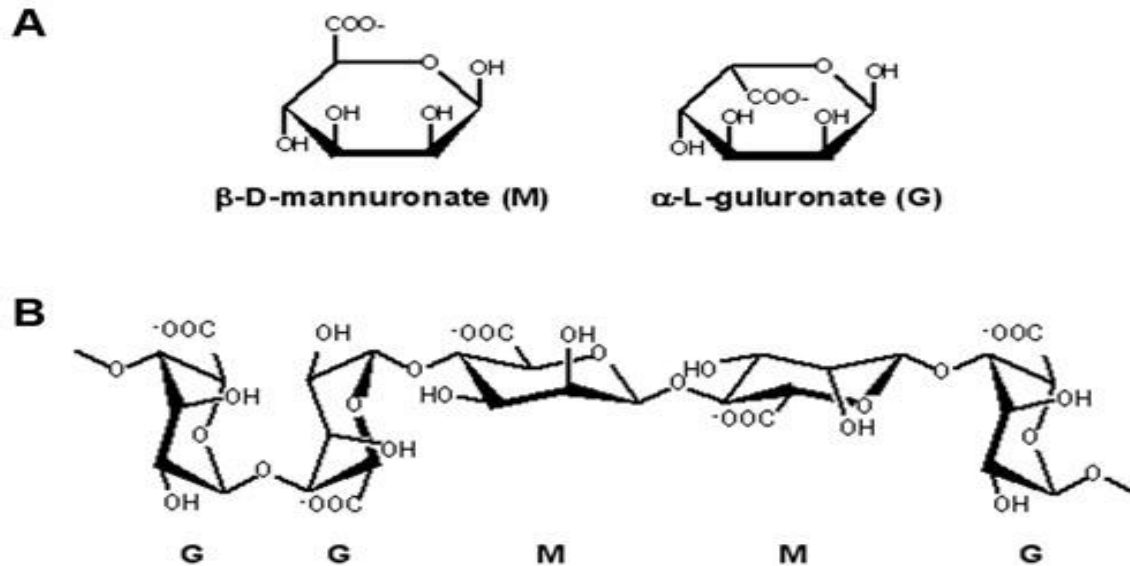


Alginate Dressing

- ▶ Alginate is a polysaccharide extracted from brown seaweed. It's also a biopolymer in white powder, widely used in food flavoring as a sticky agent or emulsifier. It also supports hemostasis and holds moisture over wound bed to promote fibroblast granulations.



Alginate Property



- ▶ Alginate is a linear co-polymer with β -D-mannuronate (M) and α -L-guluronate (G). The two links together randomly like a pearl necklace

Alginate Property

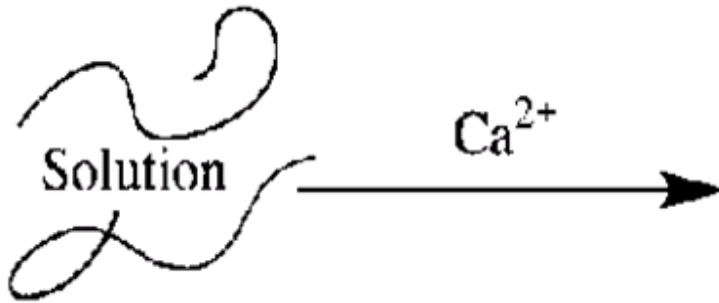


- ▶ G-block has higher affinity to calcium than M-block.
- ▶ Algi-white has the G/M blocks ratio as 73:27 (w/w).
- ▶ Theoretically, more G-blocks link to more Ca^{+2} and make dressing stiffer.
- ▶ The calcium content of Algi-fiber is < 20 ppm/gm
 - giving a soft texture but enough to perform hemostasis over venous or capillary bleeding.

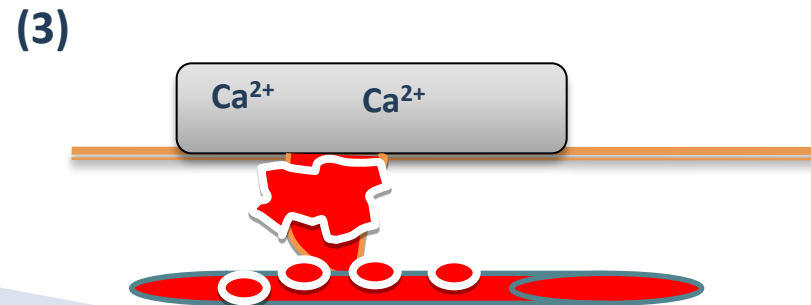
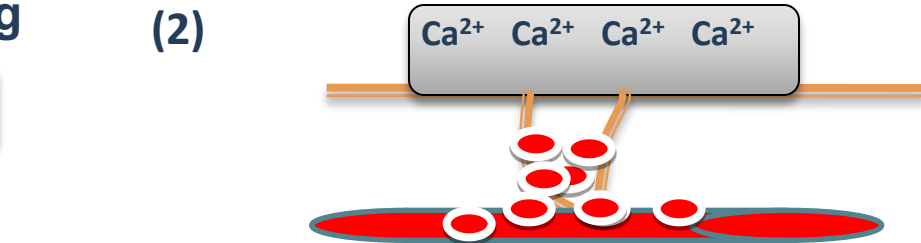
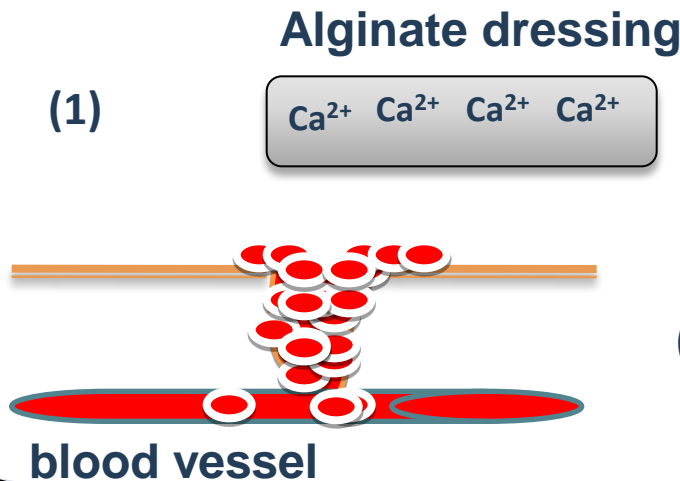
Four Functions

1. Bleeding control over venous or capillary abrasion
2. Hold moisture over wound bed
3. Promote granulation of fibroblasts
4. Microbial inhibition

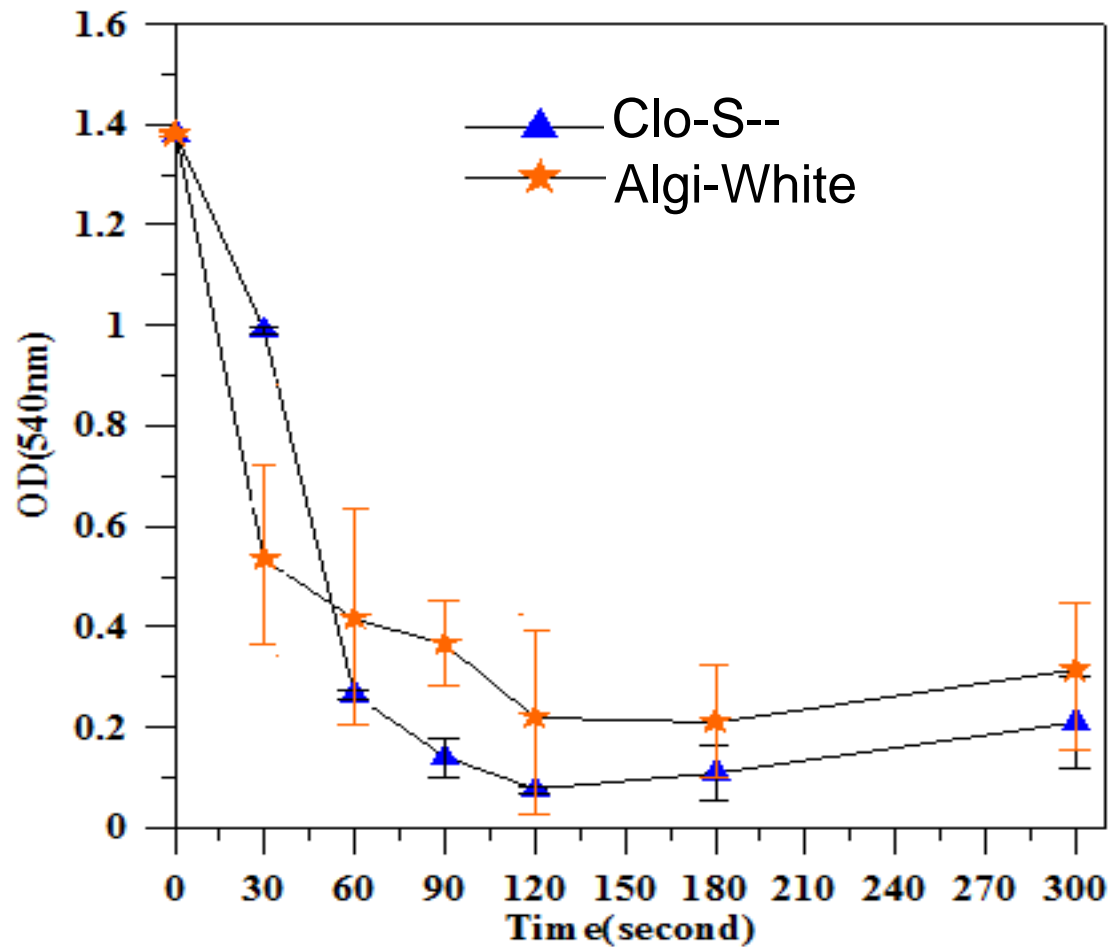
Coagulation-- Mode of Actions



Ion exchange starts when Algi-fiber contacts with fluid. The insoluble calcium alginate converts to soluble sodium alginate and release the Calcium ion into blood to trigger the coagulation function.



Coagulation Test



Dialysis Bleeding Control



85.6% Hemodialysis patients with coagulation problem.
For these can cut the bleeding control time to 5 min.

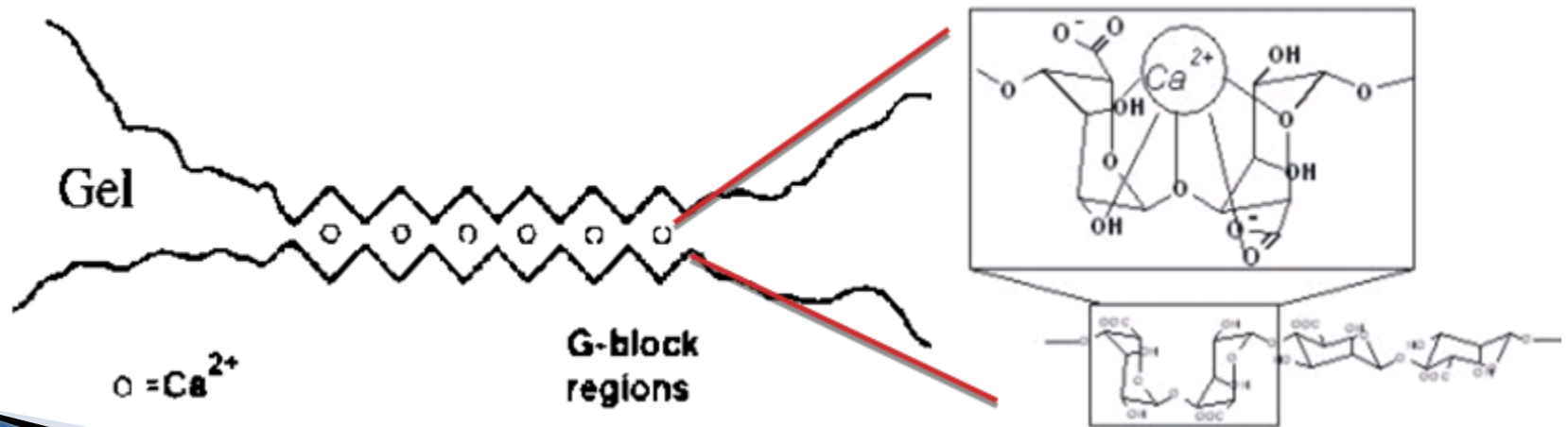
Hemodialysis Testimony

- ▶ Male, 34 yrs old with 10+ years hemodialysis history



Wound Healing--Mode of Action

Alginate holds calcium in an egg shell formation. As the cross linking among molecules is random, it gives room to hold more fluid. Also, when the sodium ion of exudates replaced by calcium ion, the alginate w/o calcium resolves to form a muddy like thin layer on top of wound site to hold the moisture, a favorable healing environment.

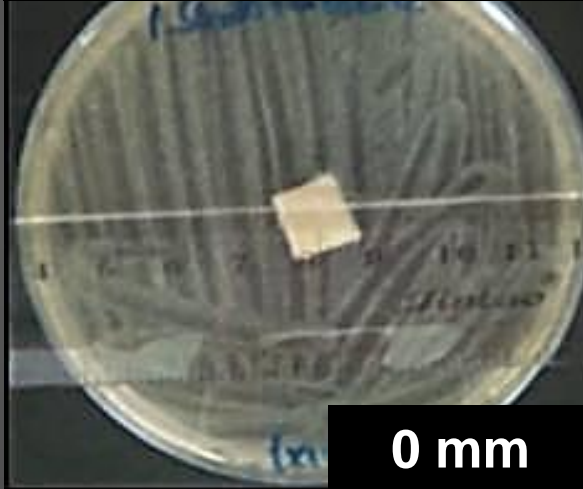


Microbial Inhibition Efficacy

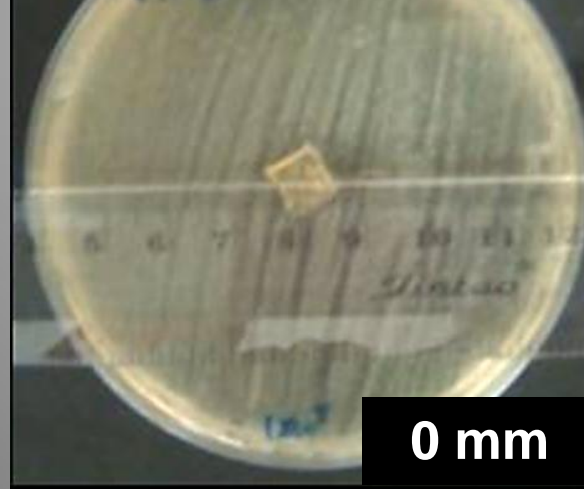
Reduction of Microbial After 24 hours			
Dressing products	Kal---	Aqu---	Algi-fiber
Staphylococcus	0%	78.8%	99.9%
Pseudomonas	0%	0%	98.6%

Inhibition zone test after 12 hours (*S.aureus*: 1×10^8 colony forming units/ml)

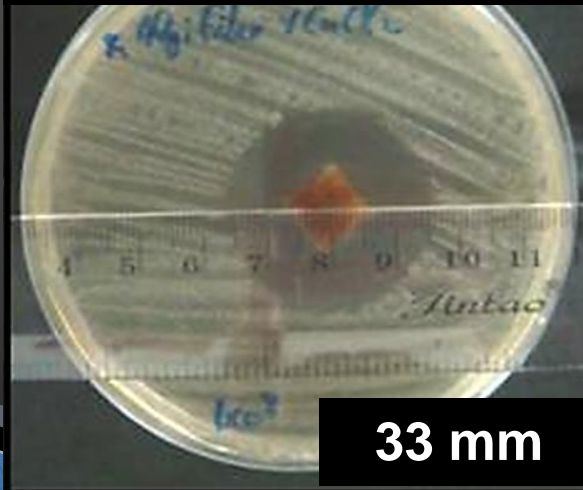
Sterilized gauze



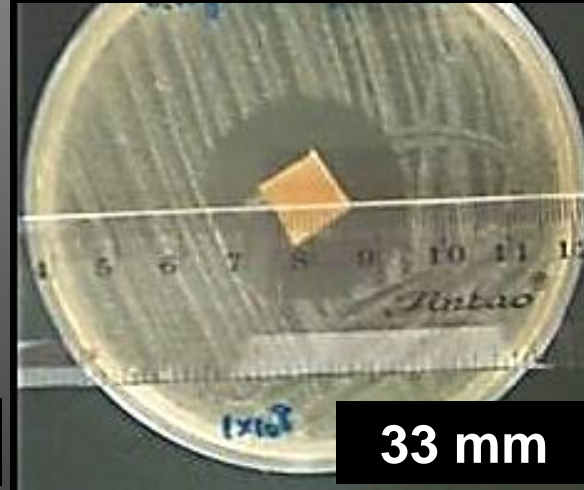
Aqu---



Algi fiber

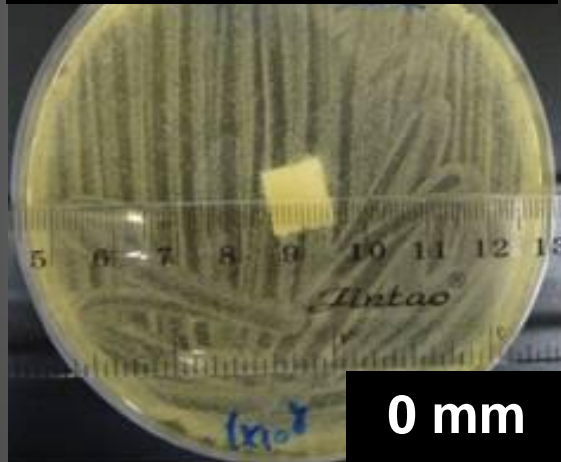


Algi fiber + Ag⁺



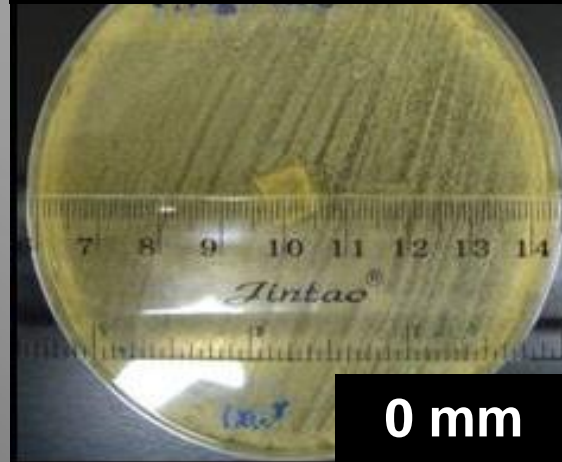
Inhibition zone test after 24 hours (S.aureus: 1×10^8 colony forming units/ml)

Sterilized gauze



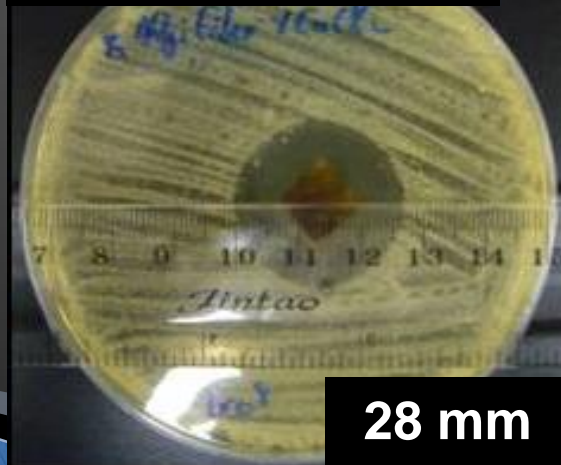
0 mm

Aqu---



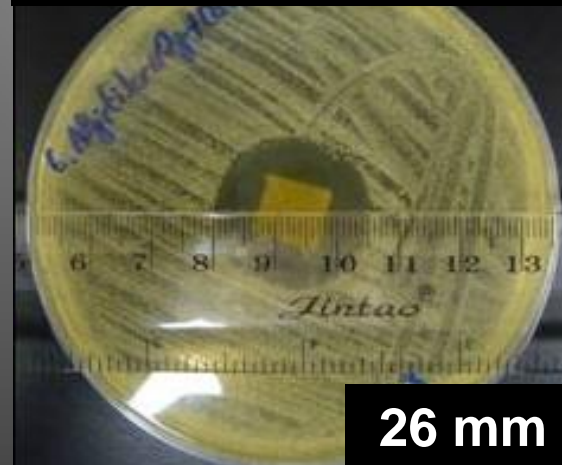
0 mm

Algi fiber



28 mm

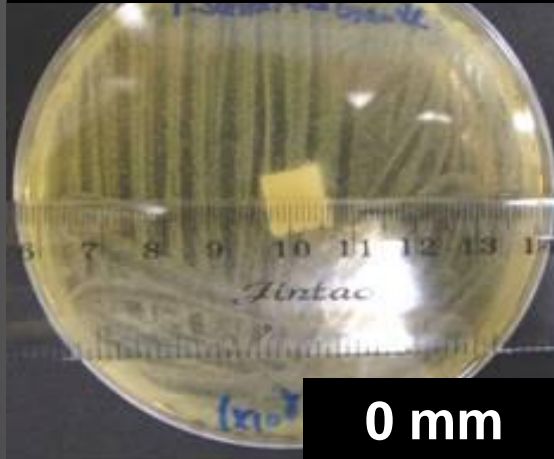
Algi fiber + Ag⁺



26 mm

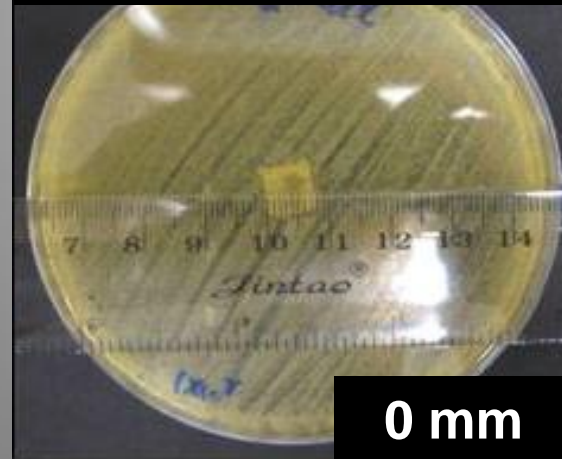
Inhibition zone test after 48 hours (*S.aureus*: 1×10^8 colony forming units/ml)

Sterilized gauze



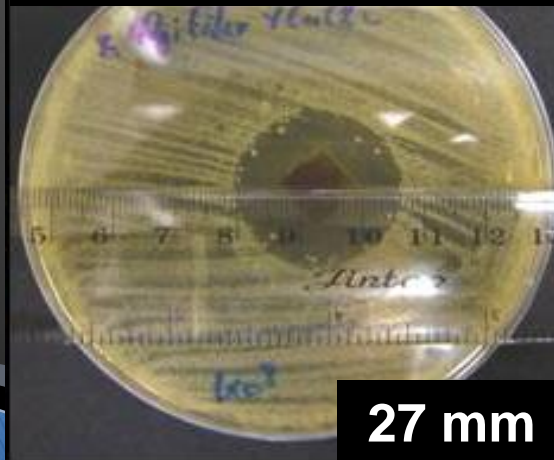
0 mm

Aqu---



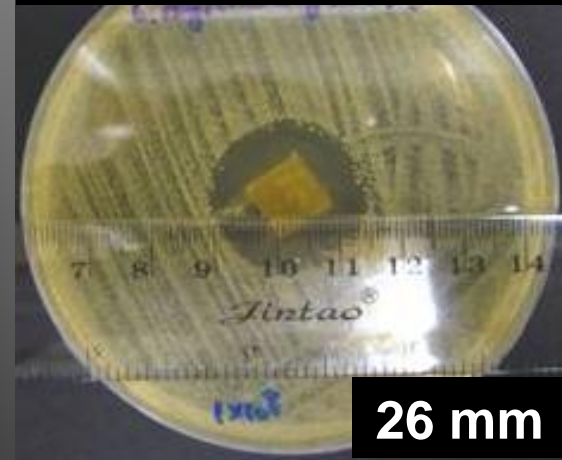
0 mm

Algi fiber



27 mm

Algi fiber + Ag⁺



26 mm

Absorbency Comparison

Product	Ingredient	Base weight (g/m ²)	Absorbency	Fiber diameter
Kalt--	Ca 20%+ Na 80% alginate	152	14.67	15-18μm
Tega--	Ca alginate fibers	121	12.30	13-23μm
Melg--	CMC w/ Alginate (High G)	143	12.29	14-16μm
Sea--	CMC w/ Alginate (High M)	134	12.14	15-20μm
Algi-white	100% Cal Alginate (High G)	208	12.12	15-17μm