

# GAIN CONTROL OVER BLEEDING FROM **EMERGENCY** TO **SURGERY**

## PRESENTING THE NEW **CHITOFLEX™ - SURGICAL** FROM HEMCON



HemCon Medical Technologies, Inc. presents ChitoFlex - Surgical, a temporary surgical hemostatic dressing that:

- Rapidly treats severe internal bleeding
- Ideal during damage control surgery
- Provides the ability to attend to multiple traumas simultaneously
- Effective on liver and spleen lacerations
- Cost effective surgical tool which offers a one step solution, eliminating the need for coagulation proteins such as thrombin



HemCon Medical Technologies, Inc. created and manufactures the HemCon® Bandage, a revolutionary way for medical professionals to treat and control bleeding. First used in 2003 by the U.S. Army to reduce the number of battlefield deaths due to bleeding, HemCon Bandages are now a mandatory part of every U.S. Army soldier's first aid kit and are currently used in 43 countries to control bleeding and improve patient care.

For more information please contact:  
HemCon Medical Technologies, Inc.  
10575 SW Cascade Avenue, Suite 130, Portland, OR 97223-4363  
Toll Free (U.S. & Canada): 877.247.0196 • Phone: +1.503.245.0459  
[www.hemcon.com](http://www.hemcon.com) • [info@hemcon.com](mailto:info@hemcon.com)



3" x 5"

## Intended Use:

HemCon ChitoFlex-Surgical is intended for use as a topical dressing for local management of bleeding wounds such as cuts, lacerations and abrasions. It may also be used for temporary treatment of severely bleeding wounds such as surgical wounds (operative, postoperative, dermatological, etc.) and traumatic injuries.

## Contraindications:

The safety and effectiveness of the HemCon ChitoFlex-Surgical dressing for use in neurological, ophthalmic, spinal, GI, orthopedic (bone repair), all anastomoses (including vascular), and femoral artery puncture sites have not been established.

## Device Description and Mode of Action:

The HemCon ChitoFlex-Surgical dressing is a chitosan-based dressing for local management of bleeding. Once in contact with blood, the dressing becomes strongly adhesive, enabling sealing and stabilization of wound surfaces.

The HemCon ChitoFlex-Surgical hemostatic mode of action at the wound site is directly related to:

- Strong wound sealing adhesive characteristics of the polycationic, high specific surface area of the chitosan acetate sponge.
- Persistent strong and rapid polycationic binding (agglutination) of erythrocytes by the high specific surface area of the dressing to form a stable clot.
- Resistance of the dressing to dissolution under blood flow.

# EFFECTIVE ON HOSPITAL BORN STAPH ORGANISMS

## Staphylococcus Aureus (MRSA) ATACC 33591

## Antibacterial Properties:

The antibacterial properties of chitosan have been investigated using in vitro methodology by Liu, et al.<sup>1</sup> in which the antibacterial activities of chitosan were measured against Escherichia Coli and Staphylococcus aureus. Results demonstrated that chitosan increased permeability of the inner and outer membranes and ultimately disrupted the bacterial cell membranes, releasing their contents. Preclinical studies with HemCon dressings have shown bacteriostatic and bacteriocidal properties against a wide range of gram positive and gram negative organisms. The clinical significance of these findings is unknown.

PERCENT REDUCTION* OF ORGANISM AFTER EXPOSURE TO DRESSING	Gram Stain	PERCENT REDUCTION ChitoFlex-Surgical dressing
Organism		
Escherichia coli ATCC 8739	-	>99.92
Klebsiella pneumoniae ATCC 4352	-	>99.29
Streptococcus pyogenes ATCC 19615	+	>99.91
Staphylococcus aureus (MRSA) ATCC 33591	+	>99.94
Staphylococcus epidermidis ATCC 12228	+	>99.79
Salmonella choleraesuis ATCC 10708	-	>99.91
Pseudomonas aeruginosa ATCC 9027	-	>99.94
Enterococcus faecalis (VRE) ATCC 51575	+	>99.90
Serratia marcescens ATCC 13880	-	>99.86
Stenotrophomonas maltophilia ATCC 12714	-	>99.94
Streptococcus mutans ATCC 25175	+	>99.92
Clostridium difficile ATCC 9689	+	>99.92
Streptococcus pneumoniae ATCC 10015	+	>99.94
Citrobacter koseri ATCC 25408	-	>99.96
Shigella species ATCC 11126	-	>99.89
Enterobacter aerogenes ATCC 13048	-	>99.93
Proteus mirabilis ATCC 4630	-	>99.87
Proteus vulgaris ATCC 12454	-	>99.83
Citrobacter freundii ATCC 8090	-	>99.94
Enterobacter cloacae ATCC 13047	-	>99.94
Acinetobacter baumannii ATCC 15308	-	>99.95
Moraxella catarrhalis ATCC 8193	-	>99.95
Micrococcus luteus ATCC 147	+	**
Vibrio cholerae ATCC 11558	-	>99.92

\* Percent reduction refers to the percentage reduction in organisms at 24 hours vs. 0 hours exposure to the dressing.

\*\* With Micrococcus luteus, the time 0 assay demonstrated >99% kill to a bacterial level of 100 CFU. As a result, the 24 contact time was not able to demonstrate additional killing.

<sup>1</sup> Liu H. et al., Chitosan kills bacteria through cell membrane damage, International Journal of Food Microbiology 95 (2004) 147-155.

## Key Points to Follow:

### SEE PRODUCT INSERT FOR COMPLETE DIRECTIONS FOR USE

- The dressing is most effective in the presence of enough blood to wet the contact surface of the dressing.
- Avoid touching dressing with wet gloves, as the dressing may stick.
- Apply dressing directly to the source of the bleeding. The dressing can be stuffed in the wound track of penetrating injuries.
- Back the dressing with gauze and apply pressure for 2 minutes or until bleeding is controlled. Once dressing is in place, do not remove and attempt to replace.
- Remove dressing within 24 hours by gently peeling from one edge and pulling away from patient.