



Cellistypt[®]

OXIDIZED RESORBABLE CELLULOSE HEMOSTATS



Cellistyp[®] is an oxidized Non-regenerated cellulose (ONRC) hemostat, of 100% vegetable origin made from natural cotton.

Oxidized cellulose hemostats have been used for decades (1) and are well known for their hemostatic properties and easy handling.

B. Braun's Cellistyp[®] product range is available in four different presentations, offering different option to be used to help stopping different kinds of bleeding in the OR.

Cellistyp[®] PRODUCT RANGE

- **Cellistyp[®]**: Regular density knitted fabric
- **Cellistyp[®] D-K**: High density knitted fabric
- **Cellistyp[®] F**: Regular density fibrous version
- **Cellistyp[®] N-W**: Reduced weight reinforced fibrous version

Cellistyp[®] is indicated for capillary, venous and minor arterial bleedings when conventional hemostatic measures such as sutures or ligatures are ineffective or unfeasible (2).

Cellistyp[®] OXIDIZED RESORBABLE CELLULOSE

Cellistyp[®] hemostats are meant to be used as adjunct to hemostasis in open surgical and minimal invasive procedures in order to control capillary, minor venous and minor arteriolar bleeding, when conventional hemostatic methods such as ligation are impractical or not effective.

Cellistyp[®] supports natural hemostasis through its absorptive capacity and its ability to denature proteins, which helps to build a clot to stop bleeding.

PRODUCT FEATURES

- Manufactured from extra-long staple cotton of the finest quality
- Achieves hemostasis in approximately 1,5 minutes (3)
- Biodegradable, bioresorbable and biocompatible (4)
- Maintains its original structure (5)
- Can be cut to size without fraying (2)
- Can be relocated (5)
- Absorbed within 14 days (absorption time may vary depending on the quantity of product used, the level of blood saturation and the type of tissue) (3,6)
- Antimicrobial effect on a large spectrum of pathogens (7)
- Easy to use (2)



Cellistyp[®]

FOR MORE INFORMATION SEE THE TABLE BELOW

	Presentation	Handling (2)	Indications (2)
Cellistyp [®]	Knitted fabric of regular density	<ul style="list-style-type: none"> ▪ Basic format, highly versatile ▪ Can be cut or folded 	To control capillary, minor venous and minor arteriolar diffuse bleeding
Cellistyp [®] D-K	Knitted fabric of high density	<ul style="list-style-type: none"> ▪ Improved efficiency to control hemostasis compared to regular version ▪ Can be cut or folded 	To control haemostasis in higher volume capillary and venous or arteriolar bleeding
Cellistyp [®] F	Non-woven, cotton wool format	<ul style="list-style-type: none"> ▪ High flexibility ▪ Can be cut ▪ Can be easily applied in the bleeding site using forceps ▪ Can be easily separated in layers ▪ The fibers continue to hold together without uncontrolled release into the operative site 	To control haemostasis over a large area, for surface applications on irregularly shaped bleeding sites or in areas that are difficult to access
Cellistyp [®] N-W	Non-woven, reinforced fibers format	<ul style="list-style-type: none"> ▪ Increased strength compared to Cellistyp[®] F ▪ Can be rolled and introduced through the trocar ▪ Can be cut ▪ Maintains the original structure even when saturated with blood ▪ Easily manipulated in the bleeding site with no signs of disintegration 	To control capillary, venous and minor arteriolar diffuse bleeding and it may be more suitable for endoscopic use

ANTIBACTERIAL ACTIVITY

Cellistyp[®] has proven its bactericidal and bacteriostatic properties in in vitro test performed on different microorganism.

Low pH inhibits the growth and multiplication of both gram positive and gram negative microorganisms including aerobic and anaerobic bacteria.

This efficiency has been proven against 36 strains, including antibiotic-resistant bacteria (MRSA, PRSP, VRE, MRSE) (7).

Antimicrobial activity was tested by diffusion method (7).

Antimicrobial activity evaluated against, among others, the following microorganisms (7):

- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Penicillin-resistant *Streptococcus pneumoniae* (PRSP)
- Vancomycin-resistant *Enterococcus* (VRE)
- Methicillin-resistant *Staphylococcus epidermidis* (MRSE)
- *Streptococcus pyogenes* group A
- *Streptococcus agalactiae* group B
- *Streptococcus salivarius*
- *Escherichia coli*
- *Clostridium perfringens*
- *Enterococcus faecalis*
- *Pseudomonas aeruginosa*

In vitro test results. Equivalent results in vivo and in clinical use have not been verified.



Effect of Cellistyp[®] over Methicillin-Resistant *Staphylococcus aureus* (MRSA) after incubation period. Bacterial growth is reduced around Cellistyp[®] samples.

Right: Piece of Cellistyp[®] with bacteria free halo around.

Left: Cellistyp[®] has been removed. There is no bacterial growth were the piece of Cellistyp[®] was placed.

Cellistyp[®]

ONRC vs ORC

Equivalent Antibacterial Effect

Despite the different pH of both hemostats, no differences in bacterial effect in vitro are observed (8).

Superior Hemostasis

Comparative in vivo models show that the frayed fibers of ONRC provide superior hemostasis due to the increased surface area (8).

Superior Bioresorbability

Bioresorbability simulation tests demonstrated better disintegration of ONRC against ORC in vitro (5). ORC creates a compact clot of material, in vivo this could potentially cause a foreign body granuloma, leading to post surgical complications as described in the literature (9,10,11).



REFERENCES

- 1 Schonauer C, Tessitore E, Barbagallo, Albanese V and Moraci A. The use of local agents: bone wax, gelatin, collagen, oxidized cellulose. Eur Spine J. 2004 Oct;13 Suppl 1(Suppl 1):S50-5.
- 2 Based on Cellistyp[®] Instructions For Use
- 3 Jindřich Lahovský, MD. Evaluation of efficacy and safety of medical devices series OKCEL[®]. Study Report Ref. No AP-SY-1501. Data on file: 18640-033.
- 4 Based on biocompatibility testing of OKCEL[®] products in accordance with EN ISO 10993. Data on file:18640-033.
- 5 Jindřich Lahovský, MD. Závěrečná zpráva laboratorního vyhodnocení vlastností hemostatik na bázi oxidované regenerované a neregenerované celulózy. Study Report Ref. No. AP-SY-1901. Data on file: 18640 - 034.
- 6 Jindřich Lahovský, MD. Evaluation of efficacy and safety of the medical device OKCEL[®] S. Study Report Ref. No AP-SY-1701. Data on file: 18640-033.
- 7 Ing. Iveta Brožková, Ph. D. Department of Biological and Biochemical Sciences at the Faculty of Chemical Technology, University of Pardubice. Final report on testing the antimicrobial activity of the product OKCEL[®]. Data on file: 18640-034.
- 8 Lewis KM, Spazierer D, Urban MD, Lin L, Redl H, Goppelt A. Comparison of regenerated and non-regenerated oxidized cellulose hemostatic agents. Eur Surg. 2013;45(4):213-20.
- 9 Kanakis MA, Chatzis A, Papadopoulos E, Contrafouris C, Azariades P, Karabinis A, Mitropoulos F. Post thoracotomy spinal cord compression in a child. A word of caution. Int J Surg Case Rep. 2013 Feb 01;4(3):354-6.
- 10 Syburraa T, Weishaupb D, Gravesa K, Genonia M. Oxidized regenerated cellulose in cardiac computer tomography imaging. Interactive CardioVascular and Thoracic Surgery. 2010 Dec 13 (12):626-7.
- 11 Badenes D, Pijuan L, Curull V, Sanchez Font A. A foreign body reaction to Surgicel[®] in a lymph node diagnosed by endobronchial ultrasound guided transbronchial needle aspiration. Ann Thorac Med. 2017 Jan-Mar;12(1): 55-6.

Cellistyp[®]

ORDERING INFORMATION

Cellistyp[®]



Description	Code	Content
5 cm x 1.25 cm	2080501	15
5 cm x 7 cm	2080508	15
7 cm x 10 cm	2080511	15
5 cm x 35 cm	2080536	10
10 cm x 20 cm	2080541	10
1.5 cm x 1.5 cm	2080515	40

Cellistyp[®] D-K



Description	Code	Content
2.5 cm x 2.5 cm	2081203	15
2.5 cm x 9 cm	2081209	15
5 cm x 7.5 cm	2081275	10
7 cm x 10 cm	2081210	10
14 cm x 20 cm	2081240	10

Cellistyp[®] F



Description	Code	Content
2.5 cm x 5 cm	2082025	10
5 cm x 7.5 cm	2082075	10
5 cm x 10 cm	2082005	10
10 cm x 10 cm	2082010	10
10 cm x 20 cm	2082020	10

Cellistyp[®] N-W



Description	Code	Content
2.5 cm x 5 cm	2083255	10
5 cm x 5 cm	2083055	10
5 cm x 10 cm	2083510	10
10 cm x 10 cm	2083110	10

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