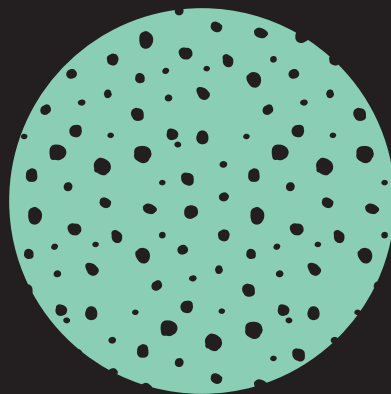


PLENA

Collagen products for regeneration



Sweden & Martina Inc.

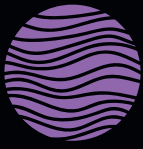
PLENA

PLENA is a line of dental membranes that support the body's natural ability to generate new bone and tissue. Made of highly purified porcine collagen, these membranes are designed to accommodate a wide range of clinical needs and applications.

Designed for guided bone and tissue regeneration in oral surgery, highly biocompatible, easy to position and fix, PLENA membranes combine effectiveness and ease of use. They are available in two versions.

The line also includes PLENA Graft, the biomaterial in carbonate apatite granules from cancellous porcine bone, subject to rigorous production and purification controls. The natural bone like structure makes it an effective bone graft material for bone regeneration.





PLENA FLEX

Collagen membrane from purified porcine peritoneum

The membrane acts as a cell barrier to prevent soft tissue ingrowth in the defect site while maintaining permeability to macromolecules and nutrients.^{1,2}

RESORPTION
3-4 months

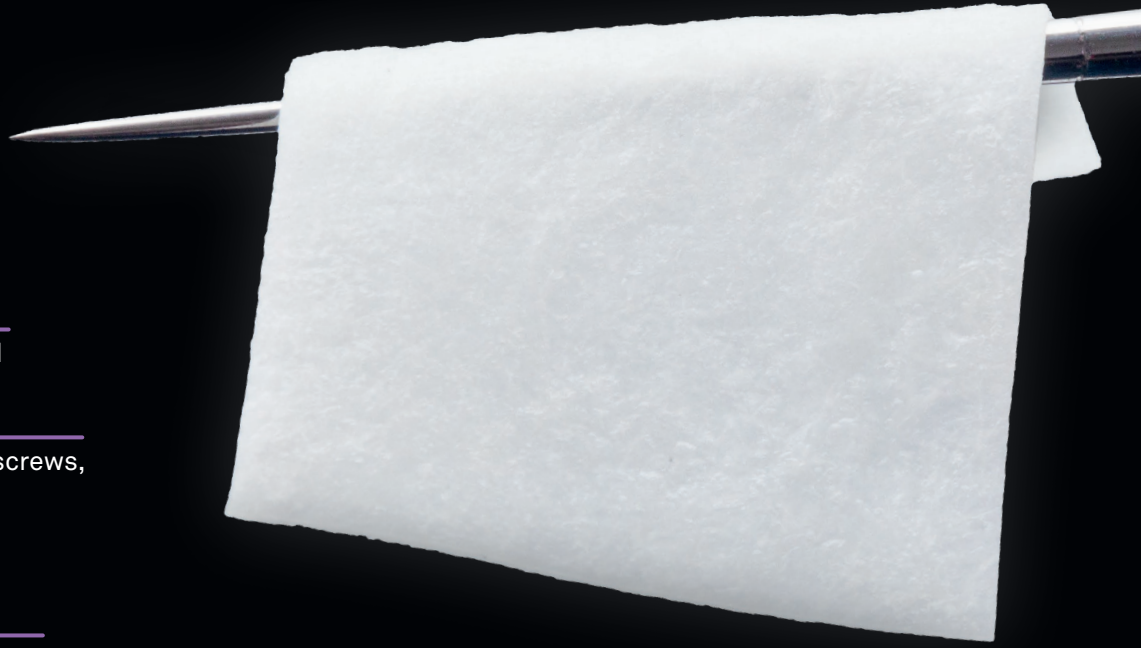
Flexible, easy to place

Strong, soft, drapeable and easy to handle

Easy to fix with sutures or screws, laceration resistant

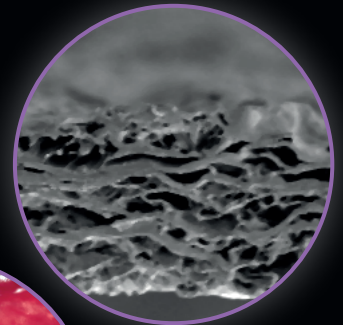
Either sides can be placed facing the tissue

Does not stick to instruments

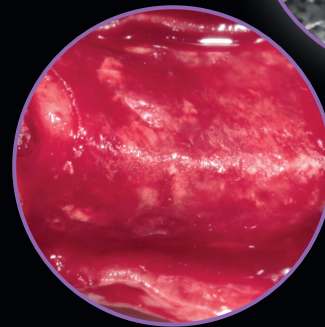


Indications:



- PLENA FLEX is a bioresorbable, implantable collagen material that is intended for use in oral surgical procedures as a resorbable membrane material for use in:
- simultaneous use of guided bone regeneration (GBR)-membrane and implants;
- augmentation around implants placed in immediate extraction sockets;
- augmentation around implants placed in delayed extraction sockets;
- localized ridge augmentation for later implantation;
- alveolar ridge reconstruction for prosthetic treatment;
- filling of bone defects after root resection, cystectomy or removal of retained teeth;
- guided bone regeneration in dehiscence defects;
- guided tissue regeneration procedures in periodontal defects.



50x magnification Scanning electron micrograph



Intraoperative clinical image on a patient showing the exceptional adaptability of the membrane to the surgical site. Clinical image courtesy of dr. Marco Csonka, Catania

	code	description
	CDMPP1520	PLENA FLEX resorbable collagen membrane 15x20 mm
	CDMPP2030	PLENA FLEX resorbable collagen membrane 20x30 mm

1. Data on File, DO.0051-B
2. Data on file, CMI permeability

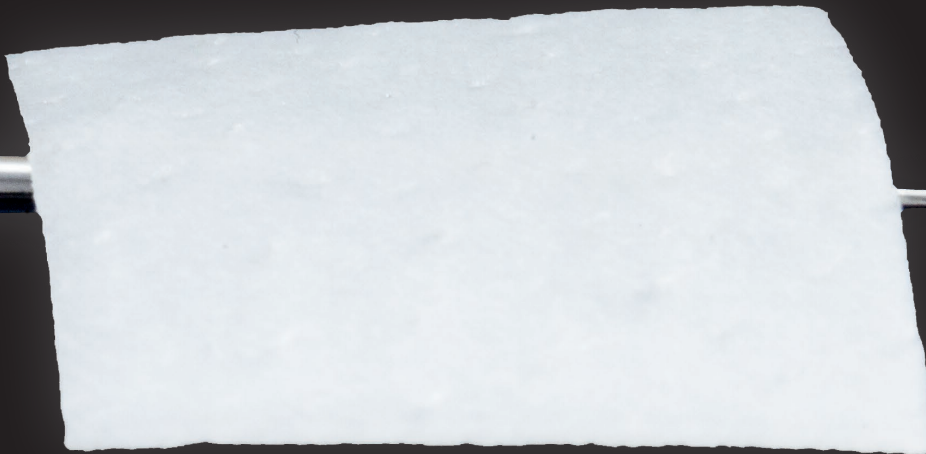


PLENA MEDIUM

Collagen membrane from purified intact porcine dermis

The membrane acts as a cell barrier to prevent soft tissue ingrowth in the defect site while maintaining permeability to macromolecules and nutrients.^{1,2}

RESORPTION
6-9 months



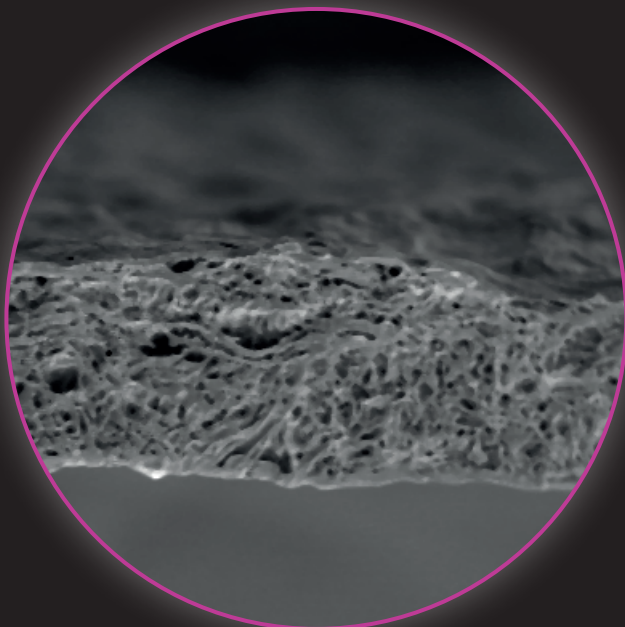
High mechanical strength

Created with the **right balance**
between stiffness and handling

Either sides can be
placed facing the tissue

Easy to fix even with sutures or
screws, **laceration resistant**

Does not stick to the instruments



50x magnification
Scanning electron
micrograph

Indications:

PLENA MEDIUM Regenerative Collagen Dental Membrane is intended for use in:

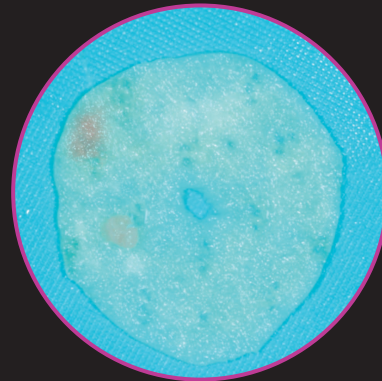
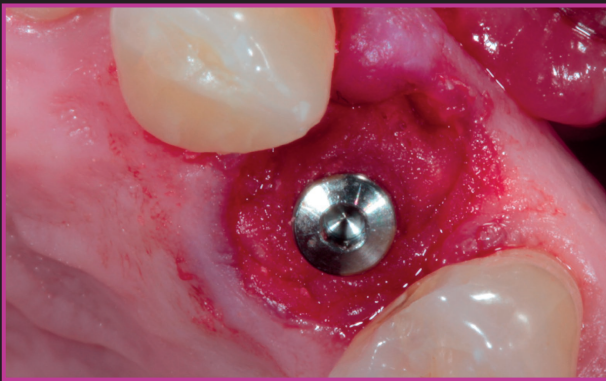
- oral surgical procedures as a resorbable material for use in augmentation around implants placed in immediate extraction sockets, delayed extraction sockets;
- localized ridge augmentation for later implantation;
- alveolar ridge reconstruction for prosthetic treatment;
- filling of bone defects;
- guided bone regeneration in dehiscence defects;
- guided tissue regeneration procedures in periodontal defects.

1. Data on file, DO.0029-1



2. Data on file, CMI Permeability

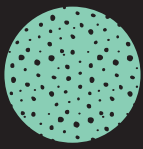


Instructional images



Clinical image courtesy of dr. Marco Csonka, Catania

	code	description
	PDM1520	PLENA MEDIUM collagen resorbable membrane 15x20 mm
	PDM2030	PLENA MEDIUM collagen resorbable membrane 20x30 mm



PLENA GRAFT

Biomaterial in carbonate apatite granules from highly purified porcine cancellous bone

Plena Graft is subject to several rigorous steps in the production process to eliminate and inactivate antigens and microorganisms and make the product safe for clinical use.

Materials formed from carbonate apatite crystals are more osteoconductive than hydroxyapatite.^{3,4,5}

Resorption and remodeling are much more similar to the autologous bone process than synthetic materials such as hydroxyapatite or tricalcium sulfate.⁴ The high porosity and roughness of the granules are two characteristics that influence the adhesion of cells and accelerate resorption by osteoclasts and increase the affixing of osteoblasts from mesenchymal cells, as well as influence other factors related to the expression of the phenotype such as the production of type I collagen, osteocalcin, extracellular matrix and mineralized material.^{6,7}

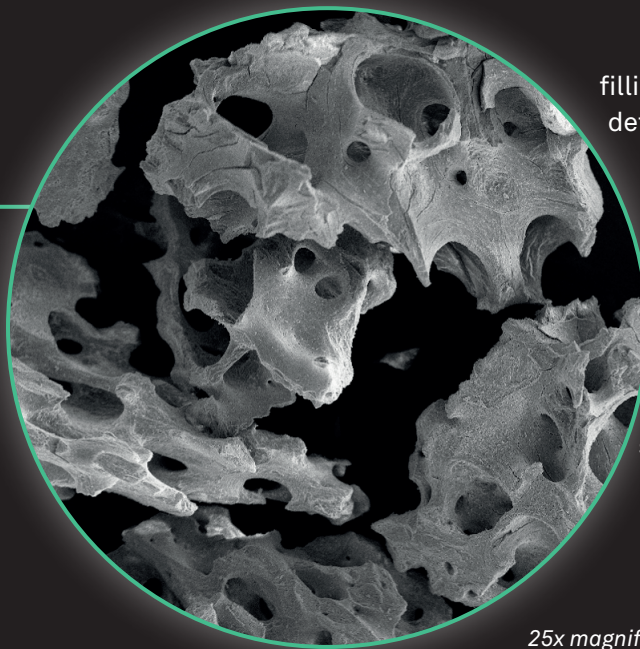
REMODELING
6-9 months

Optimal porosity: large pores and granules with high surface roughness⁷, features that **facilitate cell adhesion**



Safe purification process

Macropores range **between 0.1 mm and 1.0 mm**



It demonstrates a high filling of the volume of the defect compared to other materials with the same weight

Structure of **carbonate apatite** similar to natural bone

*25x magnification
Scanning electron
micrograph*

Plena Graft Syringe

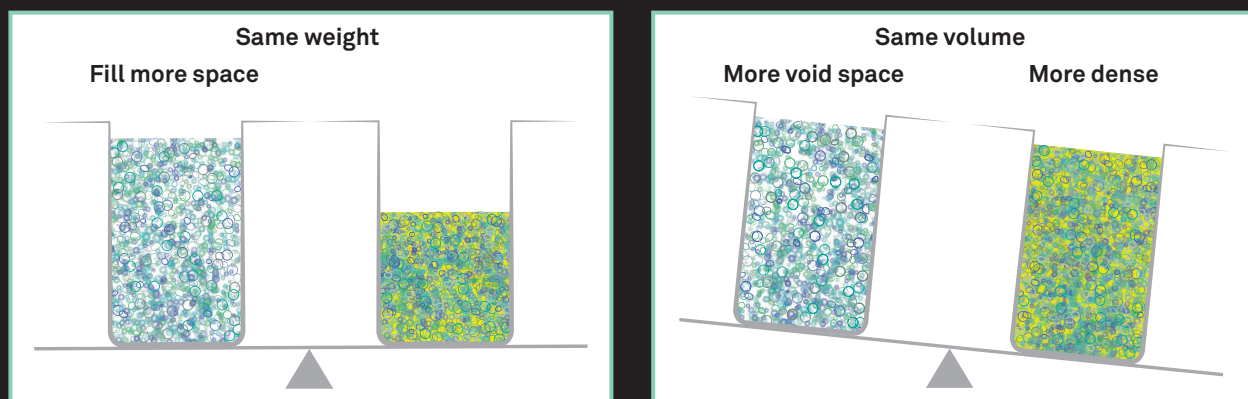
Plena Graft, our porcine-derived cancellous bone graft, is now available in a **practical syringe format**.

It provides excellent handling characteristics, making it ideal for various dental applications.



Indications:

- augmentation or reconstructive treatment of alveolar ridge;
- filling of infrabony periodontal defects;
- filling of defects after root resection, apicoectomy, and cystectomy;
- filling of extraction sockets to enhance preservation of the alveolar ridge;
- elevation of maxillary sinus floor;
- filling of periodontal defects in conjunction with products intended for Guided Tissue Regeneration (GTR) and Guided Bone Regeneration (GBR);
- filling of peri-implant defects in conjunction with products intended for Guided Bone Regeneration.

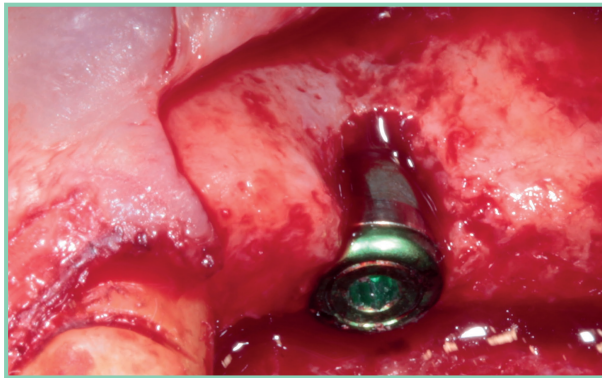


Low density (88% of empty space left by microgranules and 95% by macrogranules) = **better vascularization and osseointegration**

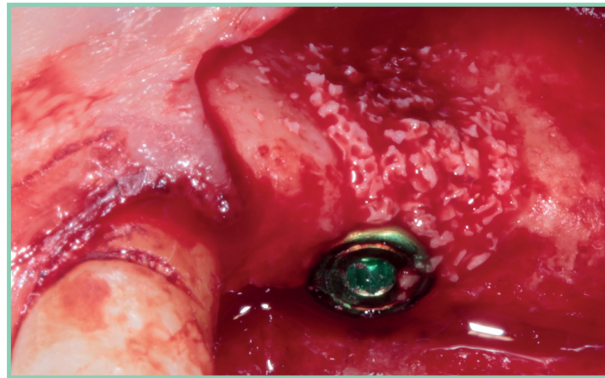
3. Spense G., Patel N., Brooks R., Rushton N. 2010. Osteoclastogenesis on hydroxyapatite ceramics: The effect of carbonate substitution. *J Biomed Mater Res A*. 2010 Mar 15;92(4):1292-300.
4. Ellies LG, Carter JM, Natiella JR, Featherstone JDB, Nelson DGA. 1988. Quantitative Analysis of Early In Vivo Tissue Response to Synthetic Apatite Implants. *J Biomed Mater Res* 22:137-148.
5. Landi E., Celotti G., Logroscino G., Tampieri A. 2003. Carbonated Hydroxyapatite as Bone Substitute. *Journal of the European Ceramic Society* 23: 2931-2937.5. Hannink G1, Arts JJ. Bioresorbability, porosity and mechanical strength of bone substitutes: what is optimal for bone regeneration? *Injury*. 2011 Sep;42 Suppl 2:S22-5.
6. Hannink G1, Arts JJ. Bioresorbability, porosity and mechanical strength of bone substitutes: what is optimal for bone regeneration? *Injury*. 2011 Sep;42 Suppl 2:S22-5.
7. Deligianni DD, Katsala ND, Koutsoukos PG, Missirlis YF, Effect of Surface Roughness of Hydroxyapatite on Human Bone Marrow Cell Adhesion, Proliferation, Differentiation and Detachment Strength. *Elsevier Biomaterials* 22 (2001) 87-96.

Clinical case

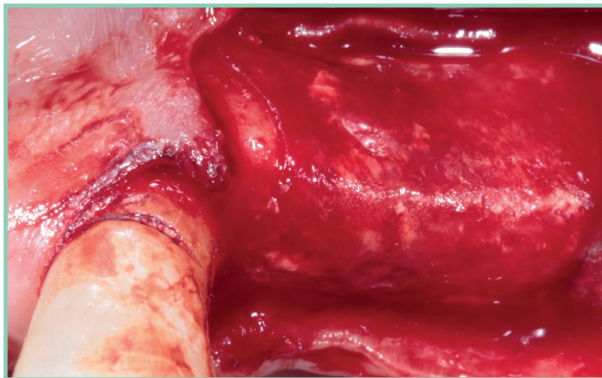
Courtesy of dr. Marco Csonka, Catania



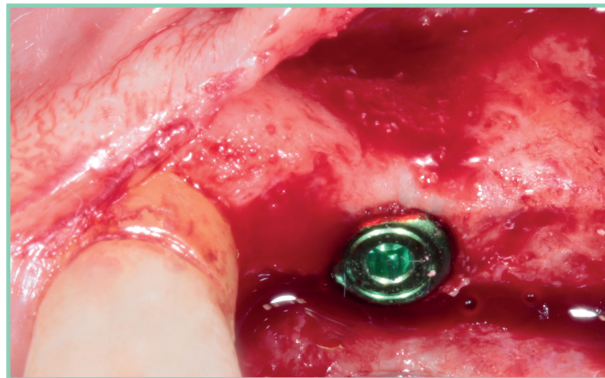
Vestibular bone dehiscence at implant inserted in position 24



The defect is filled with Plena Graft; note the marked hydrophilicity of the material and its easy adaptability to the defect




The site is then protected with a Plena Flex resorbable membrane; easy intraoperative handling and excellent spontaneous adaptation to the receiving site

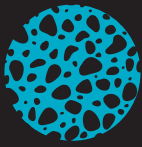


Result after 5 months. Once the reopening of the regenerated site has been performed, an advanced state of maturation of the newly formed bone tissue is noted; there are some residual granules of biomaterial perfectly osseointegrated and adherent to the underlying tissue



The correct use of Plena biomaterials and flap passivation techniques and layer suturing
dr. Marco Csonka

	code	description
	PMC0510	PLENA Graft, 0.5 cc jar
	PMC1010	PLENA Graft, jar 1 cc
	PMCS05	PLENA Graft Syringe, 0,25-1 mm



PLENA PLUG

Bone graft composite plug

Plena Plug is a calcium phosphate-based mineral with a synthetic carbonate apatite structure which is like natural bone. The similarity in structure between the Plena Plug mineral and natural anorganic bone mineral mimics natural bone as shown in vivo resorption and remodeling profile.

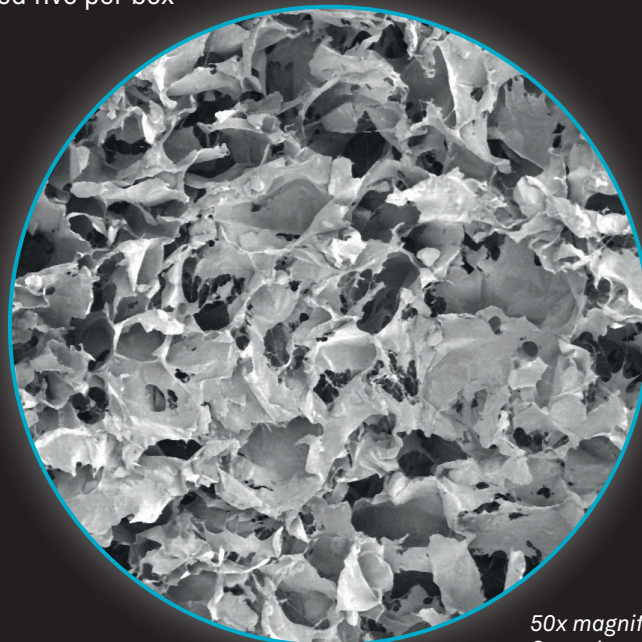
The low crystallinity of carbonate apatite supports bioresorption and the synthetic mineral has been shown to increase the bone forming activities of osteogenic cells as well as enhance bioresorption of bone by osteoclasts. The makeup of the Plena Plug is approximately 80% mineral combined with 20% Type I Achilles bovine tendon collagen.





Product Features:

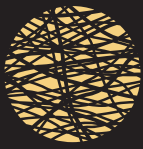
- Ease of use for socket sites treated with composite plug
- Expands to fill socket site when hydrated
- Mineral particles are contained within the defect site
- Offered in two sizes conveniently packaged five per box

REMODELING
9-12 months



50x magnification
Scanning electron
micrograph

code	description	
 SMCP0625	PLENA PLUG composite bone graft plug 6x25 mm, 5 pcs	
 SMCP1020	PLENA PLUG composite bone graft plug 10x20 mm, 5 pcs	



PLENA WOUND DRESSING FOAM

Resorbable wound dressing

Plena Graft are absorbent, porous, collagen matrices engineered from purified collagen derived from bovine dermis tissue.




They are indicated for use for denture sores, oral ulcers (*non-infected or viral*), periodontal surgical wounds, suture sites, burns, extraction sites, surgical wounds and traumatic wounds.

RESORPTION
30 days



Product Features:

- Applied directly to the wound
- Protect the wound and delicate new tissue
- Aids in wound healing
- Available in tape, foam and plug form
- Supplied sterile, non-pyrogenic and for single use only
- Essentially resorbs within 30 days of placement

code	description
 BDDWDF2040	PLENA WOUND DRESSING FOAM 2x4cmx3mm (box of 10 pcs)
 BDDWDP1020	PLENA WOUND DRESSING PLUG 1x2cm (box of 10 pcs)
 BDDWDT2575	PLENA WOUND DRESSING TAPE 2.5x7.5cmx1mm (box of 10 pcs)



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