

# vivamel



Vivamel –  
medical products  
with medical  
honey for  
wound healing

Vivamel medical devices with medical honey for wound healing have been developed by Tosama, in cooperation with the Department of Biology at the Biotechnical Faculty, the Department of Surgical Infections at the Ljubljana University Medical Centre, and the House of Honey Božnar.

## Wound healing with medical honey

Honey has been used for the healing of wounds for centuries. The roots of this practice date back to Ancient Egypt, while biological and clinical effects of honey were identified in the 19th century. Honey has antimicrobial, immunomodulatory and physiological effects. It stimulates an infected wound to clean itself faster, helps to relieve inflammation, swelling and pain, reduces the unpleasant odour, intensifies granulation and epithelisation, and reduces scarring and tissue damage. Considering all the above, it is recommended for the treatment of acute and chronic wounds.

In Tosama, chestnut honey was chosen among Slovenian types of honey. Its high antimicrobial effectiveness has been demonstrated by microbiological analyses. The total effect of chestnut honey on wound healing has been confirmed by a clinical study in which wounds of different aetiologies were examined: venous ulcers, diabetic wounds, pressure ulcers, infected wounds, skin metastases, burns, donor sites, malodorous wounds, surgical wounds, moist necroses and acute wounds.

Chestnut honey has a low pH (around 3.7) and creates an acidic environment the wound, which is not favourable for the development of bacteria. It also has very low water content and a high content of sugars, which causes high osmotic pressure in the wound. Osmotic pressure pulls out the fluid from bacterial cells, thus impeding their growth and at the same time stimulating the flow of numerous nutrients from honey into the wound. Due to the osmotic activity, honey has a bacteriostatic and fungistatic effect. The bacteriostatic activity of honey is additionally strengthened by the glucose oxidase enzyme secreted from hypopharyngeal glands of bees into the chestnut honey. In mature natural honey, this enzyme is inactive. It becomes activated when honey is diluted (i.e. in contact with the wound exudate). This triggers a reaction between glucose and water in which hydrogen peroxide is formed in a slow-release manner. The latter impedes the growth of microorganisms and stimulates granulation. Chestnut honey is a rich source of vitamins, enzymes, peptides (which stimulate granulation), phenol compounds (anti-oxidative effect), and minerals (particularly calcium, manganese and potassium) which contribute to the wound healing.

Honey enables moist wound healing by forming a protective film together with the wound exudate, which does not allow dressing to stick to the wound. Honey also reduces the infection of the wound, facilitates the cleaning of necrotic tissue, and stimulates granulation



and epithelisation.

The selected chestnut honey is produced in accordance with HACCP principles. Honey is obtained from forest pastures (not contaminated with pesticides and heavy metals), not diluted, naturally produced (without synthetic and genetically modified components), and sterile. Its physico-chemical properties are strictly controlled; biocompatibility tests are performed in compliance with ISO 10993.

### Advantages of VIVAMEL medical products:

- enable moist wound healing;
- act bacteriostatic against gram-positive and gram-negative bacteria, including MRSA and VRE;
- promote cleaning of infected wounds;
- prevent wound infection;
- reduce unpleasant odour;
- stimulate cleaning of necrotic tissue;
- stimulate granulation and epithelisation;
- stimulate wound healing without scarring;
- do not stick to the wound;
- cause no pain at re-dressing;
- are simple to apply;
- contain chestnut honey, a rich source of nutritive substances which contribute to the wound healing and protect the surrounding skin;
- facilitate cost-effective wound healing.



## VIVAMEL CONTACT – Contact Mesh with Medical Honey

VIVAMEL CONTACT mesh is intended for wound bed protection of different types of wounds, both chronic and acute. The mesh is non-absorbable; therefore a secondary absorbent dressing or plaster is required. By using contact mesh, the wound bed is protected and a healthy new tissue is preserved. The mesh is soft and thin, thus providing, in combination with medical honey, a good contact with the wound bed. A porous mesh structure allows the exudate to leak from the wound into the secondary absorbent dressing and prevents its sticking.

### Application of the VIVAMEL CONTACT mesh with medical honey:

**VIVAMEL contact mesh with medical honey is particularly suitable for:**

- wounds with mild exudate
- the protection of the bed of chronic and acute wounds
- wounds in the phase of granulation and epithelisation
- skin abrasions
- scratches
- minor injuries.

- Before applying the mesh, clean the wound with warm liquid water or a saline solution (mild soap can be used).
- Place the mesh tightly on the cleaned wound in order to ensure the best possible bacteriological and osmolaric effect.
- The mesh requires a secondary dressing and a fixation bandage if necessary.
- The mesh may reach over the edge of the wound, since honey protects the surrounding tissue.
- The mesh may be cut or folded.
- At the beginning of the treatment, it is recommended to change the mesh every two days. When treating wounds with stronger exudate, mesh should be changed every day to increase the effectiveness of the healing.



## VIVAMEL - Sterile Medical Honey 20g

Sterile medical honey in a tube is appropriate for treatment of both deep and surface wounds. It is suitable for all types of wounds, chronic and acute, in all phases of the healing process.

Medical honey is packed in an aluminium tube which retains its shape after use and does not absorb the contaminated air. Screw-cap sealing of the tube allows its usage for 4 months after the first opening.

**VIVAMEL medical honey in a tube is particularly suitable for:**

- deep wounds
- abrasions and cuts
- injury wounds
- infected wounds
- burns
- chronic wounds
- diabetic ulcers
- cleaning of abscesses and foreign bodies.

### Application of the VIVAMEL medical honey:

- Clean the wound with warm liquid water or a saline solution (mild soap can be used).
- Apply medical honey from the tube on a selected sterile primary dressing and fix it with a bandage if necessary.
- At the beginning of the treatment, re-dress the wound every day as long as the wound is infected, and then change the dressing every 2-3 days.
- In case of deeper or pocket wounds, apply Vivamel honey directly into the wound and treat the wound adequately.

## Comparison of VIVAMEL honey-based medical products:

ALGINATE DRESSING WITH HONEY	MEDICAL HONEY IN A TUBE	CONTACT MESH WITH HONEY
<b>PRIMARY DRESSING:</b>		
Highly absorbable alginate dressing is impregnated with medical honey.	Chosen by the user.	Porous, non-absorbable mesh is impregnated with medical honey.
<b>INTENDED USE: chronic and acute wounds PARTICULARLY RECOMMENDED FOR:</b>		
Infected chronic wounds with heavy exudate	Deep wounds, abrasions, indispensable in the home pharmacy.	Skin abrasions, scratches, wounds with mild exudate.
<b>SECONDARY DRESSING:</b>		
It is essential to use an absorbent secondary dressing and a fixation bandage if necessary. For the treatment of venous ulcers the use of compression bandage is crucial.	Absorbent dressing or a medical plaster with adsorbent pad chosen by the user.	It is essential to use an absorbent secondary dressing and a fixation bandage if necessary. For the treatment of venous ulcers the use of compression bandage is crucial.
<b>ADVANTAGES:</b>		
The alginate dressing is entirely impregnated with honey. The dressing may reach over the edge of the wound.	Screw-cap sealing of the tube allows its usage for 4 months after the first opening.	The mesh is very soft and it provides close contact with the wound.



### VIVAMEL – Alginate Dressing with Medical Honey

Is a calcium alginate-based primary sterile dressing for wounds, coated with medical chestnut honey. The dressing is suitable for the treatment of a broad spectrum of wounds in different phases of the healing process, particularly for chronic wounds which do not heal or their healing is compromised, and for infected wounds with heavy exudate.

#### Calcium alginates

Alginate dressings are made from brown sea algae and have a high absorbing capacity. Upon the absorption of a wound exudate, alginate forms a gel that maintains the moist environment in the wound creating a favourable physiological interface for the wound healing. It also provides a haemostatic effect by exchanging the sodium ions in the wound for the calcium ions from the dressing and thus stimulating the healing process.

#### VIVAMEL alginate dressings are particularly suitable for:

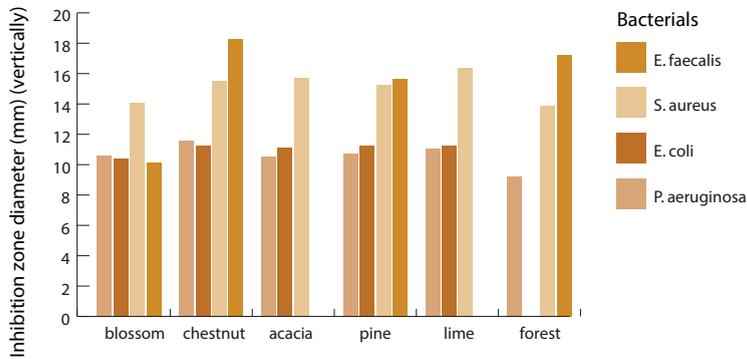
- wounds with a large amount of exudate
- infected wounds
- critically colonized wounds
- surgical wounds
- malodorous wounds
- moist necrosis
- injury wounds
- leg ulcers
- diabetic ulcers
- pressure ulcers
- burns.

#### Application of VIVAMEL alginate dressings with honey:

- Before applying the dressing, clean the wound with warm liquid water or a saline solution (mild soap can be used).
- Place the dressing tightly on the cleaned wound in order to ensure the best possible bacteriological and osmolaric effect.
- Vivamel requires a secondary dressing and a fixation bandage.
- The dressing may reach over the edge of the wound, since honey protects the surrounding skin of the wound.
- The dressing may be cut or folded.
- At the beginning of the treatment, it is recommended to change the dressing every 1-2 days in case of heavy exudate. By changing the dressing more frequently, the healing effectiveness is increased.
- If there is very little exudate, it is sufficient to change the dressing twice a week.

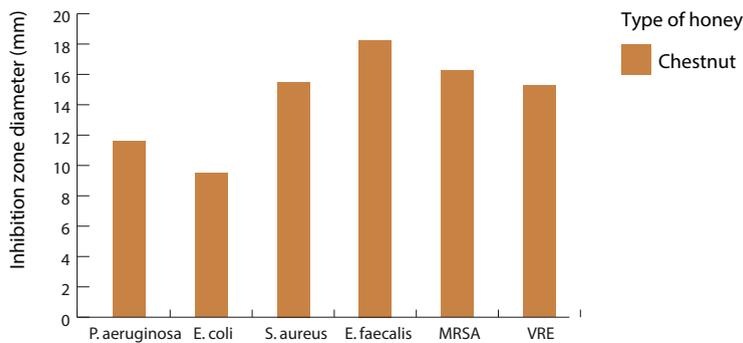
## Antibacterial activity of the Slovenian types of honey:

### Antibacterial effect of the Slovenian honey



Antibacterial effect of the Slovenian types of honey has been demonstrated with the most common bacterial strains isolated from wounds. The diagram shows the value of the inhibition zone diameter obtained with the agar-diffusion method. When the activity of honey is the most effective, the inhibition zone diameter is larger; in case of no effect, there is no inhibition zone.

### Antibacterial effect of the Slovenian chestnut honey



Among all the tested Slovenian types of honey, chestnut honey proves the best antibacterial effect which is especially pronounced with gram-positive bacteria, including MRSA and VRE.

## CLINICAL EVIDENCE

Several clinical studies have shown that VIVAMEL medical products with medical honey are effective in healing of different types of wounds, and that:

- are suitable for a broad range of wounds, both chronic and acute;
- provide a moist and warm environment in the wound;
- in contact with the wound, honey forms a protective film preventing all microorganisms to enter the wound;
- do not stick to the wound;
- are easy to use and are cost-effective for patients;
- are suitable also for diabetics;
- surrounding of the skin remains intact;
- they are very effective in healing of infected wounds;
- infected wound cleans itself within a week;
- of infected wounds unpleasant odour is reduced.

### Results of clinical treatment of wounds with dressings Vivamel:

#### Erysipelas:

start of the Vivamel therapy



after 2 weeks of Vivamel therapy



#### Leg ulcer:

start of the Vivamel therapy



after 45 days of Vivamel therapy



#### Burn:

start of the Vivamel therapy



after 2 months of Vivamel therapy





## Medical Devices Class IIb:

Vivamel Contact - Contact Mesh with Medical Honey

Vivamel - Sterile Medical Honey 20g

Vivamel - Alginate Dressing with Medical Honey



Made in Slovenia.

### Precautions for use:

Even though allergic reactions to honey are rare, the use of honey-based medical products is not recommended for people with a proven allergy to honey. Persons with a proven allergy to a bee venom shall use these products under medical supervision. Clinical tests of wound healing with VIVAMEL medical products on diabetic patients have shown very good experience and results, however, the treatment should be carried out under medical control.

### ADVICE:

In the treatment of venous leg ulcers, the compression therapy is essential and is also necessary after the wound is healed. It is recommended to use VIVAVENE long-elastic compression bandages or VIVANEOVENE short elastic compression bandages.

ARTICLE	PART No.	NENSI ŠT.	PACKAGING
VIVAMEL alginate dressings: 5 x 5 cm	19701	1027929	10-pcs box transport: 100 pcs
VIVAMEL alginate dressings: 10 x 10 cm	19703	1027930	10-pcs box transport: 100 pcs
VIVAMEL alginate dressings: 10 x 10 cm	19713	1036397	5-pcs box transport: 100 pcs
VIVAMEL CONTACT mesh 5 x 5 cm	19707	1029995	10-piece box transport: 100 pcs
VIVAMEL CONTACT mesh 10 x 10 cm	19709	1029994	10 -pcs box transport: 100 pcs
VIVAMEL Medical honey 20 g	19705	1030430	1-pcs box transport: 25 pcs

Medical devices have a 3-year expiry date from the date of their manufacture.  
Storage: 5-35 °C, horizontally