Topical haemoglobin spray for chronic wound therapy

Wound oxygenation

- Time to heal diabetic foot ulcer is 50% shorter with Granulox than with standard of care[1]
- Twice as many chronic wounds healed using Granulox at 8–16 weeks compared to standard of care[1-3]
- More than 70% lower average pain scores at four weeks using Granulox than with standard of care in chronic wounds[3]
- Less slough during wound management: 99% less slough in chronic wounds after four weeks using Granulox compared to 33% with standard of care[4]
- Using Granulox as an adjunct therapy, approximately 90% more wounds healed compared to standard of care alone[5]

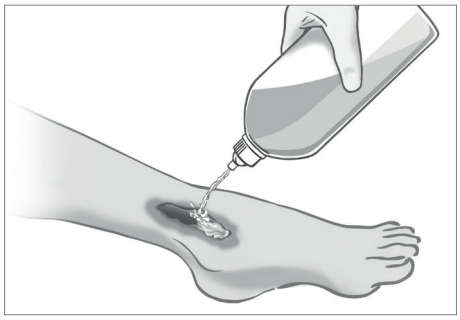
12 ml unit = 3 months' treatment*

*One spray to cover a wound area of 2x3 cm and application at least every three days.

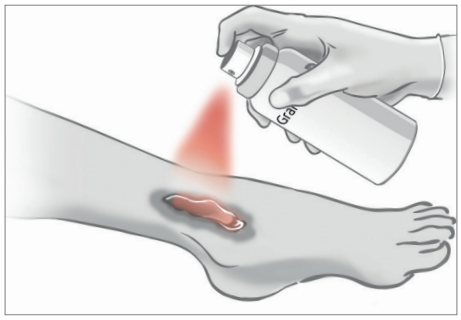
Granulox®

Mölnlycke®

How to use Granulox®



1. Clean and debride the wound as clinically appropriate.

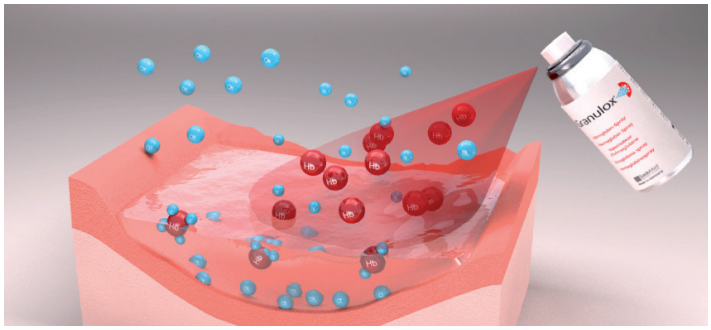


2. Spray a thin and even application of Granulox from a 5-10cm distance. One spray for one second covers a wound of 2x3 cm.

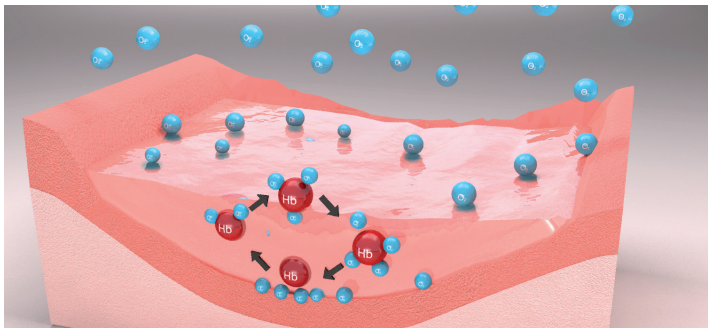
3. Cover the wound with a breathable, non-occlusive wound dressing, e.g. Mepilex®, Mepilex® XT and Mepilex® Border Flex.

Unique mode of action – Granulox acts like a shuttle for oxygen molecules

Granulox is an innovative medical device for the treatment of chronic wounds, such as venous leg ulcers, arterial leg ulcers, mixed leg ulcers, diabetic foot ulcers, surgical wounds healing by secondary intention and pressure injuries. Granulox can also be used on sloughy and infected wounds as an adjunct to standard of care. Granulox provides the wound with oxygen by means of diffusion. The haemoglobin supplies the base of the wound with oxygen. The improved oxygen supply to the base of the wound supports wound healing.



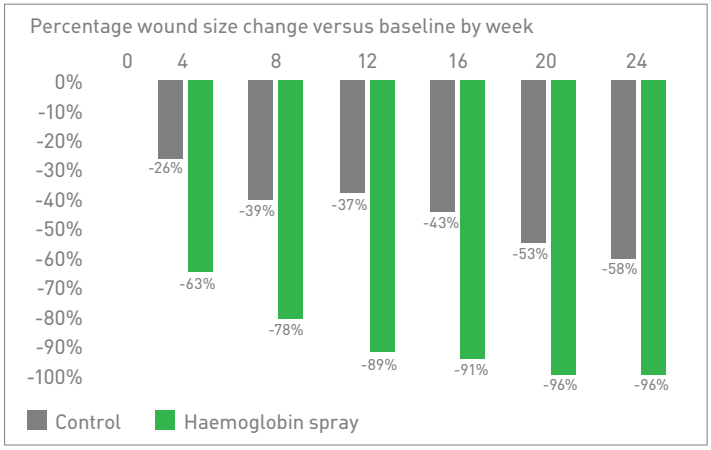
1. From the moment Granulox is sprayed, the highly purified haemoglobin starts to bind oxygen from the enviroment and stores it in its molecular structure. The oxygen-loaded haemoglobin diffuses through the wound exudate and into the wound bed[6].



2. Due to the concentration gradient the oxygen is released and the haemoglobin molecule is available to bind oxygen again. The reversible oxygen binding property of haemoglobin means each molecule can contribute to multiple cycles of oxygen binding and release[7].

The application of Granulox can be adjusted to coincide to the frequency of changing the corresponding wound dressing. Apply Granulox every time the dressing is changed, or at least every three days.

Wound healing (wound size reduction)



Four weeks of treatment:

63% average wound size reduction in Granulox group with five patients fully healed

26% average wound size reduction in Standard Care group with one patient fully healed

Wound size reduction in patients with diabetic foot ulceration receiving Standard of Care + Granulox compared to a retrospective control cohort with Standard of Care alone (20/20 patients)[1].

Ordering information

Product code	Size	Pcs/Box	No. of treatments per can**
360001	12ml	6	30

**Depending on the size of the wound, one spray of 1-2 seconds is normally sufficient to cover a wound area of 2x3 cm.

References: 1. Hunt SD, Elg F. Clinical effectiveness of hemoglobin spray (Granulox®) as adjunctive therapy in the treatment of chronic diabetic foot ulcers. Diabet Foot Ankle. 2016;7. **2.** Hunt SD, Elg F. Hemoglobin spray as adjunct therapy in complex wounds: Meta-analysis versus standard care alone in pooled data by wound type across three retrospective cohort controlled evaluations. SAGE Open Medicine. 2018; 6:1-9. **3.** Hunt SD, Elg F. The clinical effectiveness of haemoglobin spray as adjunctive therapy in the treatment of chronic wounds. Journal of Wound Care. 2017; 26(9):558-568. **4.** Hunt SD, Elg F, Percival SL. Assessment of clinical effectiveness of haemoglobin spray as adjunctive therapy in the treatment of sloughy wounds. Journal Wound Care. 2018; 27(4): 210-219. **5.** Elg F, Bothma G. Cost-effectiveness of adjunct haemoglobin spray in the treatment of hard-to-heal wounds in a UK NHS primary care setting. J Wound Care. 2019;28(12):844-849. doi: 10.12968/jowc.2019.28.12.844. PMID: 31825776. **6.** Petri M, Stoffels I, Griewank K, Jose J, Engels P, Schulz A, Pötzschke H, Jansen P, Schadendorf D, Dissemond J, Klode J. Oxygenation Status in Chronic Leg Ulcer After Topical Hemoglobin Application May Act as a Surrogate Marker to Find the Best Treatment Strategy and to Avoid Ineffective Conservative Long-term Therapy. World Molecular Imaging Society. 2017. **7.** Scholander PF. Oxygen transport through hemoglobin solutions. Science. 1960;131(3400):585-590.

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