Spray to heal chronic wounds

Granulox®

Mölnlycke®

Combating chronic wounds with oxygen

Granulox® offers an effective method of oxygenating the wound with an intuitive spray that can even be applied in a home setting.

Easy to use. For patients too.

Granulox is quick and easy to use – by specialists, generalists, and even patients[9]. Apply every time the dressing is changed (but at least every 3 days). You don't need much – one thin layer of spray, for 1 to 2 seconds, covers the average wound area (2x3cm).

Granulox® is a topical haemoglobin spray with proven benefits, that by means of diffusion provides oxygen to wounds with poor blood supply. It transports oxygen from the surrounding air down to the wound bed to accelerate the healing process.

The challenges of chronic and non-healing wounds

It's estimated that up to **2%** of the population will suffer a chronic wound within their lifetime[1]. When these chronic wounds don't heal, they can lead to loss of limbs or life.

Chronic wounds are costly and pervasive

In a 12-month study in the UK, **40%** of pressure ulcers (PUs), **48%** of foot ulcers (DFUs), and **63%** of leg ulcers (VLUs) did not heal[2]. These chronic wounds represent a significant burden on society, and the concern is growing rapidly due to both the aging population, as well as comorbidities like diabetes and obesity.

Oxygen promotes healing

Oxygen is crucial to all stages of wound healing, especially for chronic wounds[2]. Oxygen deficiency can have a negative impact on many chronic wounds. Lack of oxygen impairs infection defence, new blood vessel formation, and new tissue formation.

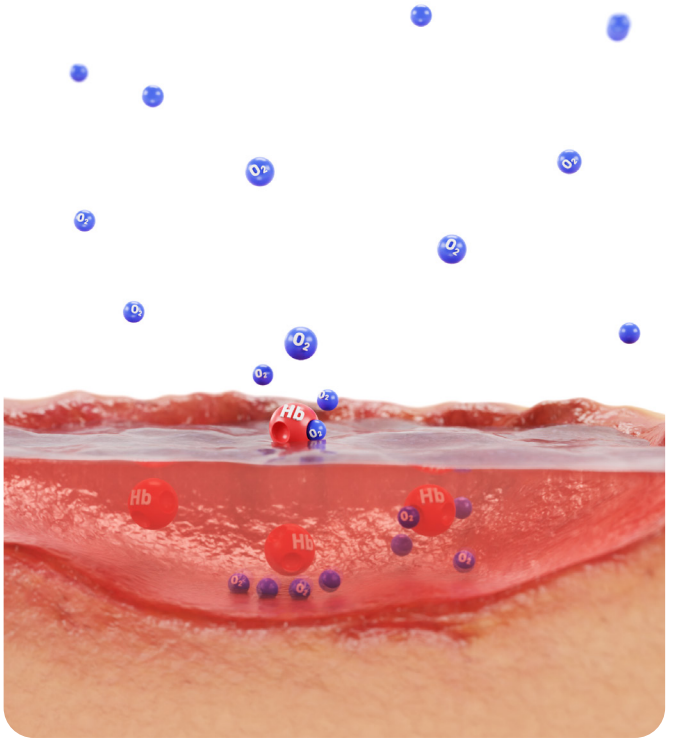
3%

At low oxygen levels (<40%), only 3% of wounds heal normally[3]

Did you know

that the wound bed of a chronic wound is often covered by exudate, hindering it from capturing oxygen from the air?

And that most existing oxygenation therapies are complex, inaccessible and costly?



Granulox® acts like a shuttle for oxygen molecules

When Granulox® is sprayed on a wound, highly purified haemoglobin is released. This binds with oxygen from the environment and diffuses through the wound exudate, supplying the wound with oxygen. This process supports wound healing and improves patient outcomes.

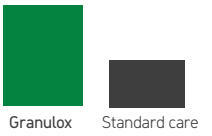
Granulox should be used as an adjunct therapy if a wound is not healing after four weeks of standard care[7]. It can also be considered earlier for patients at a high risk of delayed wound healing.

Faster healing

Studies show a 50% reduction in time to heal foot ulcers with Granulox[4]. Additionally, there is a 99% reduction in slough in chronic wounds after **4 weeks**, compared to 33% in standard of care[3].

90%

When used as an adjunct therapy, 90% wounds healed compared to 38% with standard of care alone[5].



Twice as many chronic wounds are healed at **8-16 weeks**[3,4,6].

Reduced cost

Because Granulox helps accelerate the healing of wounds, it can contribute to downstream cost savings.

The haemoglobin spray takes up fewer resources for both clinicians and patients[8]. Thanks to its simplicity, it also takes up fewer resources than traditional methods of oxygenating wounds – which are usually complex, costly, may reduce patient mobility or require to keep a patient in the hospital

37%

lower cost of dressings compared to standard of care alone[5].

At least **40%**

lower treatment costs in diabetic foot ulcers compared to standard of care[8].

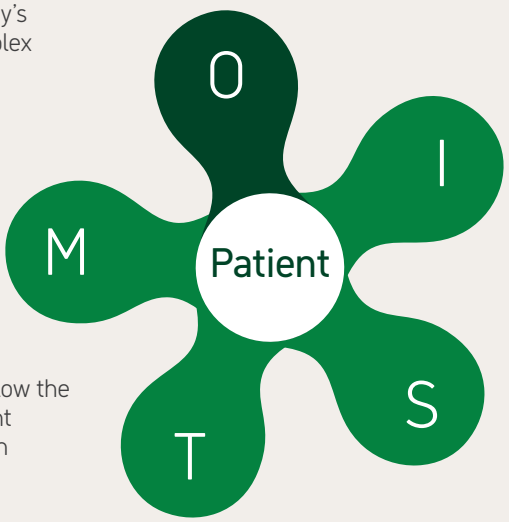
Why M.O.I.S.T. wound healing matters

For this reason, the new M.O.I.S.T. wound healing model, a reference tool to help healthcare practitioners approach the topical treatment of chronic wounds, introduces an "O" for "oxygen balance."

It is recognised that oxygen aids the body with the complex process of wound healing. It takes a lot of energy for the body to carry out tissue repair. For that reason, restoring oxygen is a critical element to support healing.

Oxygen balance
It is recognised that oxygen aids the body's metabolic processes, including the complex process of wound healing. Restoring the oxygen balance is a critical element to support all phases of healing.

Granulox® provides the wound with oxygen by means of diffusion.



Infection control
Infection is as an ever-present risk and serious potential complication of wounds.[7] It causes patients additional pain and discomfort, can delay wound healing and lead to hospital readmission.

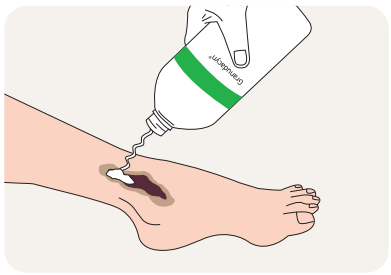
Moisture balance
A wound that is too dry or too wet can slow the healing process. Therefore it is important moisture balance is adjusted to create an optimal moisture level.

Support the wound bed
Problematic wounds do not heal as expected, strategies to rebalance the environment inside the wound bed can get healing back on track.

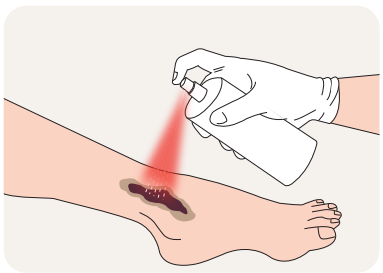
Tissue management
A healthy wound bed is essential to the wound healing process. Cleaning and preparing the wound bed by removing dead cells and tissue can be achieved through different types of debridement.

Application

The application of Granulox® can be adjusted to the frequency of changing the corresponding wound dressing. Apply Granulox every time the dressing is changed, or at least every 3 days.



1. Clean and debride the wound as clinically appropriate. HOCl/NaCl products (e.g. Granudacyn®) are recommended.



2. Spray a thin and even layer of Granulox from 5–10cm distance. One spray for 1–2 seconds covers a wound of 2x3cm.

3. Cover the wound with breathable, non occlusive wound dressing e.g. Mepilex® or Mepilex® Border Flex.

Product information

Ref. No.	Content	Treatments per can*
360001	12ml	30

* Depending on the size of the wound, one spray for 1–2 seconds is normally sufficient to cover a wound area of 2x3cm.

References:
1. Gottrup F. A specialized wound-healing center concept: importance of a multidisciplinary department structure and surgical treatment facilities in the treatment of chronic wounds. Am J Surg. 2004;187:38S–43S. **2.** Guest et al (2020) Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018. **3.** Hunt, SD. Elf, F. Percival, SL. Assessment of clinical effectiveness of haemoglobin spray as adjunctive therapy in the treatment of sloughy wounds. J Wound Care. 2018; 27(4): 210-219. **4.** Hunt, SD. Elg, F. Clinical effectiveness of hemoglobin spray (Granulox) as adjunctive therapy in the treatment of chronic diabetic foot ulcers. Diabetic Foot & Ankle. 2016; 7(1):33101. https://doi.org/10.3402/dfa. v7.33101. **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). **6.** Hunt, SD. Elg, F. The cllinical effectiveness of haemoglobin spray as adjunctive therapy in the treatment of chronic wounds. J Wound Care. 2017; 26(9). **7.** Chadwick, P, et al. Expert panel report: the role of topical oxygen in the management of diabetic foot ulcers. The Diabetic Foot Journal. 2019; 8-9019. **8.** Brüggenjürgen, B, Hunt, SD, Eberlein, T. Wound management in diabetic foot ulcer (DFU) – incremental cost-analysis of treating diabetic neuropathic foot lesions with adjunct hemoglobin contact spray in Germany. Gesundh ökon Qual manag. 2017; 22: 1-8.

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