

REOXCARE GEL

Antioxidant innovation for natural wound healing

THE MECHANISMS OF ACTION

REACTIVE OXYGEN SPECIES (ROS) AND WOUND HEALING

Reactive oxygen species (ROS) are small oxygen-derived molecules mainly produced by respiratory chain in mitochondria. They are oxidizing agents and mayor contributors to cell damage. Therefore, a suitable balance of ROS is essential for tissue recovery. Low levels of ROS are beneficial in protecting tissues against infection and stimulating effective wound healing but, when ROS are present in excess, they produce oxidative stress leading to cell damage and pro-inflammatory status. Redox imbalance occurs when the levels of ROS exceed the capacity of endogenous antioxidants to scavenge them, which dysregulates the healing process.

Regulation of redox balance through the modulation of ROS and antioxidant levels, is a target for new therapies.

Reoxcare Gel has been designed to provide antioxidant defenses to the skin and wound environment and to avoid the interaction of the excess of free radicals, especially during inflammatory phase of wound healing.

PROPERTIES OF REOXCARE GEL

Reoxcare Gel has the standard properties of classical hydrogels for wound healing. It maintains the moisture in the lesion, favoring autolytic debridement of non-viable tissues, and provides a moist environment especially relevant in case of dry wounds.

In addition to classical hydrogels, Reoxcare Gel, due to its filming capacity, provides protection over damaged or intact skin, and antioxidant defenses to improve wound healing.

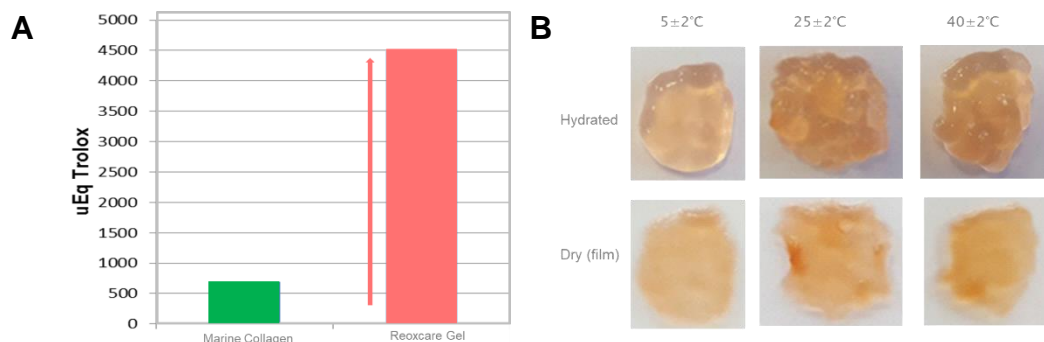


Figure 1. Reoxcare Gel properties. A: ORAC assay, Reoxcare Gel shows a high capacity to directly neutralize the free radicals in the environment. B: Filming assay, Reoxcare gel has been exposed to atmosphere air for 48 hours. The image shows the ability of Reoxcare Gel to form a film when exposed to air, indicating the capacity to create a protective layer over the skin.

COMPONENTS OF REOXCARE GEL

Reoxcare Gel is made up of natural components to improve wound healing process, repair and protect the skin.

Reoxcare Gel includes natural components with antioxidant and additional properties to protect the skin and improve the healing of damaged tissues:

- Ascorbic acid: essential micronutrient for wound healing, necessary for the synthesis and stabilization of collagen, providing strength to the newly formed tissue.
- Lycopene: natural carotene, direct neutralizer of the most abundant free radicals that are present in oxidative stress, oxidative cascade blocker.
- Galactomannan obtained from the grinding of carob seeds, a reference for traditional medicine due to its antioxidant and calming properties.
- Alpha-tocopherol: recognized natural antioxidant, reduces free radical formation, and protects cell membranes.
- Curcumin, a source of vitamins and minerals, it fights against oxidation of tissues and provides a defense against the inflammatory environment.



The combination of these components provides Reoxcare Gel unique characteristics to promote skin recovery and improve healing process.

INDICATIONS

It is intended to be used in the care of intact skin, damaged skin, and wounds regardless of the phase of the healing process.

Reoxcare Gel is indicated for the treatment of skin and wounds of different etiologies:

- Protection of skin from moist exposure
- Damaged skin after irradiation or laser abrasion
- Acute wounds
- Burns (I-II degree)
- Cavitated wounds
- Wounds with presence of non-viable tissues
- Dry wounds

CLINICAL EVIDENCE

Reoxcare Gel has been recently incorporated in *Reoxcare Wound and Skin Care Line*.

Once the CE mark was obtained in July 2019, Reoxcare Gel has been applied with the aim of protecting the skin that is at risk of injury, such as that continuously exposed to a humid environment (incontinence), the recovery of damaged and irritated skin and the treatment of wounds of diverse etiologies (venous, traumatic, diabetic foot ulcers and grade I and II burns) in both adults and children.

REOXCARE GEL PERFORMANCE:

Reoxcare Gel is routinely used by wound care professionals but also allow a homecare application by the own patient or caretaker.

Here are the main properties highlighted by wound care professionals after using Reoxcare Gel:

- Removal of devitalized tissues
- Significant reduction of pain and inflammation in venous ulcers and burns
- Treatment of moisture lesions
- Prevention of moisture injuries
- Induction of granulation tissue
- Very easy to apply and remove
- Can be used in wounds of different exuding levels in combination with a secondary dressing for exudate management.

HOW TO USE:

Depending on the intended use, Reoxcare Gel can be applied alone or in combination with a secondary dressings for exudate management. Reoxcare has been combined with hydrofibers with and without silver, alginates, polyurethane foams, gauze, tulle, and other antimicrobial dressings if required.

Depending on the case, Reoxcare Gel has been applied under following protocols:

- Apply daily to protect intact skin and to repair damaged skin. In this case it is not necessary to cover the gel with any secondary dressing.
- Change every 2-3 days in exuding ulcers. Use in combination with a suitable secondary dressing to manage the exudates. All types of secondary dressings can be applied.

CLINICAL CASES:

Here are presented representative clinical cases of wounds treated with Reoxcare Gel. In addition, Reoxcare Gel has been applied over intact skin to the aim of protecting from continuous moisture exposure and in damaged-irritated skin with optimal results.

Superficial venous ulcer

90-year-old patient with other pathologies, such as venous insufficiency, osteoarthritis and arthritis in the spine, hips, and knees. She presented a superficial venous ulcer of 2 months of evolution. Previous treatments include Silvederma, Linitul and other moist wound healing dressings.

Reoxcare Gel was applied with polyurethane foam as a secondary dressing. Dressing was changed twice a week. In all the dressing changes a deep wound cleaning was performed including shear debridement if necessary.



Figure 2. Superficial venous leg ulcer treated with Reoxcare Gel. Wound had 2 months of evolution without healing improvement. It was performed a deep cleaning of the wound bed, the gently application of Reoxcare Gel combined with a polyurethane foam as secondary dressing.

Neuropathic diabetic foot ulcer

51-year-old patient with diabetes mellitus type II. He presented a neuropathic diabetic foot ulcer of 6 months of evolution, located at plantar area in Charcot's foot. After a deep cleaning of wound bed and elimination as much as possible devitalized tissues, Reoxcare Gel was applied together with polyvinyl alcohol hydrofiber (exufiber) and adhesive foam and wound area discharge. At the beginning of the treatment, due to a high exudates level, dressings were change daily. Once the wound was improved (after two weeks of Reoxcare Gel treatment), exudates were better controlled and only twice dressing changes per week were necessary until the closure of the wound.

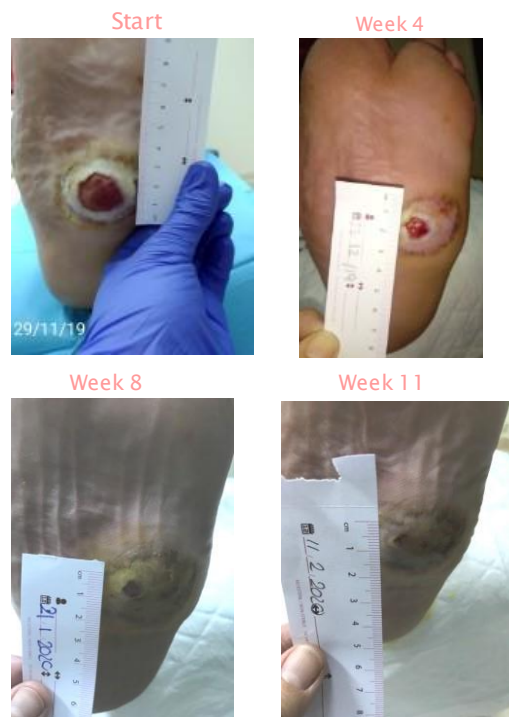


Figure 3. Diabetic foot ulcer in plantar area in a Charcot's foot in a 51-year-old patient. The wound had 6 months of evolution and was highly exudative. Reoxcare Gel was applied in combination with polyvinyl alcohol hydrofiber (exufiber) and adhesive foam and wound area discharge. In every dressing change a deep cleaning of the wound was performed including the activation of wound edges by eliminating of hyperkeratotic tissue.

Perioral injury due to moisture exposure in pediatric patient

11-year-old child with a lesion due to excess moisture in the perioral area with 2 months of evolution. Previous treatments with moisture protectors had been applied without improvement of skin conditions. Reoxcare gel was applied twice a day, it was very well tolerated by the child, achieving skin repair and protection.

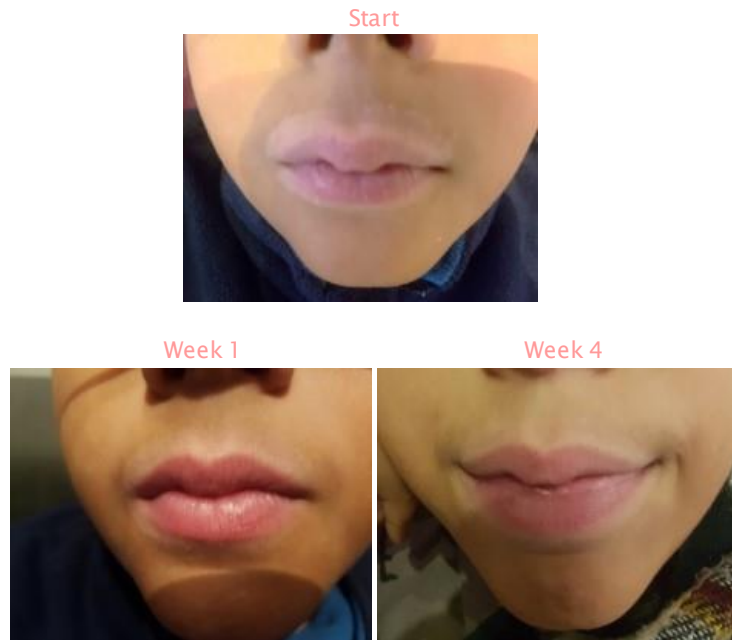


Figure 4. 11-year-old child with perioral injury due to continuous moisture exposure of 2 months of evolution. Reoxcare Gel was applied twice a day and achieved skin recovery and protection.

Superficial second degree burn in a pediatric patient

4-year-old patient with a superficial second-degree burn due to the spillage of hot liquid in the upper area of the left limb. Patient referred to feel very intense pain in the burned area. Reoxcare Gel was applied over the wound and flexible lipid-colloid dressing impregnated with hydrocolloid particles, vaselin and paraffin was used to cover Reoxcare Gel. Dressing change was performed every two days. Patient felt a significant pain relief from the beginning of Reoxcare treatment.



Figure 5. 4-year-old patient with a superficial second-degree burn. Reoxcare Gel was applied in combination with a paraffined lipid-colloid dressing and changed every two days. In addition to an optimal wound evolution, patient felt a significant pain relief from the beginning of Reoxcare treatment.

CONCLUSIONS

Clinical experience with Reoxcare Gel allows to obtain following conclusions:

- ✚ Reoxcare Gel can be applied in wounds of different etiologies, where it promotes the healing of the wound.
- ✚ It induces the formation of very good granulation tissue.
- ✚ It removes devitalized tissues
- ✚ It can be combined with any kind of secondary dressing for an adequate management of wound exudates.
- ✚ It produces a markedly pain relief in the wound and irritated skin area.
- ✚ It protects and improves damaged skin from continuous moisture exposition.
- ✚ Reoxcare Gel improves the recovery and decrease the inflammation of irritated skin.