Microdacyn

Safe as Water
Microdacyn - Wound Care

Microdacyn Wound Care Solution — Safe as Water

Microdacyn Wound Care is a super-oxidized antimicrobial for treating ulcers, wounds, cuts and burns. Microdacyn Wound Care is based on the patented Microdacyn technology: a sterile super-oxidized, pH-neutral, purified water-based solution. The solution disinfects the affected area while maintaining the health of the surrounding tissue and can therefore also be used in the debridement, irrigation and moistening of acute and chronic wounds, ulcers, cuts, abrasions and burns. Through reducing the microbial load and assisting in creating a moist environment, Microdacyn wound care enables the body to perform its own healing process. Microdacyn captures the immune system in a bottle!

Safe: Non-toxic and non-irritating to human skin, eyes or throat.
Ready to use: No mixing or dilution required.
Stable: Microdacyn® Wound Care has 24 months shelf life.
Environmentally safe: No special disposal precautions required.
Multi-purpose: Can be used within a comprehensive wound treatment.

Handling: No special handling or precautions needed. Non-toxic and non-irritating to human skin, eyes or throat. Safe as water

Indications: Microdacyn is intended for moistening absorbent wound dressings and for debriding and cleaning acute and chronic dermal lesions, such as Stage I-IV pressure ulcers. Stasis ulcers, diabetic ulcers, post-surgical wounds, First and second degree burns, abrasions and minor irritations of the skin.

Ingredients: Oxidized Water 99.97%, Sodium Chloride (NaCl) 0.023%, Sodium Hypochlorite (NaOCl) 0.004%, Hypochlorous Acid (HOCI) 0.003%

Help your Wound, Restore your Health with Microdacyn
Product Range

Microdacyn Wound Care Solution (Redefining Care)

Microdacyn® is a super-oxidized solution intended for use for debridement, irrigation and moistening of acute and chronic wounds, ulcers, cuts, abrasions and burns. Through reducing the amount of micro-organisms and contributing to a moist environment, it enables the body to perform its own healing process. Microdacyn® can be broadly applied within a comprehensive wound treatment. We have chosen to use the international colour classification guidelines for Red, Yellow and Black Wound types (the RYB colour classification). Green wound types will also be discussed. We also provide Microdacyn® application guidelines for specific types of wounds (i.e. diabetic and venous ulcers and burns), since these specific wound types cannot always be described by a specific colour.

Microdacyn Wound Care Solution is a Life - Enhancing Advance in Tissue Care based on the Microcyn® Technology that mimics the same oxy-chlorine composition as that manufactured naturally by neutrophils in the human body’s immune system. Neutrophils are the most abundant type of white blood cells in humans and form an integral part of the immune system. Microdacyn Wound Care Solution is as Safe-as-Water, bio-compatible, and a shelf-stable technology which has demonstrated, in a wide variety of research and investigational studies, the ability to treat a wide range of pathogens, including antibiotic-resistant strains of bacteria (including, but not limited to, MRSA and VRE), viruses, fungi and spores while reducing inflammation and increasing blood flow to treated tissue, all while being completely NON-TOXIC to healthy human tissues and Cells. Safe as Water-effective as Penicillin.

Microdacyn Hydrogel

After the use of Microdacyn Wound Care Solution for the cleaning and debridement of the wound, use Microdacyn Wound Care Hydrogel to dress and protect infected and non-infected wounds such as leg ulcers, pressure ulcers, diabetic ulcers and mechanically or surgically debrided wounds, and 1st-3rd degree burns. Microcyn Hydrogel is FDA indicated to keep the wound site moist, eradicate pathogens, such as MRSA and VRE, and provide an ongoing barrier to contamination.

Microdacyn Skin & Wound HydroGel is intended for the management of exuding wounds such as leg ulcers, pressure ulcers, diabetic ulcers, and for the management of mechanically or surgically debrided wounds. Use for skin abrasions, lacerations, irritations and intact skin.

Handling: No special handling or precautions needed. Non-toxic and non-irritating and non-sensitizing to skin. Safe as water.

Indications: Microdacyn® Skin and Wound Hydrogel is intended as a skin moisturizer, Care of skin abrasions, lacerations and irritations and an antiseptic for intact skin. It is also intended for the management of exuding wounds such as leg ulcers, pressure ulcers, diabetic ulcers, and for the management of mechanically or surgically debrided wounds.

Ingredients: Oxidized Water 97.64%, Sodium Chloride (NaCl) 0.023%, Sodium Hypochlorite (NaOCI) 0.002%, Hypochlorous Acid (HOCI) 0.008%

Microdacyn Wound Care

- A pH neutral solution of Hypochlorous Acid (HOCL) and its sodium salt, hypochlorite(NaOCL), is generated.
- Provides superior product Efficacy Safety and Stability through a patented Microcyn Technology.
- Unique chemistry for stability and shelf life.
- Shelf life of 2 years.
- Microdacyn Solution & Hydrogel is available in varied pack sizes.

Microdacyn Safe as Water = Science of Efficacy, Safety and Stability

Ordering Information

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Product Description</th>
<th>Product Code</th>
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<td>7502273991038</td>
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<td>Microdacyn Wound Care</td>
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<td>Microdacyn Wound Care</td>
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<td>Microdacyn Hydrogel</td>
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<td>Microdacyn Hydrogel</td>
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<td>*Ecosafe Disinfectant</td>
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*Available in the 3rd quarter 2016
Life-Altering Advance in Tissue Care

The patented Microcyn Technology mimics the same oxychlorine composition as that manufactured by neutrophils in the body’s immune system. Neutrophils are the most abundant type of white blood cells in humans and form an integral part of the immune system. It is Safe-as-Water, bio-compatible, and shelf-stable technology which has demonstrated, in a variety of research and investigational studies, the ability to treat a wide range of pathogens, including antibiotic-resistant strains of bacteria (including MRSA and VRE), viruses, fungi and spores while reducing inflammation and increasing blood flow to treated tissue.

Performance Testing

Microdacyn Solution has been evaluated by the USP<51> Antimicrobial Effectiveness Test and in Time-Kill studies. It has demonstrated in-vitro effectiveness by reducing the microorganisms listed below and passes the USP Antimicrobial Effectiveness Test for a Category 1 product.

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Log Reduction (30 sec.)</th>
<th>Time to Kill</th>
<th>% Inactivation (30 sec.)</th>
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</thead>
<tbody>
<tr>
<td>Staphylococcus aureus MRSA</td>
<td>6.34</td>
<td>30 seconds</td>
<td>99.9999</td>
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<tr>
<td>Enterococcus faecalis VRE</td>
<td>6.36</td>
<td>30 seconds</td>
<td>99.9999</td>
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<tr>
<td>Acinetobacter baumannii</td>
<td>6.37</td>
<td>30 seconds</td>
<td>99.9999</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>5.81</td>
<td>30 seconds</td>
<td>99.9998</td>
</tr>
</tbody>
</table>

Microcyn® Technology

Science behind Microdacyn Wound Care Solution & HydroGel

<table>
<thead>
<tr>
<th>Name of Organism</th>
<th>Log Reduction (30 sec.)</th>
<th>Time to Kill</th>
<th>Percent Reduction</th>
</tr>
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<tbody>
<tr>
<td>Staphylococcus aureus MRSA</td>
<td>6.34</td>
<td>30 seconds</td>
<td>100.00%</td>
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<tr>
<td>Enterococcus faecalis VRE</td>
<td>6.36</td>
<td>30 seconds</td>
<td>100.00%</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>6.23</td>
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<td>100.00%</td>
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<tr>
<td>Escherichia coli</td>
<td>5.70</td>
<td>30 seconds</td>
<td>100.00%</td>
</tr>
<tr>
<td>Acinetobacter baumannii</td>
<td>6.37</td>
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<td>100.00%</td>
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<tr>
<td>Bacteroides fragilis</td>
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<tr>
<td>Candida albicans</td>
<td>6.33</td>
<td>30 seconds</td>
<td>100.00%</td>
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<tr>
<td>Enterobacter aerogenes</td>
<td>6.09</td>
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</tr>
<tr>
<td>Enterococcus faecium VRE - MDR</td>
<td>6.51</td>
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<tr>
<td>Haemophilus influenzae</td>
<td>5.18</td>
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<td>100.00%</td>
</tr>
<tr>
<td>Klebsiella oxytoca MDR</td>
<td>6.05</td>
<td>30 seconds</td>
<td>100.00%</td>
</tr>
<tr>
<td>Klebsiella pneumoniae</td>
<td>6.14</td>
<td>30 seconds</td>
<td>100.00%</td>
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<td>Micrococcus luteus</td>
<td>5.84</td>
<td>30 seconds</td>
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</tr>
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<td>Proteus mirabilis</td>
<td>6.20</td>
<td>30 seconds</td>
<td>100.00%</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>5.81</td>
<td>30 seconds</td>
<td>100.00%</td>
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<tr>
<td>Serratia marcescens</td>
<td>6.00</td>
<td>30 seconds</td>
<td>100.00%</td>
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<tr>
<td>Staphylococcus epidermidis</td>
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<td>30 seconds</td>
<td>100.00%</td>
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<td>Staphylococcus haemolyticus</td>
<td>5.91</td>
<td>30 seconds</td>
<td>100.00%</td>
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<td>Staphylococcus homins</td>
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<td>30 seconds</td>
<td>100.00%</td>
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<tr>
<td>Staphylococcus saprophyticus</td>
<td>5.96</td>
<td>30 seconds</td>
<td>100.00%</td>
</tr>
<tr>
<td>Streptococcus pyogenes</td>
<td>6.72</td>
<td>30 seconds</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Microdacyn Wound Care is effective against gram-positive and gram-negative bacteria (including MRSA), viruses, fungi, and spores.

In vitro study also available under: Journal of Hospital Infection (2005), 1–9: Dr. Landa-Solis

**Microdacyn Wound Care Solution and Hydrogel**

**BENEFITS:**

- No known drug/treatment interactions or contraindications
- Helps hydrate dry wounds and maintain an optimally moist wound-healing environment
- Non-staining, non-oily and fully biodegradable
- Non-irritation, non-sensitizing and non-cytotoxic to granulation tissue
- Assist in autolytic debridement
- Neutral pH
- Ideal for uneven and difficult to reach spaces

**Microdacyn – Mode of Action**

**Super Oxidised Solution**

1. **Disruption of the cell wall**

Microdacyn surrounds single-celled microorganisms. Super Oxidised Solution attacks the cell wall of the microorganisms and increases its permeability. Since our body’s own cells have the necessary processes to prevent cell damage, they are not destroyed.

2. **Osmolysis – bursting of the cells**

The hypertonic Microdacyn solution ensures that water increasingly flows into the cells to equalize the osmotic gradient. The increasing internal pressure causes the cells to burst. This purely physical effect ensures a highly effective reduction in pathogen load.

Use of a super oxidised solution is a new concept in wound management. Microdacyn replicates one of the body’s own defense mechanisms against pathogens: Foreign substances are not eliminated chemically, but are destroyed by a purely natural, physical process. The decisive factor is Microdacyn Super Oxidised Solution Technology.
Treatment Application & Wounds Classification

Microdacyn Wound Care & Hydrogel

“A break in the continuity of the skin”

There are several complications which can arise even on a seemingly normal wound. Bacterial infection of wound can impede the healing process and lead to life threatening complications. Individuals who have wounds that are not healing should be investigated to find the causes. Many microbiological agents can be responsible for this. Non-healing wounds of the diabetic foot are considered one of the most significant complications of diabetes, representing a major worldwide medical, social, and economic burden that greatly affects patient quality of life. Associated with inadequate circulation, poorly functioning veins, and immobility, non-healing wounds occur most frequently in the elderly and in people with diabetes—populations that are sharply rising as the nation ages and chronic diseases increase. Proper wound care is necessary to prevent infection, assure there are no other associated injuries, and to promote healing of the skin. When wounds persist, a specialized approach is required for healing.

Wounds Classification

<table>
<thead>
<tr>
<th>Red Wounds:</th>
<th>Yellow Wounds:</th>
<th>Black Wounds:</th>
<th>Green Wounds:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Non-complex wounds</td>
<td>Mostly Infected</td>
<td>with Necrotic Tissues</td>
<td>Infected &amp; specific type of bacteria growing in the wound</td>
</tr>
</tbody>
</table>

Specific Wound Types:
- Burns · Corrosion · Chemical burn · Traumatic amputation · Chronic Wounds (Pressure ulcers, Diabetic ulcers, Venous and arterial ulcers)
- Hand injury · Head injury · Chest trauma · Abdominal trauma

General Instructions for Use

Pain Management:
Microdacyn Wound Care will significantly reduce pain and swelling.

For Debridement:
Microdacyn is applied onto the wound in sufficient quantities to wash the wound bed clean of debris. This procedure helps reduce bad odor and the amount of secretion. The wound is best allowed to air dry (approximately 2 minutes) before applying the dressing. In special cases, fistulas can be thoroughly irrigated with Microdacyn using a syringe.

For Dressing change:
Soak, Spray or rinse with Microdacyn to clean the lesion up to three times a day. The wound should remain moistened with Microdacyn for 5-10 minutes either by repeatedly rinsing it with the solution, or by covering it with a gauze soaked in the solution. Depending upon severity during the first week the wound can also be soaked daily in Microdacyn® for approximately 5-10 minutes. No further rinsing with saline solution or sterile water is required.

General Dosing Recommendations:
Microdacyn Wound Care should be used directly out of the bottle in which it is packaged, and not transferred to other containers for applications. Microdacyn Wound Care may be poured directly onto the wound. It is also possible to moisten or saturate gauze with Microdacyn Wound care and apply the moistened or saturated gauze to the wound. Dosing quantities will vary depending on the size, depth and location of the wound. It is important when applying Microdacyn® Wound Care to a wound that you observe the appearance of the wound and its tissue.

Frequency of application of Microdacyn Wound Care is dependent upon the type of wound and its color.
Specific Wound Types:

**Diabetic Foot Ulcers**

Diabetic Foot Ulcers have unique challenges due to the presence of Diabetes Mellitus, neuropathy and frequently also a poor blood circulation (both arterial and venous). In all cases it is important to try to control blood glucose levels for optimal healing. Patients should be instructed to perform daily foot inspections. During regular outpatient clinic visits patients’ feet should be thoroughly examined for identification of potential problems. Depending on the seriousness of the ulcer either an intensive debridement or (minor) amputation may be required. In all cases Microdacyn Wound Care is useful for cleaning and debriding the wound.

- Check for procedures the Red, Yellow, Green and Black wound type guidelines.

In specific cases (deep wounds or wounds that are difficult to reach) the foot can be placed in on a foot-bath (immersion) for 5 to 10 minutes, no longer. For immersion it is recommended it be done only once per day for a maximum of 3 days. Volume needed is dependent on the location of the ulcer on the foot. Approximately 250-1000 ml is used per immersion treatment.

After any debridement the wound bed should be cleaned with Microdacyn Wound Care-moistened gauze. The gauze should stay on the wound for 5-15 minutes. The wound can then be covered with another moistened gauze or any other dressing or bandage, per the decision of the health care professional. Depending on the seriousness of the wound:

- Follow the appropriate Guidelines for Red, Yellow, Green, or Black wound types.

**Venous Leg Ulcers**

Venous Leg Ulcers are known for their challenging healing process owing to chronic venous insufficiency and venous hypertension, which is the cause of these ulcers and the reason they do not heal. Quite often these wounds persist for years and are associated with severe pain and significant decrease in quality of life.

Venous ulcers require a comprehensive treatment regimen and compression therapy is always major component of the treatment plan. Microdacyn Wound Care is an ideal treatment adjunct for these types of wounds. The solution can be used to clean and prepare the wound and also for use with debridement as described under Red, Yellow, and Black wound types. Microdacyn Wound Care also can be used in combination with a ‘moistened bandage system:

**Materials needed:**
- Microdacyn Wound Care
- Non-woven gauze
- A drain line with small wholes for Microdacyn Wound Care distribution
- Cotton wads bandages
- Stretched bandages

**Guidelines:**
1. Clean the wound as described under Red, Yellow, Green, and Black wounds by pouring Microdacyn Wound Care directly on the wound or by applying Microdacyn Wound Care-moistened gauze.
2. After cleaning the wound apply Microdacyn Wound Care-moistened gauze on the wound and leave for 5-15 minutes (15-25 ml per 10x10 cm gauze)
3. Remove the gauze and apply a fresh Microdacyn Wound Care-moistened gauze to the wound.
4. Apply the drain line on the moistened gauze in a way the open wholes are located on the gauze
5. Apply new Microdacyn Wound Care-moistened gauze on the drain line
6. Apply a cotton wads bandage to cover the wet gauze.
7. Tape the leg effectively with a stretch bandage (swathe). Pressure of about 40mm Hg is recommended. Staying mobile stimulate the blood circulation.
8. Apply 3 times per day approximately 20-25 ml Microdacyn Wound Care to the gauze by injecting Microdacyn Wound Care in the drain line.
9. Change bandages every other day, review and debride the wound before applying a new bandage.

- When applying Microdacyn Wound Care to Venous Leg Ulcers, some patients reported a pain sensation. In clinical studies this was the case in about 20% of treatments. This sensation disappeared in almost all cases at the 2nd or 3rd application and did not influence the wound healing process.
Burns
Microdacyn Wound Care is also effective in the treatment of burns. Burns require a comprehensive treatment approach that includes aggressive debridement of the wounds and control of infection. Microdacyn Wound Care can be used the moment the patient presents with these wounds.

Guidelines:
1. Flush the burned area generously with Microdacyn Wound Care by pouring it onto the burned tissue (2 to 3 minutes).
2. Microdacyn Wound Care soaked gauze can also be used to mechanically clean the wounds, moving in a circular motion from the inside of the wound to the outside borders.
3. After cleaning the wound apply Microdacyn Wound Care moistened gauze and Microdacyn Hydrogel to the tissue for 5-15 minutes.
4. After saturating the wounds for the required time, they are ready for dressing or further treatment per the discretion of the health care provider.
5. If moistened gauzes are used in dressing process, they should be changed or remoistened 2-3 times a day.
6. Microdacyn Wound Care should be used to clean the wound during each dressing change and apply Microdacyn Skin & Wound Hydrogel OTC moistenize the wound and skin area for fast healing. However once red wounds are present and exudate is minimal, Microdacyn Wound Care dosing should be reduced to once a day.

Microdacyn Wound Care Solution

Key ingredients: Super Oxidized solution with Neutral pH containing
Hypochlorous Acid (HOCL) - 0.003%
Sodium Hypochlorite (NaOCL) - 0.004%
Electrolyzed water - 99.97%

Indication of Microdacyn Wound Care Solution:
- Acute and Chronic Wounds
- Ulcers
- Cuts
- Abrasions
- Burns
- Surgical Wounds

Application:
- Cleaning
- Debridement
- Irrigation
- Antiseptic
- Antimicrobial

Usage:
- Irrigate wound with Microdacyn Wound Care and let it take effect for 15 min.
- Clean wound with a compress soaked in Microdacyn Wound Care

Microdacyn Wound Care Hydrogel

Key ingredients: Super Oxidized solution with Neutral pH containing
Hypochlorous Acid (HOCL) - 0.008%
Sodium Hypochlorite (NaOCL) - 0.002%
Electrolyzed water - 97.64%

Indication of Microdacyn Wound Care Solution:
- Acute and Chronic Wounds
- Ulcers
- Cuts
- Abrasions
- Burns
- Surgical Wounds

Application:
- Skin Moisturizing
- Antiseptic
- Antimicrobial
- Moist Wound Management
- Wide Variety of Wounds

Usage:
- Spray Microdacyn Hydrogel and apply Wound bandage as usual

Usage information
Rinse the wound with Microdacyn Wound Care and let it take effect briefly; the process can be repeated up to three times daily or whenever the bandage is changed.
Alternatively, the wound can be also be cleaned with compresses soaked in Microdacyn Wound Care. While Microdacyn Wound Care is working, Microdacyn Hydrogel spray can be applied as needed.
Adhering bandages can be loosened easily and without trauma using Microdacyn Wound Care. To support mechanical wound cleaning, the working time of Microdacyn Wound Care can be extended to 15 minutes.
Case Studies - 1

Below is a series of illustrated photos of successful wound care patients:

Amputation procedure cancelled post-treatment after using Microdacyn

Comprehensive treatment regimen including daily use of Microcyn Technology

Ulcer is 22 years old After 3 months treatment Ulcer is 35 years old After 3 months treatment

Carbuncle Abscess removal and treatment using Microdacyn

Case Studies - 2

Below is a series of illustrated photos of successful wound care patients:

Infected Abdominal Wound Treatment using Microdacyn
- Morbidly obese 45 years old female.
- History: DM Type II, hypertension, hepatitis C.
- Admitted on July 27, 2009 with severely infected lower abdominal wound with pus discharge post abdominoplasty which was performed 20 days before her admission to ER.
- Fever 38°, with shivering.

July 27, 2009 Initial Assessment
July 27, 2009 Closer Look
July 28, 2009 Whole wound was opened & radical debridement of the necrotic tissue was performed after Dermacin irrigation

August 13, 2009 After debridement with Microdacyn
September 24, 2009
February 2, 2010 Follow-up Visit
Below is a series of illustrated photos of successful wound care patients:

Partial Thickness Burn Treatment using Microdacyn

(1A) one 2 years old girl TBSA 33% partial thickness burn after boiling water exposition. She underwent debridement

(1B) On day 3, typical brilliant red color in burn area being present.

(1C) Aseptic scars disappear during 1 and 2 week and they were not retired.

(1D) Wounds are epithelised generally occurs in week 3 -4. During follow-up, new skin characteristic were similar to remaining skin, even of different color.

Partial Thickness Burn Treatment using Microdacyn®

(2A) A 12 year old girl, 43.5% partial thickness burns and TBSA plain after her clothes were burned with an electric discharge.

(2B) Granulation tissue with aseptic scar formation appears in all lesions in day 5.

(2C) On day 21, complete epithelization in neck, armpit and leg with no deforming scars or needed use of leg skin grafting.

(2D) Note excellent cosmetic results after 1 year of treatment.
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