



Anti-inflammatory - the ultimate product in aerosol pack.

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## Foreword:

Burns from fire injuries are one of the difficult, one of the highest painful and most plague on the humanity. The Burn injury / damage, is considered as the most difficult to heal.

The results of severe burns - even after healing, often causing injury itself also in addition to scarring to physical and mental damage. Usually post traumatic for the rest of the life.

Burns at high level, will cause of disability, disability and permanent damage of the wounded / injured for life. Among other things - also much suffering and sorrow for those around him. Unfortunately, severe burns can get immediate death and sometimes indirectly later.

### There are four main types of burns:

- **Thermal** - The most common type of burn, these are caused by contact with flame, heat or scalding liquids. These types of burns are most common in children.
- **Chemical** - These burns are caused by exposure to a chemical or its fumes.
- **Radiation** - This is damage to the skin or body caused by exposure to radiant energy from sunlight, x-rays or radiation used to treat cancer patients.
- **Electrical** - These burns are caused by contact with electricity or lightning.

### Degrees of Burns:

Burns are also classified by degrees to denote how severe the injury is. Here is basic information on how the degree of a burn is determined:

**1st degree burns** are superficial, involving only the uppermost layer of skin called the epidermis. Signs of a first degree burn include:

- skin that turns white or pales when pressure is applied
- skin that is red
- minimal tissue damage
- swelling may be present but skin generally will not form blisters
- the wound is red, dry and painful, and heals in about three to six days without scarring

**2nd degree burns** may also be called partial-thickness burns because they permeate deeper into the skin, involving both the upper layer, called the epidermis, and the second layer, called the dermis. Signs of a second degree burn include:

- Blisters forming very quickly or within 24 hours
- Skin that does not pale when pressure is applied
- A wound that is red, wet and painful (although there will be decreasing pain, color and moisture with increasing depth into the dermis). The deeper the burn, the more likely it is to result in scarring.

**3rd degree burns** may also be called full-thickness burns because they extend completely through the skin to the subcutaneous tissue. These burns may also involve underlying structures like tendons, nerves, muscle or bone. Signs of a third degree burn include in most cases skin transplant.

- charring of the skin or skin that is a translucent white color with coagulated vessels visible below
- skin that has no feeling, but the patient complains of pain (most likely a result of second degree burns to surrounding tissue)
- Very slow healing and possible extensive scarring Wounds that vary from waxy white to charred and black with a leathery texture; the skin is usually dry and painless to the touch

The worst and horrible case when a person is involuntarily in fire - when his clothes are on fire and you cannot access it. Fire extinguishing powder are not recommended and prohibited to turn off people enveloped by flames. The shutdown normally is incarnated in the sand. Or to wrap the injured in a blanket specifically for this purpose, and acute conditions cases have to rip the clothes off.

The 4th degree burns - extend through the skin to injure muscle, ligaments, tendons, nerves, blood vessels, and bones. These burns always require complex surgery and Massive skin transplant. Fourth-degree burn is life-threatening. Will usually unfortunately, can get immediate death and sometimes indirectly later.

	<u>First</u>	<u>Second (Superficial or Deep)</u>	<u>Third (Full Thickness)</u>
Depth(how deep the burn is)	Epithelium	Epithelium and top aspects of the dermis	Epithelium and dermis
How the wound looks	No blisters; dry pink	Moist, oozing blisters; Moist, white, pink, to red	Leathery, dry, no elasticity; charred appearance
Causes	Sunburn, scald, flash flame	Scalds, flash burns, chemicals	Contact with flame, hot surface, hot liquids, chemical, electric
Level of Pain (sensation)	Painful, tender, and sore	Very painful	Very little pain, or no pain
Healing Time	Two to five days; peeling	Superficial: five to 21 days. Deep: 21-35 days	Small areas may take months to heal; large areas need grafting.
Scarring	No scarring; may have discoloration	Minimal to no scarring; may have discoloration	Scarring present

Burn injury is the destruction of the layers of the skin and associated structures:



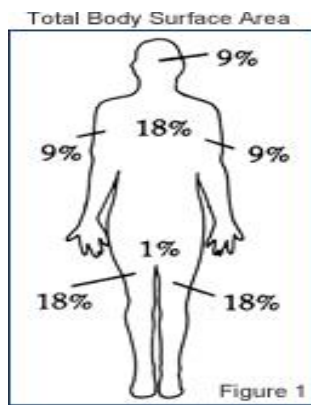
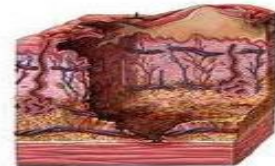
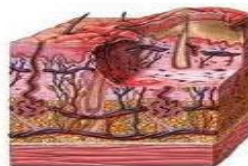
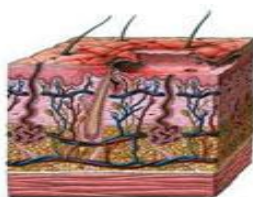
1st Degree Burn



2nd Degree Burn



3rd Degree Burn



## Introduction:

### Chapter 1

The majority of preparations commonly used in burn prevention and treatment are manufactured on a cream base. Other popular products are formulated on an artificial gelatin base and contain a high percentage of distilled water along with other pain-relieving ingredients and additives. Some products may feature antiseptics, and others frequently contain antibiotics with either gram-positive or gram-negative elements. Hundreds of over-the-counter products are available on the market, but few have received international recognition and are sold throughout the world. This article will deal with three of the most popular brand-name burn prevention and treatment products: '**Burn-Shield**', '**Silverol**' and '**Burn-Free**'.

- Burn-Shield gel is water-based and contains 95% distilled water and tea-tree oil. The preparation does not list any other ingredient or the polymer/cellulose type composing its gel base.
- Silverol cream consists of mineral ingredients including paraffin oil, propylene glycol and alcohol. The active substances are sulfadiazine and silver nitrate.
- Burn-Free is water-based. The polymer gel is composed of carbofil 940, ethanol, propylene glycol, trolamine and other minerals.

Dozens of other products are available over the counter, with varying popularity. Many contain aloe-vera as their natural active ingredient which is, indeed, vital in burn treatment. On the other hand, the same products may also contain ingredients as dicyclomine HCL, phenyl, allantoin, sodium lauryl sulfate, Vaseline, stearic acid, propyl paraben, disodium EDTA, benzyl alcohol and a long list of other ingredients, the majority of which are minerals and nonmetals.

### Chapter 2

As soon as a burn occurs, the recommended, critical emergency response is to immediately wash the burned area with clean, cool water and/or saline solution. This cools and cleanses the burned skin of dirt, dust, oil and other elements that may stick to it and prevents blistering and infection due to the exposure of the dermis to bacteria in the immediate environment. (The above regards thermal burns, but also applies to chemical and solar burns.)

Effective burn relief agents are formulated based on the above principles. With this understanding, it becomes clear that there is little use for Vaseline or oil-based product in burn treatment despite the fact that these were popularly marketed until the end of the twentieth century. In contrast, effective burn agents are largely manufactured as water-based gel substances that allow the heat in a burn to evaporate into the gel, thus creating a protective lubricated shield above the burned -

- area that prevents blistering and simultaneously protects the area from secondary bacterial infections.

Of course, even the most effective burn relief products are not intended as substitutes for proper medicinal and rehabilitative treatment for dangerous burns. However, they are still vital as emergency First Aid treatment and facilitate pain relief. The preparations listed in this article are all available and recommended for use at home, work or anywhere where emergency intervention is necessary, without requiring any professional, medical or even First Aid knowledge.

In the case of acute burns, one should proceed immediately to an emergency room in a hospital or medical center to receive competent medical care. The degree of the burn will influence the doctor's decision regarding continued treatment.

Here in the Medical Center, our faculty meticulously takes into account any immediate first aid treatment dispensed. Occasionally, use of a specific product may be a negative factor in the continuation of secondary and tertiary treatment. The creators and manufacturers of gel-based burn prevention products account for this, as well, which is why we recommend use of one of the above gel-based preparations which reduce the risk of possible reactions with medications that may be used throughout the treatment process and prevent further complications related to emergency room treatment.

## Preface:

- *Opuntia Blue Rose* is a complex cactus plant recently bred from two species of the cacti family: The familiar *Opuntia ficus-indica*, commonly called the spineless cactus which produces the popular sabra fruit; and a second species called *Opuntia vulgaris*, a similar, but lesser known member of the cactus family. The latter produces a smaller edible fruit characterized by its striking purple hue.
- We used the *Opuntia ficus-indica* as the stock, and the *Opuntia vulgaris* as the scion. The reason for this is that *Opuntia ficus-indica* features a solid foundation and massive root base that gives the plant its high endurance and nurturing capacities.
- The new crossbreed of plant is one of many grafting attempts made among the cacti family with the goal of engendering a plant that melds the distinctive facets of both species. In this specific graft, we integrated the better of two worlds to create a unique new cactus plant.
- *Opuntia ficus-indica*, which is cultivated in the Judean Desert and Dead Sea region, contains a relatively high quantity of cutin in the branch cuticle which facilitates the extraction of a large quantity of cellulose from this species. Its outer cuticle and epidermis layer was grafted together with the branches of the *Opuntia vulgaris*, which despite its small size contains a large quantity of mesophyll relative to the *Opuntia ficus-indica*.
- The end result was a hybrid containing a relatively high quantity of both cutin and mesophyll. The morphology of the second-generation branch is a blend of the two parent species. It grows astonishingly quickly and lacks the leaves (thorns) characterizing a standard cactus.
- The Area where the *Opuntia Blue Rose* grew up is the Region of Arad. This is where we can achieve a desert climate to empower 'Cottin', and at the same time to give high quality water, and high quantity of water - relevant to maximize the quantity and quality of the 'Mesophile'.
- We have named this new species *Opuntia Blue-Rose*



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*Opuntia ficus-indica*



*Opuntia vulgaris*



Mounting process of Benjamin H. Rosenstein Ph.D.



The outcome: *Opuntia Blue-Rose*



*Opuntia blue rose*: Extraction Process:

- In order to extract the maximum gel and cellulose from the *Opuntia blue rose*, it was important to identify and pick the branch at the precise point when it reaches its highest potential for extraction. This generally occurs once during the summer season and once during the winter. The optimal period for high-quality mesophyll, cuticle and epidermal extraction from the branch spans approximately thirty to fifty days.
- Given that the *Opuntia blue rose* does not have leaves (thorns) and given that pests like aphids and other parasites are not attracted to it, all that remained to do was rinse the branches well and pulverize them immediately after picking.
- The grinding process is performed using a classic Hobart Legacy mixer. Once the puree is dissolved, it leaves the cuticle and epidermis at a length of 2-3 millimeters. Mesophyll extraction is then done with a centrifuge. Thereafter, remnants of cuticle, epidermis and lignin are dried in a cylindrical incubator at a temperature not exceeding 85°C to produce cellulose. Finally, the dried mixture is ground into a fine powder ready to be converted into its gel form.
- The gel only is preserved with natural preservatives only, including 'Sharomix 702' / or sodium benzoate, more commonly known as Vitamin E.

## Differentiation:

- In our quest to produce the ultimate product in burn prevention and treatment, we faced the challenge of creating a single product with a solely natural base and composed of natural ingredients only that would provide a holistic solution to simultaneous burn prevention and treatment.
- Following a comprehensive and deep market survey, we revealed that there is currently no available product formulated on a solely natural base and with natural ingredients that provides a complete solution to burn prevention and treatment—beginning from the primary, first aid stage and continuing to the secondary and tertiary phases.
- The product developer' s goal was to create a preparation with a natural, unique gel base distinct in its capacity to simultaneously prevent and treat burns. Other ingredients were later added in order to enhance the preparation and mark it as the absolute product in burn prevention and treatment at all stages.

## Uniqueness of the Product - Characterization and Ramifications:

- The *Opuntia blue rose* gel is based on the natural cellulose of a crossbreed of *Opuntia ficus indica* and *Opuntia vulgaris*.
- The pure version of the gel without any additives is effective in first aid burn treatment and proven as highly successful in burn intervention. (Appendix A)
- The gel is preserved with solely natural preservatives. The gel undergoes processing at room temperature to avoid the breakdown of any of its ingredients.
- The gel creates a micro antiseptic/antibacterial layer that remains even after the bandage or gauze is removed.
- The gel contains all quality ingredients and extracts commonly utilized in burn prevention, immediate and long-term burn treatment, including: **Chamomile, Valerian, Propolis, Urea, Tea-tree oil, Vitamin B12, Vitamin E, etc.**
- The doses of the components will be in accordance with customer's specifications and in accordance with the certification requirements. Doses will usually be between 0.2 to 17%. The Acidity will be between **5.2 to 5.5 pH** - The viscosity will be relevant and depends on the customer's demands.
- The gel is effective on all types of burns, including chemical burns (not for P<sub>4(s)</sub> white phosphorus).
- The container of 300 ml. contains the amount of gel that can cover an area of 4 square meters and more. The advantage of gel foam high cooling capacity because of the large surface area of the gel. The foamy texture of the gel is a result of a nozzle manufactured especially for the product that creates a smooth, even texture and facilitates application. The foam is not a result of other mineral additives or ingredients.

## Conclusion - Prevention and Treatment Capacity

- *Immediate prevention and treatment:*

Cools the burn area to prevent a massive rush of lymphatic fluid.  
Shields from infection and irritation in surrounding area.

- *Secondary and tertiary treatment phases:*

1. Restoration of epidermal, dermis and hypodermis layers.
2. Abets widespread restoration of blood vessels and nerves to prevent scarring.

## Characterization\*

**BLUE-ROSE** aims to develop the ultimate product that provides an integrated solution for fire casualties.

**BLUE-ROSE** has developed a foam/gel as a high a powerful fire extinguisher. The product is based on natural ingredients, environmentally friendly and green - only. This gel / foam combined preventives burns, cooling factors and natural pronounced anesthetic effect.

**BLUE-ROSE** saw to contain our product in an aerosol It is easy to store and convenient to use. We decided to produce it in three sizes depending on the needs.

**BLUE-ROSE** product has to face the internal quality of our control. International Regulations, supervision of the Israel Ministry of Health. – GMP, ISO 27716 European standard seals.

- **BLUE-ROSE** is proud! To present the ultimate product as a life saver in situations of acute and in extreme for the first time ever we have developed a unique product - Suitable rescue forces, every home and every vehicle.

Anti-erythema: Completely eliminates the skin irritations, for example: the summer and diaper rashes, Stimuli in the feet, soothe irritated skin in the case of atopic dermatitis and seborrhea dermatitis, irritations of mosquito bites and more.

**A life saver!** *The container of 300 ml. contains the amount of gel that can cover an area of 4 square meters and more. The advantage of gel foam high cooling capacity because of the large surface area of the gel. An Ultimate fire extinguisher in case of a person enveloped in fire. It contains only natural materials - non-toxic. He based on a combination of the extract and other ingredients that may influence in short time on a burned skin - he is a top primary burns stop .*