

Ozonated Plant Extracts from Lime Technologies

[Introduction to Ozonated Plant Extracts.](#)

[Ozonated Oils and Oil-Gels – General Information.](#)

[General Directions.](#)

[Medical Usage Directions.](#)

[Dental Usage Directions.](#)

[Ozone Products Available.](#)

[Current Costs and Packaging.](#)

[Contact.](#)

[Research References.](#)

Introduction to Ozonated Plant Extracts.

Ozone has been used in Medicine for many years, and research into its uses for infection control, and wound management are not new. However, recent research from Russia, Cuba, the UK, South Africa and other centres around the world, is only just beginning to unlock the secrets of why this gas is so effective. Ozone is a gas, has a very high reactivity, and is very unstable. The gas has a half life of just a few minutes. Ozone cannot be stored, so has to be made on demand when required using an ozone generator.

There are many incidences where an alternative delivery system is beneficial for an anti-microbial product. An example of this would be Amoxycillin. This anti-biotic is available as a liquid for children, a capsule for adults, and as a cream for topical application. Similarly, ozone as a gas can be safely applied when confined to a skin or tooth surface, but it is dangerous to apply freely where it may come into extended time contact with lung tissue - for example when applied in the oral cavity. Hence the development of dental ozone units like the Lime Technologies CMU3 or the KaVo HealOzone. With the HealOzone unit, delivery of ozone gas into a treatment area can be difficult, such as in the case of a periodontal pocket or around an implant, or where ozone is required over a larger surface area.

As an alternative, ozone dissolved into liquids is an attractive alternative for the clinician and patient. Ozone dissolves readily into water, to about 5% volume, but only when cooled and pressurised. In water, ozone has a longevity measured in a few days. It can be used as a mouth rinse, or as a drink. Most public water supplies and drink manufacturers use ozone at some stage in their water treatment, drink manufacture and bottling process to sterilise the water used.

In contrast, when dissolved in an oil base, it has a life span measured in years. Ozone chemically reacts with vegetable extracts, and forms long complex molecules called 'ozonoids'. These ozonoids are effective anti-microbial agents, as well as stimulating the reparative and regenerative pathways at a cellular level.

Traditionally, ozone has been dissolved into olive oil. But the purity of olive oil is variable from one area to another, and depends on the soil type, the country of origin, and the method of oil extraction from the pressed olive fruit pulp. Research in Cuba has been concentrated at Sunflower oils as the oil is taken from a single pressing, and the ozonated oil is cheap to produce. New research is looking at other plant extracts treated with ozone - for example avocado, canola, coconut, grape seed, soya, and sweet almond. Skin creams are currently being produced that combine a blend of natural plant extracts, that is then partially ozone treated to combine the essential properties of both the base material and ozone.

The chemical reactions of ozone when bubbled into any oil are very complex. The oil and ozone react to form ozonoid compounds that have anti-microbial properties, as well as retaining the properties of stimulating tissue regeneration and repair. The effective concentration of ozone in an oil base is about 10 to 30% that of ozone gas dependent on the way the product is finished; if taken to an oil-finish, the effective ozone concentration is less than that of a product taken to a vaseline-gel type finish. Some plant extracts turn completely solid to form a wax-type end product. From the research carried out, and personal experience, these products would seem to have an extrapolated active time of some 10 - 15 years with out loss of efficacy.

The use of these oils can be broadly divided into
Medical Usage and Dental Usage.

The uses and indications for this type of product are many.

Periodontal pockets.

We have used these oils in all our periodontal cases for the last 12 months with brilliant results. The oil gel is loaded into an Ultradent (see www.ultradent.com) 1.25ml small syringe, and with a fine blue acid-etch tip, the oil gel can be delivered into a periodontal pocket with ease. For large pockets, we repeat this at 7-day intervals. On average, we can achieve complete resolution of an infected pocket in about 2 days for the smaller pockets of 3-4mm, and 7 days for the larger deeper pockets. As there is stimulation of the reparative cellular mechanisms, the appearance of the tissue is pink and healthy.

Surgical areas

After surgery for removal of teeth, abscess drainage, third molar tooth removal, apicectomy, etc, we give our patients 20ml of ozonated oil. They are instructed to use a clean 'q' tip or cotton wool to apply the oils to the surgical site 3-4 times each day, for a minimum of 5 days. This treatment has now been used for the last 12 months, and we have had no adverse results. Every patient has reported decreased pain, accelerated healing, and minimal scarring after use.

Ulcers

A number of patients have used the oils for aphthous ulcers, as well as the gas being applied in the practice. Despite the taste of ozonated sunflower oil, all patients have reported a decrease in the time the ulcers heal and resolved, compared to previous treatment modalities.

Other Uses

Denture sore mouth and athlete's foot are very similar yeast infections. In denture sore mouth, the oil is applied to the fitting surface of the denture, and then replaced in the mouth. This is a very simple protocol for the patient to use and follow. If applied at 4 hourly intervals, the average time to eradicate the yeast infection, and see soft tissue healing is about 2 days. Also, the denture fitting surface appears to be much cleaner, due to the stain removal properties of the ozone compounds.

In acne and other dermatological conditions, the oils have been used with remarkable effects, not only keeping the areas free of potential cross contamination and opportunistic infection, but also stimulating tissue repair and healing.

Lastly, a case of intractable heel pressure sores has been treated for a retired dentist. Following a massive CVA, this patient was placed in ITU, but the nursing staff failed to take adequate steps to avoid pressure necrosis. After many weeks of conventional treatment with antibiotic creams and dressing, without any change, this patient found out about ozone oils. The ozone oil was applied twice daily, and after 2 months, 75% tissue regeneration and healing had been achieved, reducing one lesion from 10cm, to 3cm in just 2 months.

The huge advantage these ozone technologies have over traditional anti-microbial agents is that as the anti-microbial effect is so fast, there is no time for the microbial populations to establish a resistance to them. In effect, this is the perfect antibiotic! Essentially, if you consider any infective process as a bio-film problem, ozonated oil has a potential part to play in its eradication, and also in the healing process of the surrounding tissue.

Ozonated Oils and Oil-Gels – General Information

Ozonated Oils and Oil-Gels – General Information: Our range of ozonated vegetable extracts is made to strict standards. We take pure South African air that flows up from Antarctica, and compress it. This air is then processed and only the oxygen part is passed into our converter. This oxygen is 99% pure, medical grade oxygen. The converter we use has been made to our special specifications. The pure South African oxygen is converted to ozone gas - O₃.

This ozone is then combined with pure vegetable extracts to form a number of 'ozonoid' products. We use a patented system so that the ozone gas remains in close contact with the vegetable extracts. We do not use traditional buckets like so many of the small producers of ozonated oil and oil-gels. This patented system was invented by Dr Julian Holmes in 2003, patented in 2005, and a larger commercial unit built in September 2005. Our products are packed by a group of disadvantaged ladies drawn from the poor areas of Cape Town. By providing employment for these people, Dr Julian Holmes is fulfilling one of his primary objectives which are to support our local disadvantaged communities. Each batch of manufactured oils is tested to ensure effectiveness, and date stamped with a use-by date.

General Directions for Ozonated Plant Extracts.

Storage: Please refrigerate or keep in a cool, dark place. Do not freeze. Store upright to avoid slight leakage. Replace the container lid when not in use.

Spillage: Clean up oil spills and dispose of carefully. The oils are non-toxic or flammable in normal temperatures and working environments.

Container Disposal: Dispose of the containers with care and consideration to your environment. Use a recycling centre if possible.

Inflammability: This product is not inflammable under normal temperatures and conditions and use. Do not expose to heat sources or naked flames.

Allergenicity: They do not contain pea-nut oil extracts. However if there is a past history of allergy to nut oils, nut-oil based products should not be used unless skin patch tested previously.

Directions for use:

External Use: These products are intended for superficial, external use and oral use only, where indicated in these instructions. As the research is extended and published, these directions will be updated. The updated Instruction Leaflet can be found and downloaded from www.the-o-zone.cc

Internal use: These products should not be swallowed in large quantities and are not intended for internal use unless specified below. However, they are not toxic, and if swallowed, there are no special precautions that should be taken. New research in Cuba has trialled encapsulated ozonated sunflower oil for stomach and gut ulceration and other conditions with great effect. However, the encapsulated presentation is not available for general usage at the moment.

Eye Contamination: Avoid the use of these oils in eyes. There are no studies available to show effectiveness for eye infections or conditions. Please consult your general medical practitioner for treatment for eye infections.

Treatment Duration: For areas of infection, the treatment time is from 1-2 weeks. For the treatment of skin surface ulcers, the treatment time for small areas is 1-2 weeks, for large ulcers, from 3 to 4 months. Healing time is dependant on the age of the patient, the medical status of the patient, and the size of the lesion being treated.

If in any doubt, contact Dr Julian Holmes at julian@limetechnologies.net or your own medical practitioner who you normally consult with. Further information is available from the Internet and World Wide Web on www.the-o-zone.cc.

Presentation: - Ozonated oils are pure plant extracts, through which pure oxygen and ozone are passed. The plant extracts undergo a chemical reaction to form a thick, viscous oil, or in some cases, a petroleum jelly like product called an oil-gel. The final products contain ozonoids. These ozonoids have a pharmaceutical activity similar to ozone gas, but at a reduced activity level. They are bactericidal, fungicidal, and veridical. The oils are chosen for their innate healing properties, and the ozonoids enhance this effect. They are available in a PET Bottle, or container, in 10ml, 20ml, 30ml and 40ml containers.

Various vegetable extracts are chosen for healing and usage properties; depending on the intended application, they are available as a thick oil for use in syringes, or as an oil-gel or petroleum jelly like consistency. In a dental application, for periodontal pocket applications, and for healing around implants, the oil finish is recommended. For use for ulcers and for denture sore mouth infections, for example, the oil-gel finish is recommended.

Olive Oil is the traditional oil of choice. It has been used for over 100 years. There is little published research on this product. It is presented as a thick oil, or as a oil-gel.

Sunflower Oil has been researched extensively in Cuba and Russia for the past 40 years, and in the UK for the past 5. There is a large body of scientific research showing the effectiveness of these oils in infection control and healing. These research papers can be found at http://www.the-o-zone.cc/download_files.html. This oil never gels unless cooled, and is ideal for dental applications where a liquid medium is required

Canola Oil is carrier oil that our research is just starting. It is used in our blended oil products.

Hemp Oil is purified, and then taken to an oil-gel finish. It is available now in oil, and oil-gel form. It forms the basis of one of our Health & Beauty Transdermal Skin Gel range.

Avocado Oil is finished to an oil-gel. It are incorporated into hand and body creams, soaps and massage oils for the ultimate health, beauty and healing product line. It does not contain pea-nut oil extracts. However if there is a past history of allergy to nut oils, this nut-oil based product should not be used unless the patient has been skin tested previously with this oil base.

For current costs and to order online go to www.limetechnologies.net and follow the links to the Lime Technologies On-Line Shop. If in any doubt, contact Dr Julian Holmes at julian@limetechnologies.net or your own medical practitioner who you normally consult with. Further information is available from the Internet and World Wide Web on www.the-o-zone.cc.

Medical Usage of Ozonated Oils

Ozonated Oils and Oil-Gels: Medical Usage - Introduction: These products are shipped world-wide. The oils have been used for surgical healing work. Several medical practitioners are using it for skin and nail-bed infections, all with positive results. In severe ulceration cases that 'modern pharmacology' has not been able to resolve, ozonated oils have allowed full ulcer granulation and closure within 3 months, with resolution of pain and discomfort. Several football clubs use these oils after on-pitch wounds. The ozonated oil prevents infection, resolves pain within about 30 minutes, and promotes accelerated healing.

Skin Surface Abrasions and Cuts: Clean the affected skin surface with cooled boiled or sterile water. It is important if possible to remove all foreign bodies from the skin surface, such as gravel, small stones, sand, and dirt. Dry and apply a thin layer of the ozonated oil over the affected skin surface. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. There is no need to cover unless protection from further trauma is required, or work place health and safety regulations require wound coverage.

Skin Ulceration: Clean the ulcer site and surrounding area with cooled boiled or sterile water. Dry to a damp surface if possible and apply a thin layer of the ozonated oil over the ulcer site and surrounding skin edge. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected area. There is no need to cover unless protection from further trauma is required, or work place health and safety regulations require wound coverage.

Nail Infections: Clean the nail and surrounding finger/toe skin surface with cooled boiled or sterile water. Dry and apply a thin layer of the ozonated oil over the nail and surrounding skin surface. If possible, work the oil/oil-gel below the nail and into the creases on either side of the nail. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected area.

On fingers, a finger cot, or gloves will help keep the oil/oil-gel in the correct place, and prevent touched areas being left with an oil film.

On toes, there is no need to cover unless protection from further trauma is required, or work place health and safety regulations require treatment area coverage.

Skin Penetrations: eg Thorns /Splinters If possible clean your hands and the affected skin surface with cooled boiled or sterile water. Remove all parts of the thorn or splinters if possible. Dry and apply a thin layer of the ozonated oil over the affected skin surface. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. Cover with a dressing if possible. Seek medical help if parts remain embedded below the skin surface.

Skin Wounds: If possible clean your hands and the affected skin surface with cooled boiled or sterile water. Remove all parts of the thorn or splinters if possible. Dry and apply a thin layer of the ozonated oil over the affected skin surface. Seek medical help if necessary. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. Cover with a dressing if possible. Seek medical help if necessary.

Skin Infections:

1. Bacterial: eg Acne Clean the affected skin surface with cooled boiled, sterile water or skin cleanser. Dry and apply a thin layer of the ozonated oil over the affected skin surface. Seek medical help if necessary. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. There is no need to cover with a dressing.

2. Fungal: eg Athlete's Foot Clean the affected skin surface with cooled boiled or sterile water. Dry and apply a thin layer of the ozonated oil over the affected skin surface and between the toes. Seek medical help if necessary. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. Wear open shoes to allow the foot to remain dry. Change socks every day and wash following manufacturer's instructions.

3. Viral: eg Shingles, Lip Herpes; Clean the affected skin or lip surface with cooled boiled or sterile water. Dry and apply a thin layer of the ozonated oil over the affected skin surface. Seek medical help if necessary. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. There is no need to cover unless protection from further trauma is required, or work place health and safety regulations require wound coverage.

Superficial Burns: Clean the affected skin surface with cooled boiled or sterile water. Dry and apply a thin layer of the ozonated oil over the affected skin surface. Seek medical help urgently. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. Cover with a dressing if possible. Seek medical help urgently if the burn is extensive.

Deep Burns: Clean the affected skin surface with cooled boiled or sterile water if possible. Dry and apply a thin layer of the ozonated oil over the affected skin surface. Cover with a dressing if possible. Seek medical help urgently.

Trauma Injuries: Clean the affected skin surface with cooled boiled or sterile water if possible. Dry and apply a thin layer of the ozonated oil over the affected area. Cover with a field dressing if possible. Seek medical help urgently.

Surgery Sites / Surgical Suture Lines: Clean the suture line with cooled boiled or sterile water. Dry and apply a thin layer of the ozonated oil over the affected skin surface. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. There is no need to cover unless protection from further trauma is required, or work place health and safety regulations require wound coverage.

Insect Bites & Stings: Clean the affected skin surface with cooled boiled or sterile water. Make sure any residual sting or insect parts are removed from the bite/sting area. Dry and apply a thin layer of the ozonated oil over the bite or sting surface. Seek medical help if necessary. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface.

Dental Usage of Ozonated Oils

Ozonated Oils and Oil-Gels: Dental Usage

Directions for use – These products should not be swallowed in large quantities and are not intended for internal use unless specified below. However, they are not toxic, and if swallowed, there are no special precautions that should be taken. If in doubt, consult your usual dentist.

Directions for use - Dental:

Dental Caries: Ozonated oils play NO part in the treatment of caries. The ozonoid oil product is not sufficiently active enough to destroy superficial micro-biological niches and demineralisation in enamel, nor deep micro-biological niches in dentine tooth structure.

It may help to reduce pain and infection in gross caries with pulpal exposure, but this has not been tested or reported. The oil-base will interfere with dentine and enamel bonding systems. Ozone gas delivered from a dental ozone unit, such as the Lime Technologies CMU3, is the only ozone product that should be used in these cases. For further comment and information, see www.the-o-zone.cc.

Gum Tissue Infections:

1. Bacterial: Clean the affected area with cooled boiled or sterile water or hydrogen peroxide mouth rinse. Apply a thin layer of the ozonated oil over the affected skin surface. Seek dental help if necessary. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. There is no need to cover with a dressing.

Dry Socket: Dry socket is a superficial bone and soft tissue infection, usually following the removal of a tooth or teeth (especially 8's) but this can occur in any site in the mouth after surgery. It is painful, and can take a long period of time to settle and heal with routine antibiotics.

To treat with ozone oils, clean the affected area with cooled boiled or sterile water or hydrogen peroxide mouth rinse. A small syringe with a blunt end, for example the Ultradent 1.2ml syringe with a fine acid etchant delivery tip, is filled with ozonated oil. The syringe tip is introduced into the dry socket to its full depth if possible, and the oil is expelled into the socket as the syringe tip is withdrawn. The patient should be sent home with a supply of the oil, syringes, delivery tips, and instructions, and instructed in oral hygiene care, and the case reassessed at regular time intervals.

Periapical Sinus: After the nerve tissue is irreparably damaged by trauma or caries, it will die. If this goes undetected, an area of infection at the tip of the root will develop. The drainage pathway is towards the buccal plates and sulcus. Treatment should be combined with RCT (Root Canal Therapy).

During RCT, the sinus can be irrigated with ozonated oils. A small syringe with a blunt end, for example the Ultradent 1.2ml syringe with a fine acid etchant delivery tip, is filled with ozonated oil. The syringe tip is introduced into the sinus to its full depth, and the oil is expelled into the sinus as the syringe tip is withdrawn. The case should be reassessed at regular time intervals.

2. Fungal: eg Denture Sore Mouth: Clean the affected gum tissue surface with cooled boiled or sterile water or hydrogen peroxide mouth rinse. Clean the denture with soap and water, rinse, and dry. Apply a thin layer of the ozonated oil over the fitting surface (the surface that

touches the gum tissue) of the denture and replace. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface.

3. Viral: eg Lip Herpes; Clean the affected skin surface with cooled boiled or sterile water or hydrogen peroxide. Apply a thin layer of the ozonated oil over the affected lip surface. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface.

Mouth & Tongue Ulceration: Clean the affected skin surface with cooled boiled or sterile water or hydrogen peroxide mouth rinse. Apply a thin layer of the ozonated oil over the ulcer site and surrounding skin edge. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected area.

Apthous Ulcers: Either ozone gas from a dental ozone unit such as the Lime technologies CMU3 unit can be delivered onto the ulcer surface, or ozonised oils can be placed onto the ulcer surface directly. Clean the affected skin surface with cooled boiled or sterile water or hydrogen peroxide mouth rinse. Apply a thin layer of the ozonated oil over the affected skin surface. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface.

Superficial Burns: Clean the affected skin surface with cooled boiled or sterile water or hydrogen peroxide mouth rinse. Apply a thin layer of the ozonated oil over the affected skin surface. Seek medical help. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface.

Periodontal Pockets: These oils should be used in conjunction with thorough scale and debris prophylaxis. They are NOT an alternative to routine professional oral hygiene care. All periodontal pockets should be charted and measurements noted. Points of bleeding and pocket depth should be recorded. After professional prophylaxis, a small syringe with a blunt end, for example the Ultradent 1.2ml syringe with a fine acid etchant delivery tip, is filled with ozonated oil.

The syringe tip is introduced into the periodontal pocket to its full depth, and the oil is expelled into the pocket as the syringe tip is withdrawn. At no time should the oil be injected into the soft tissue. The aim is to fill the pocket with the ozone oil or gel as an adjunct to debris removal. The patient should be instructed in oral hygiene care, and the case reassessed at regular time intervals. Ozonated oil can be re-applied at 1 week intervals in all cases, or in severe cases, more frequently.

Root Canal Therapy: Ozone and ozonised oils can be used during root canal therapy to clean and sterilise the canal systems. Once access has been created, and the canal system opened, ozone gas delivered by a dental ozone unit, such as the Lime Technologies CMU3, is used to sterilise the canal system. 120 – 240 seconds of ozone should be used. If RCT is being staged over more than one visit, a small syringe with a blunt end, for example the Ultradent 1.2ml syringe with a fine acid etchant delivery tip, is filled with ozonated oil.

The syringe tip is introduced into each canal and the oil is expelled into the canal as the syringe tip is withdrawn. The access is then sealed. At recall, no more than 5-7 days after the previous appointment, the canals are opened, re-cleaned and if suitable, filled.

Surgery Sites / Surgical Suture Lines: Clean the suture line with cooled boiled or sterile water, or hydrogen peroxide solution. Apply a thin layer of the ozonated oil over the affected skin surface with a suitable instrument, such as a 'Micro-Brush'. The patient should be instructed to re-apply every 3-4 hours after re-cleaning the affected surface. There is no need to cover, such as with a perio-pack, unless protection from further trauma is required.

Tooth Whitening: Research in Cuba and Russia identified ozonised oils as a tooth whitening gel. The research presented was for previously root canal treated teeth, and there are no studies on vital teeth. The coronal access is opened, root filling material removed to the EDJ, and the coronal cavity filled with ozone oil. In the published studies, sunflower oil-base was used. The oil is changed every 5 days, and a whitening effect was noticed at 2 weeks. Apart from these studies, no other studies have been found using the ozonised oils. No mention was

made on what inter-treatment cavity closing material was used, or the final restorative material.

Implant Patients: Ozonated oils can be used to clean around the new implant sites, as well as existing implants. It is especially useful around bars and complex connectors, such as multi-unit bars, crown and bridge work, and around magnets. Where ever there is an opportunity for gum irritation and bacterial inflammation to lead to a potential problem, the oil can help control and eliminate it.

At-Home Use: Patients should be instructed on how to use inter-dental brushes, and Christmas tree brushes. The brush is dipped into the oil, and then the brush is taken between each abutment surface, around each implant abutment, or each gingival cuff. This only needs to be repeated once a day and the oils should be stored cool.

This list is not exhaustive, and periodic updates will be issued. For the latest information, please go to www.the-o-zone.cc . If in any doubt, contact Dr Julian Holmes at julian@limetechnologies.net or your own medical practitioner who you normally consult with. Further information is available from the Internet and World Wide Web on www.the-o-zone.cc.

Ozonated Products Available.

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Ozone is widely used in the food and agricultural industry to remove the bacteria that cause food to go off - eg fruit, and reduce smell - eg fish. It is also prolongs the shelf life of meat. It does depend on what concentration ozone is generated at and how it is applied. The main hospital in Toronto is using a very large ozone steriliser to sterilise its instruments. The advantage is that ozone oxidises protein prions.