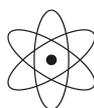


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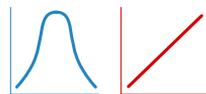


**MEDICAL ELECTRONICS**

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**DR. HÄNSLER  
OZONOSAN**



$$\lg \frac{1}{10} = -\epsilon \cdot c \cdot d$$

DAS TECHNOLOGISCHE  
UND WISSENSCHAFTLICHE  
OZONTHERAPIE-KONZEPT



## Milestones in the History of Dr. Hänsler Co.

1958	Dr. Joachim Hänsler registers OZONOSAN® as a trade mark: the first medical ozone generator with exact concentration dosage control: OZONOSAN PM 58
1959	The first patent is granted.
1968	Major ozone autohaemotherapy as extracorporeal blood treatment replaces intravascular administration
1979	The first TÜV-certificate of safety "GS" by TÜV Cologne
1980-1995	New product line: OZONOSAN PM 80, 83 and 90 appears on the market
1985	"Medical Ozone/Oxygen Therapy" first published as practical handbook
1990-1995	The microbubble system for major ozone autohaemotherapy is patented throughout Europe, other patents follow
1995-2006	The "Ozone Handbook" (ecomed publisher) with the latest scientific literature, published in loose-leaf form, rapidly became the standard work
1998-2008	Italian pirate copies compel Dr. Hänsler Co. to develop a completely new OZONOSAN concept: The photometric ozone concentration measurement and control system is integrated: OZONOSAN alpha plus, photonik and boardcase
1998	Certification in accordance with the new European Guideline 93/42/EEC by Med. Cert. TÜV Cologne
2007	"The Use of ozone in Medicine" in English is published, followed by
2009	"Ozone-OxygenTherapy, a Practical Handbook", completely revised and expanded new German edition (Haug/Thieme publisher, Stuttgart)

## Medical ozone as bioregulator

in its "low dose concept" form, is an established and scientifically founded treatment concept in complementary medicine which is not only well documented but also subject of publications on an international platform.

As specialists in medical ozone/oxygen therapy for more than 50 years, actively participating in research and medical training, the "Dr. Hänsler OZONOSAN" team provides ...

... perfect systems for ozone applications in the fields of medicine, hygiene and scientific research:

... with continuous measurement and control of ozone concentrations, integrated as a standard element in all OZONOSAN generators. This provides optimum safety in therapy and patient care ...

... in addition to which our trained and dedicated medical device consultants are ready to help with therapy and application techniques.

You will find practical guidance and receive a scientific foundation in all uses of medical ozone at our workshops and congresses in Germany and abroad.

The OZONOSAN therapy system is complemented by our training guidelines and various handbooks; these are nowadays recognized as standard literature in the context of relevant studies, treatment concepts and dosage recommendations for all users of medical ozone.

Where ozone/oxygen therapy is involved, we provide scientific know-how, competent advice, experience and expert cooperation in all medical, technical and practical aspects.

We look forward to hearing from you.

Yours Sincerely,

Dr. Renate Viebahn-Hänsler



## CONTINUOUS O<sub>3</sub> – CONCENTRATION MEASUREMENT

Angiopathias, particularly diabetic angiopathy, arterial circulatory disturbances and diabetic foot are classical indications for ozone/oxygen therapy. When O<sub>3</sub>/O<sub>2</sub> is applied in a complementary and differentiated form, remarkably successful results are obtained.

Apart from local ozone applications (disinfection, wound healing) systemic therapy in the form of major ozone infusion via the patient's own blood or rectal insufflation are the methods of choice, not only because they make use of the antiinflammatory and circulation-enhancing effect of O<sub>3</sub> (activation of intracellular antioxidants, NO induction), but because they also counteract hypoxaemia (improvement of oxygen supply).



10 – 30 µg/ml	for all forms of systemic treatment in accordance with the "low dose concept"
80 – 100 µg/ml	locally, where rapid wound healing is required
15 – 25 µg/ml	locally, for progressive wound healing
1 – 10 µg/ml	topical injections: intramuscular, subcutaneous, intradiscal ...
100 – 130 µg/ml	for the production of ozonized water

### Dosages and applications

- 1 Ozonized water with its fungicidal, bactericidal and wound healing effect for topical treatments
- 2 Catalyzer, water store and overflow container, easily accessible from outside
- 3 Operating terminal with large-size display for each function



## GUARANTEES AN OPTIMUM IN SAFETY AND EFFICACY

The OZONOSAN alpha plus with its continuous and accurate measurement of a controlled O<sub>3</sub> supply is ideally adapted for the whole treatment range (see table above):

- The OZONOSAN alpha plus supplies the broad concentration range from 1 µg/ml up to > 100 µg/ml, which corresponds to 0.05 – 5 volume % ozone.
- And the OZONOSAN alpha plus produces ozonized water with optimum ozone dose and optimum saturation level.
- With its controlled volume flow, controlled hightech pump units and high charge, autoregenerative catalyzer systems, the alpha plus is the ideal prerequisite for effective local ozone treatment.

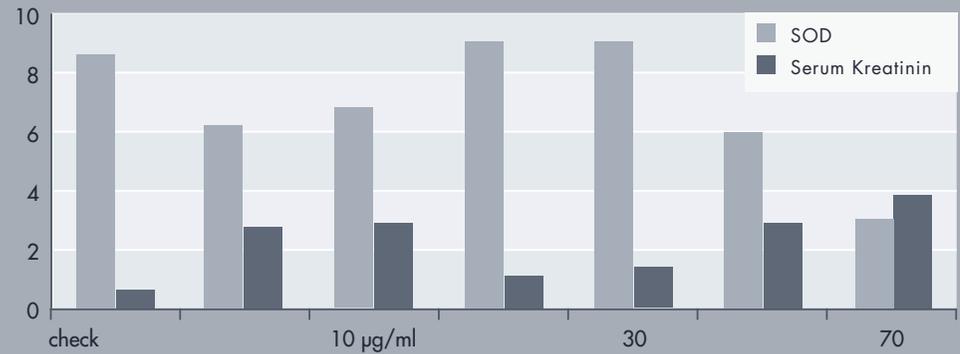


## OZONOSAN: EFFICIENCY AND KNOW HOW IN OZONE THERAPY

At the very least, complementary oncology in a holistic medical context produces a considerable improvement in the general condition of the patients involved, reduces the side-effects of chemotherapy and radiation and thus contributes to life quality in a very real sense.

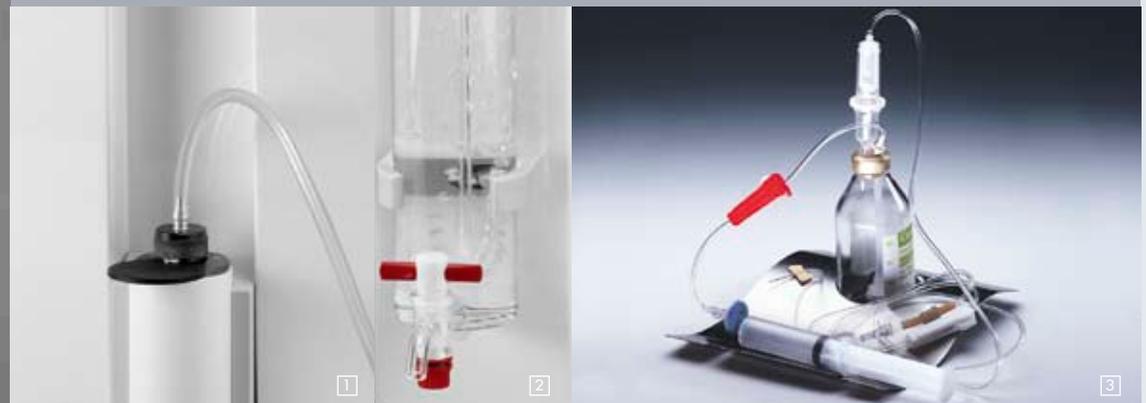
In fact, ozone therapy represents a basis of the complementary treatment concept (induction of cellular antioxidants, improved oxygen supply and immune modulation).

In this case, the application method of choice is Major Auto-Haemotherapy MAH with low  $O_3$  concentrations between 10 and 15  $\mu\text{g}/\text{ml}$ . Concentration measurement and control is here absolutely necessary!



Nowadays Ozone therapy is a scientifically based treatment method. Clinical studies, pharmacological and biochemical effects of the low-dose-ozone concept are well documented and published in international, peer reviewed journals..

- 1 Multifunctional ozone outlet nozzle for the total field of systemic and topical ozone applications
- 2 The additional water unit for treatment of aphthae, fungous infections, burns, infected wounds ...
- 3 Safety-Hygiene-Set for Major-Auto-Haemotherapy MAH equipped with Micro-Bubble-System and Germstop for a safe administration and optimum efficacy



As an alternative, the rectal insufflation method may also be applied.

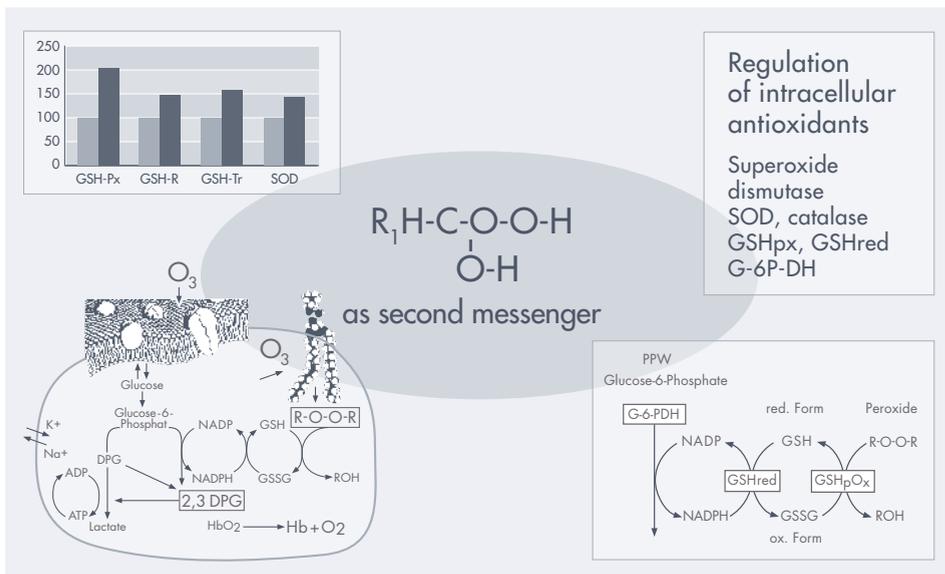
The OZONOSAN photonik is ideal for use in the medical practice, especially in combination with the microbubble system for perfect distribution and reaction of ozone in the blood (extracorporeal blood treatment); this actually optimizes the application and the effect of low ozone concentrations.

Equally suitable for all systemic and topical forms of application, ozone concentrations between 2 and 75  $\mu\text{g}/\text{ml}$  are available, with a water ozonation unit as separate module.

In pain therapy, the preferred concentrations are 2 to approx. 10  $\mu\text{g}/\text{ml}$  (trigger points, tender points, subcutaneous, periarticular and other forms of injection).

Indications and Effects	
Indications	Underlying effect
External ulcers and skin lesions, Diabetic gangrene	<ul style="list-style-type: none"> <li>• disinfection</li> <li>• wound cleansing</li> <li>• improved wound healing</li> </ul>
Arterial circulatory disturbances, Angiopathia	<ul style="list-style-type: none"> <li>• activation of red blood cell metabolism with improved oxygen release</li> <li>• activation of enzymatic antioxidants and radical scavengers</li> </ul>
Immune deficiency und immune dysbalance, chronic hepatitis (B and C), complementary oncology, supportive therapy for rheumatoid arthritis	<ul style="list-style-type: none"> <li>• activation of immunocompetent cells and release of cytokines such as interferones and interleukins. Modulation of the immune system</li> <li>• increase in antioxidant capacity through activation of the cellular antioxidants</li> </ul>
Chronic inflammatory diseases, colitis, proctitis, gonarthrosis, activated arthrosis	<p>antiinflammatory effect</p> <ul style="list-style-type: none"> <li>• activation of antioxidant enzymes and radical scavengers</li> <li>• activation of immunocompetent cells and cartilage cells eg with release of TGF-β</li> </ul>

## OZONE REGULATES THE BIOLOGICAL ANTIOXIDANT SYSTEM





- 1 OZONOSAN boardcase with integrated 1 L oxygen bottle as well as for the use of external oxygen
- 2 totally mobile as a trolley
- 3 oxygen bottle and catalyzer easily accessible whenever exchange is needed



## OZONOSAN: QUALITY AND SAFETY IN OZONE THERAPY

Chronic inflammatory diseases of the joints, myofascial triggerpoints and disk hernia are indications for intra-articular and periarticular as well as intramuscular, subcutaneous, paravertebral and intradiscal ozone injections in the concentration range of 2 to 10, max. 20 µg/ml according to application form; exact ozone concentrations are a prerequisite.



## APPROVED ACCORDING MDD 93/42/EEC AND DIN EN ISO 13485

As with all OZONOSAN units, the concentration measuring unit of the OZONOSAN boardcase constitutes a basic element of quality assurance.

As an absolutely mobile unit in its elegant but functional trolley, it has quickly gained general acceptance in pain therapy (also in sports medicine), and is used for house visits and as a reserve unit. With its concentration range between 2 and approx. 50 µg/ml, it is an ideal system for all systemic applications as well as topical injection techniques.

The integrated vacuum pump with variable negative pressure settings is particularly suitable for low-pressure O<sub>3</sub> gas applications in decubitus or diabetic ulcers, for example with patients confined to bed in homes and nursing care units.

# DR. HÄNSLER OZONOSAN



OZONOSAN	alpha plus (REF 1007)	photonik (REF 1014)	boardcase (REF 1080)
Configuration	Upright appliance, movable	Tabletop unit, compact model	For portable and mobile use, trolley design
Operation mode	Normobaric infusion technology. Patient is not connected to device during treatment		
O <sub>3</sub> Conc. [µg/ml]	2 - >100 contin. adjustable	2 - 75 contin. adjustable	2 - 50 contin. adjustable
Photometric measurement	Continuous ozone measurement with automatic calibration, indicated by LC display		
Gas flow [l/min]	1 - 3 - 6 dep. on conc. range	1 - 8 contin. variable	1 - 12 contin. variable
Oper. Press. [bar]	0.5		
O <sub>3</sub> supply outlet	3 way safety valve for continuous ozone outlet, syringe filling and elimination of residual ozone		
Catalyzer	Highly efficient and steam-resistant. Exchangeable by operator without using tools.		
Suction pump	strong and efficient suction pump, continuously variable negative pressure 0 - 0.8 bar		
ozonized water	Integrated: 1L prep. 3 L reservoir	water ozonizer as optional accessory (REF 1030)	
Dimensions [mm]	850 x 450 x 450	560 x 200 x 375	550 x 190 x 400
Weight [kg]	38	20	17.5 with O <sub>2</sub> -cylinder
Electrical data	230 VAC, 50 cycles, 1.2 A; Protective Class I, Type B		
Classification	IIa according to EU Medical Devices Directive MDD 93/42/EEC		
Label	CE 0535 CE 0086		
Guarantee	Generator: 2 years; extended guarantee: 5 years for ozonizer tubes and catalyzer		
Regular control	Regular technical safety inspection & function check: not required		

## APPLICATIONS

- 1 Transcutaneous O<sub>3</sub> gas immersion and low pressure ozone gas application acc. to Werkmeister

*Diabetic gangrene, badly healing wounds, all forms of dermatosis, fistulae and radiation damage*

- 3 The microbubble system in major auto-haemotherapy as extracorporeal blood treatment. With or without citrate as anticoagulant.

*Angiopathias, arterial circulatory disturbances, chronic inflammatory diseases, all forms of chronic hepatitis, and as a complementary in oncology*

- 2 Rectal O<sub>3</sub>/O<sub>2</sub> gas insufflation

*Indications same as for Major Auto-Haemotherapy MAH, especially in chronic forms of hepatitis, and intestinal conditions such as colitis and proctitis*

- 4 Topic injection techniques with ozone-resistant, siliconised disposable syringes and bacterial filters (0.2 µm)

*Pain therapy, gonarthrosis, trigger points, and herniated disk etc. ... Minor autohaemotherapy, intramuscular application for allergies, acne, unspecified immune activation*

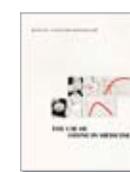
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