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## **DEVELOPMENT OF THE OZONE SATURATION APPARATUS WITH TIMER AND REMOTE CONTROL**

Having analyzed the literature sources of medicine, having studied the materials of the XI Medical Conference and the VII International Congress of IMEOF, as well as investigating the influence of the ozone therapy on living organisms, the following features can be distinguished:

- Powerful antibacterial, antiviral, antifungal, anti-inflammatory properties;
- Improves rheological properties and blood microcirculation;
- Increases the supply of tissue with oxygen, removes the phenomenon of hypoxia of organs;
- Facilitates the treatment of bronchial asthma, tuberculosis, pneumonia, allergies, and otolaryngologic diseases;

There are different types of classifications of modern ozonizers, on the principle of ozone obtaining:

Quiet discharge. Synthesis of gaseous oxygen under the influence of a quiet electric discharge. To this end, air or pure oxygen is passed into the gap between the electrodes connected to the high voltage source. The voltage applied to the electrodes is usually from several thousand to several tens of thousands of volts.

Barrier discharge. The discharge occurs between two dielectrics or a dielectric and a metal in an AC circle, is an efficient and economical ozone generator.

Arc discharge. When receiving ozone it is possible to use arc discharge the same way. The thermal dissociation of molecules increases dramatically with the temperature increase. Thus, at  $T = 3000\text{K}$  - the content of atomic oxygen is  $\sim 10\%$ . Such temperatures (several thousand degrees) can be obtained in the arc discharge of atmospheric pressure. However, the formation of  $\text{O}_3$  is not feasible at high temperatures, as ozone decomposes faster molecular oxygen, but you can create non-equilibrium conditions like heating the gas in a high-temperature chamber, and then quenching. This makes it possible to balance the ozone formation. Ozone is obtained as an intermediate product when the  $\text{O}_2 + \text{O}$  mixture is transferred to molecular oxygen. The maximum concentration of  $\text{O}_3$  in this variant of plasmatron reaches 1%.

Corona discharge. It is formed when the electric field around the conductor is highly heterogeneous, in the air there is an ionization accompanied by glow, the conductor is surrounded by a so-called crown. The glow of the crown does not reach the opposite electrode, fading in the surrounding gas. Depending on the crown electrodes distinguish between the negative and the positive crown, and depending on the mode of supply, that is the crown of the direct and alternating current, pulse, etc. The number of ozone formed in the corona discharge ranges from 15 to 25 g per kWh.

Synthesis under the influence of ultraviolet radiation. It lies in the fact that the oxygen-containing gas is passed through a cooled and transparent ultraviolet radiation

(for example, quartz) reactor irradiated by a source of ultraviolet radiation having a corresponding spectrum. The gas, as a rule, is embodied in the form of pure oxygen.

All methods have a number of advantages and disadvantages. For example, ultraviolet light syntheses are simpler to implement, but far less productive than all other methods. Therefore it is not used in industrial devices.

For non-industrial scale, it would be advisable to use the quiet method as its performance is rather high, and the complexity and cost of realization is moderate. The following is a block diagram of the apparatus for generating ozone.

Fig.1:

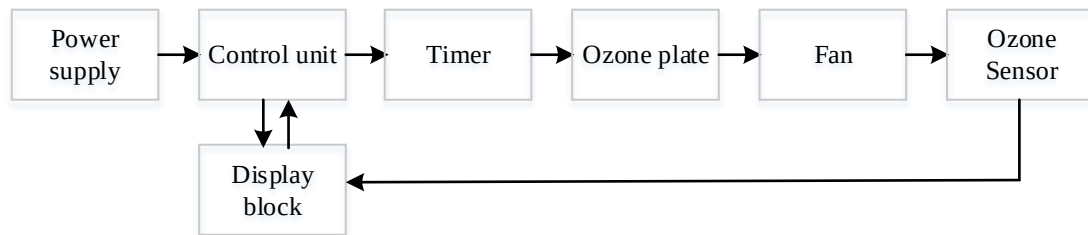


Fig.1: An apparatus for generating ozone