CLAIMS

1. An ozone generator apparatus comprising

- an ozone generator unit (27, 45) comprising
    - a high voltage electrode unit (16, 36);
    - a first (23, 43) and second dielectric element (24, 44);
    - a first (14, 34) and second earth electrode (15, 35);

wherein said high voltage electrode unit is located between said first and said second dielectric element

- wherein said generator unit is configured to be operated at an operational frequency range between 30 and 40 kHz;
- a low frequency, high voltage AC power supply, being a transformer assembly, configured to provide between 50 and 800 Watts at a frequency between 30 and 40 kHz to the ozone generator unit.

2. An ozone generator apparatus according to any of the preceding claims, wherein said first and second dielectric element are located at a distance from said high voltage electrode unit within a range between 0.01 and 0.1 millimeters, such as between 0.01 and 0.075 millimeters.

3. An ozone generator apparatus according to any of the preceding claims, wherein said first and second dielectric element are spaced a part from said high voltage electrode unit by one or more spacer elements.

4. An ozone generator apparatus according to any of the preceding claims, wherein said first and second dielectric are arranged on both sides of said high voltage electrode.

5. An ozone generator apparatus according to any of the preceding claims, wherein said first and a second earth electrode delimit a first and a second reaction chamber with said first and second dielectric.

6. An ozone generator apparatus according to any of the preceding claims wherein said high voltage electrode is arranged as a metallic coating on said first and said second dielectric.

7. An ozone generator apparatus according to any of the preceding claims 1-5, wherein said high voltage electrode is a metal foil or a metal sheet.

8. An ozone generator apparatus according to any of the preceding claims, wherein said first and second reaction chamber comprise each at least an inlet (19, 20, 39, 40) for supplying oxygen gas or oxygen containing gas and at least an outlet (21, 22, 41, 42) for releasing ozone gas.

9. An ozone generator apparatus according to any of the preceding claims, wherein an external surface of said first and second chamber comprises cooling elements, such as cooling fins.

10. An ozone generator apparatus according to any of the preceding claims, wherein said first and second dielectric element are in contact with an internal surface of said first and second reaction chamber.

11. An ozone generator apparatus according to any of the preceding claims wherein said transformer assembly is a high power transformer.

12. An ozone generator apparatus according to any of the preceding claims wherein said transformer assembly is a high power transformer comprising a ferrite shell type core surrounding a primary winding and a secondary winding, whererin said primary windings has a number of turns lower than 14 and said secondary winding has a number of turns higher then 107 and said ferrite shell type core has an airgap smaller than 2 mm.

13. A method of operating an ozone generator apparatus, said ozone generator apparatus according to any of the preceding claims 1-12, said method comprising:

- - operating said ozone generator apparatus at a frequency between 30 and 40 kHz.

14. A method of operating an ozone generator apparatus according to claim 13, wherein said operating comprises:

- supplying a flow of fluid containing oxygen gas to said ozone generator apparatus;

- controlling said flow of fluid containing oxygen gas;
- controlling a power supplied from a power supply apparatus to said ozone generator at a frequency between 30 and 40 kHz.

15. A method of operating an ozone generator apparatus according to any of the preceding claims 13-15, wherein said frequency is a frequency between 31 and 40 kHz, such as a frequency between 32 and 35 kHz.