

HIGH-PERFORMANCE CERAMICS

CERAMIC DIELECTRIC FOR OZONE GENERATION CELL

Application:

Hygiene applications in medical technology, food technology and in animal breeding and husbandry

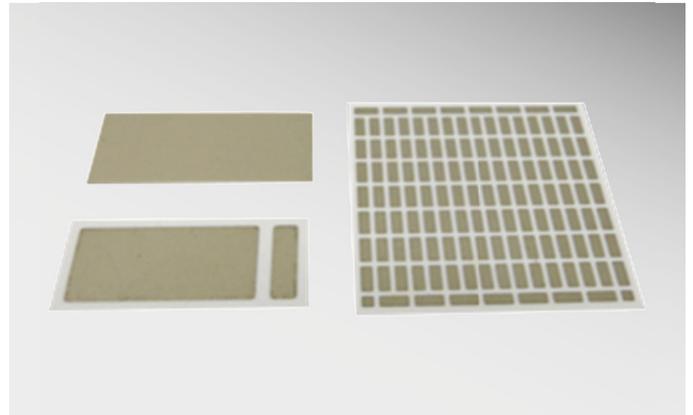
Material:

Aluminium Oxide **A476**

Ozone produced by ozone generators has **disinfecting properties**. The gas reacts with bacteria, moulds, fungi and other microorganisms, leading to their complete elimination. Especially the bactericidal and viricidal effects are of interest for hygienic applications. Fields of use can be found in the areas of medical- or food-technology to hygienic in animal trading and animal husbandry. Besides that, ozone is used to clean or activate surfaces e.g. in semiconductor or polymer preconditioning in glazing or joining assemblies.

Ozone is generated by so-called corona discharge (high-voltage electrical discharge) in ozone electrodes built out of dielectric material like high purity alumina. In ozone electrodes, free oxygen is exposed to an energy field. In result oxygen atoms slit up and resulting oxygen radicals recombine with oxygen molecules, creating O₃. Ozone is a very corrosive gas. Ozone generators chambers have to be completely lined with ozone resistant material. That is why ceramic in form of plates or tubes is used in this application. Oxygen does not react with alumina ceramics because each metal atom is already fully oxidized. Ceramic can be glass welded with other ceramic elements if complex shapes are needed. Thanks to shaping technics **KYOCERA** is able to form the entire ozone electrode out of ceramics without use of materials that can be oxidized by ozone, resulting in long-lasting components for this application.

Excellent electrical insulation of our ceramics prevents discharge losses in electronics and minimizes risk of short-circuit by dielectric breakdown. Extraordinary corrosion resistance assures long life span of High-Voltage Modules.



In the process of ozone generation there is heat generated as byproduct. High thermal resistance of ceramic plates and its good heat dissipation ensures stable concentrations of ozone. Our micro-grain material structure enables substrates with smooth surface, less voids and high flexural strength in high temperature environments. Ozone generators with ceramic cells allows on ultra-precise, high concentration, high output of ozone for pharmaceutical and semi-conductor industries.

Together with our customers we develop customized ceramic parts like tubes or metallized plates, to ensure effective air purification, killing bacteria, viruses and microorganisms. Alumina plates with printed on metallization Mo-Mn or various options for conductive layers (incl. Ag or Cu) are available in thickness from 0.18 mm to ca. 2.7 mm. Upon request, we can cut through-holes or scribe lines, or form electrode patterns.



- ▶ Ozone resistant material
- ▶ High corrosion resistance & durability
- ▶ High thermal resistance & good heat conduction
- ▶ Individual sample print

Competence in Advanced Ceramics Engineering for customized solutions