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INDUSTRIAL OZONE SOLUTIONS

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Recycling the life

SOLUTIONS FOR TIRE & RUBBER INDUSTRY

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INTRODUCTION

When most people think of ozone, they picture a thin layer of gas high above the earth's outermost atmosphere that protects us from the sun's ultraviolet rays. But this bluish gas, which sometimes is described as that "fresh smell" after a thunderstorm, has a variety of down-to earth uses. Ozone is a gas. And it's made of just one thing "oxygen".

Ozone can be visualized as a regular O2 molecule with a very nervous, active, reactive, excitable, energetic, and lively O1 atom as a side kick. This monatomic O1 atom does not like to be alone, and near the earth's surface, it refuses to stay with the stable O2 double bond. It is active and reactive, with energy needing to be channeled in some useful direction. It will combine with virtually anything on contact, or at least will try. This active O1 will not stabilize until it can break away from the O2 and form a stable molecule with something else, virtually any other molecule that is available. If no other molecule is available, it will eventually unite with another O1 atom in the same situation, and restabilize as O2."Ozone is simply a gas composed of three oxygen atoms. It's an extraordinary sanitizing agent that's economically produced and remarkably effective in applications such as food processing and equipment cleaning/sanitizing.Today, ozone technology is steadily replacing conventional sanitation techniques such as chlorine, steam or hot water.

Growing consumer awareness and increasingly stringent regulatory demands have resulted in renewed emphasis on the quality of rubber used for the production of tires and accessories.To achieve these new standards of quality, improved technology must be utilized to provide loong life in service rubber parts. The technology to achieve these requirements is ozonation, the treatment of rubber with ozone.

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OZONE TECHNOLOGY

Ozone is one of the most powerful oxidizing agents on earth which can attack virtually all organic compounds. This includes elastomeric materials where the service life and products quality cab be affected by relatively low ozone concentrations. Rubber products are prone to ozone attack which can provoke cracks and deterioration. The points of attack are the double ponds at the surface of the rubber articles. Even at low concentration, ozone splits the polymer chains, causing cracks which grow rapidly under strain. The ozone cracks may occur even at low even at low strain, i.e. below 10%. The cracks grow perpendicularly to the direction of elongation and increase rapidly as strain, ozone concentration and temperature increase until break occurs. Moisture also contributes to crack formation caused by ozone.

OZONE APPLICATION

The use of ozone technology in rubber industry is a viable way to achieve new standards. We can incorporated ozone system to test life of the rubber or either protects the rubber products deteriorated by ozone attack.

As a principle there are two ozone application:

RUBBER

OZONATION

ANTI OZONATION

OZONATION

In ozonation application ANSEROS system series SIM is used ti test rubber products and tire durability. We can evaluate the serviceable life and quality of the rubber by implementing ANSEROS SYSTEM SIM.

(Note: Please ask for details about ANSEROS SYSTEM SIM)

ANTIOZONATION

In antiozonation applications, ANSEROS system CAT is used to protect tire and rubber products. For example, in mass storage of tires and rubber articles or in manufacturing primses there is a need to eleminate ozone. To achieve this requirement a typical ANSEROS SYSTEM CAT can fully accomplished the task.

(Note: Please ask for details about ANSEROS SYSTEM CAT)

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SYSTEM LAYOUT

Careful and deep studies already made in Anseros R&D department, for implementing ozone technology in rubber industry. As mention before ozone have results beyond the scope, so there is a need to have a most appropriate layout in industrial systems. Normally we can provide solutions to our valued clients based on their case study, which is mostly distinguish from each other, but for a general understanding we can say a typical Anseros system consist of ozone generator, ozone analyzer, ozone sensor and ozone treatment chamber.

In case of testing systems, testing tools also incorporated with above mentioned.For data analyzing there are facility of software integration, and remote access.

(Note: please ask for details about ANSEROS TESTING SYSTEMS, ANSEROS TESTING TOOLS, ANSEROS PROTECTION SYSTEMS)

PERFORMANCE

Ozone is the most powerful broad spectrum microbiological and contamination control agent available.
Ozone ELIMINATES the use of hot water and conventional sanitizer.
Ozone virtually eliminates all chemical usage.
Ozone is chemical-free; it produces NO toxic by-products.
Ozone is clean and environment-friendly; its only by-product is oxygen.
Ozone is extremely effective as a disinfectant at relatively low concentrations.
Ozone is generated on site eliminating the transporting, storing and handling of hazardous materials.
Ozone is very inexpensive to produce and has an unlimited supply.
Ozone is much safer for employees than any conventional chemicals.
Ozone permits recycling of wastewater.
Ozone reduces Biological Oxygen Demand (BOD)

HEALTH & SAFETY

The use of ozone in industrial processes has increased significantly in recent years. Ozone is an extremely powerful oxidant, yet it does not harm the environment or leave behind toxic by-products. Ozone has a short half-life (10-20 minutes in water) and breaks down to natural oxygen so it easily be discharged into the environment without any risk. Process ozone levels must be accurately monitored in order to ensure reliable and efficient process control. In addition, since ozone is toxic above certain concentration levels, worker exposure to ambient ozone must be carefully monitored in order to meet OSHA/TLV requirements.

TLV-TWA Threshold Limit Value-Time Weighted Average	0.1 ppm_v	The maximum continuous ozone concentration to which an individual can be exposed during a normal 8 hour day / 40 hour work week without adverse effects.
TLV-STEL Threshold Limit Value-Short-Term Exposure Limit	0.3 ppm_v	The maximum intermittent ozone concentration to which an individual can be exposed (provided that TLV-TWA is not exceeded) for no longer than 15 minutes and no more than 4 times per day (with at least 1 hour between exposures.)

ANSEROS CAPABILITY

As a major concern in ozone oxidation technologies we can provide the whole solutions for rubber treatment and air, water purification. We can develop a whole range of systems for rubber industry. As specialists in the field of ozone technology, Anseros have a wide experience in the research, design and installation of ozonation systems to suit client's specific requirements. If you have some specific or case sensitive requirement then feel free to contact our R&D department or either see ANSEROS APPLICATION NOTES.

ESALTIA
Departamento Comercial
T. (+34) 965 881 658
F. (+34) 965 844 300
Email: info@esaltia.com
Www.esaltia.com

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