OZONE

PURIFICATION OF WATER SUPPLIES WITH OZONE

Ozone is an extremely powerful oxidising agent, a very reactive but odourless gas that occurs naturally in the earth's atmosphere. Due to the unstable nature of the Ozone molecule (it contain three oxygen atoms as opposed to the two found in normal Oxygen) it reacts readily with other species. This can be used to good effect in the treatment of contaminated water. Ozone needs energy to trigger its formation, being created by the effect of sparks or ultra-violet light on Oxygen in the air.

Ozone purifies water by breaking up organic contaminants and converting Iron, Manganese and Hydrogen Sulphide to an insoluble form that can then be filtered out. Ozone also destroys bacteria, viruses and protozoa, and has been used since the last century by over 1000 municipal authorities world-wide to produce high quality drinking water. While Ozone is a highly effective disinfectant, it quickly reverts back to oxygen when it decomposes, making Ozone safe to use and environmentally friendly.

Until now, Ozone has been too expensive to produce for use on single dwellings or small community private supplies where demand is intermittent. The new Ozotech generators and air preparation units however, have been specifically designed for such applications and combine simplicity and modern technology in a compact and low cost package.

Ozone can also be used for maintaining the quality of stored water, for treatment of effluent prior to discharge and even for odour removal and sterilisation of air.

Ozone Generators and The Ozone Layer

The Ozone layer is found in the uppermost part of the earth's atmosphere between 20,000 and 30,000 metres and provides an important natural barrier to ultraviolet radiation from the sun. The Ozotech Ozone generators do not adversely affect the Ozone layer since they manufacture the Ozone used to purify water from Oxygen in the atmosphere. Local depletion of Oxygen levels does not occur due to the relatively low volumes involved.

OZ2BTU Ozone Generator on custom frame above PP2450 Air Preparation Unit. 1354 contact assembly with automatic bypass valve and Mazzel venturi. 1354 filter with 2510 valve.

How it Works

The Ozotech generators produce Ozone by corona discharge, essentially a 'lightening machine', sparking many thousands of times a second through a dried air stream travelling along the corona assembly. Corona discharge produces a greater quantity and concentration of Ozone than is possible using ultra-violet light.

The Ozone produced by the generator is drawn into the contaminated water flow by a high efficiency venturi, after which it dissolves into the water as it passes into a contact assembly. In the contact assembly the Ozone reacts with the contaminants in the water before it flows on to the multi-media filter where all the solid matter is removed.

The downstream filter unit contains a proven blend of media that remove particulate matter, adjust the pH as necessary and 'polish' out any remaining Iron or Manganese giving clean, pure water with no harmful chemical residues.

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System Management, Backwashing and Servicing

The media blend filter unit will automatically backwash at pre-set times, to stir up and clean the filter bed then flush away to drain the unwanted particles which were removed from the ozonated water. Backwash normally takes place at night when there is no water demand.

Ozotech Ozone generators require minimal maintenance and draw very little power - less than 250 watts for a simple generator and air preparation unit. The downstream filter system will require regular but simple servicing every six months to keep it in peak condition. Your water treatment advisor can take care of this task.

Sizing

Ozone generators need to be individually sized for each application. They need to deal with all the water contaminants at the required flow rate. The amount of Ozone needed for this will depend on the contaminants in the water, their ratios to each other and the pH and Oxygen demand of the raw water. An approximate indication of the amount of Ozone needed can be found from the levels of Iron, Manganese and Hydrogen Sulphide in an analysis of the raw water.

The guidelines are 0.4 mg of Ozone required for every 1 mg of Iron, 1.0 mg Ozone per 1 mg Manganese and 3.0 mg per 1 mg of Hydrogen Sulphide. It is essential that sizing recommendations are made by water treatment professionals experienced with Ozone systems, who will also ensure that the backwashing filter is of the correct size and type.

OZ2BTU Ozone Generator on custom frame.
OZ4BTU Ozone Generator on custom frame above PP2450 Air Preparation Unit.
OZ4PC10 Ozone Generator on custom frame above PP Phoenix Air Preparation Unit.

Air Preparation

The amount of Ozone produced by a generator will depend on the dryness of the air feeding it and the concentration of Oxygen in the air. Dry air feed is essential to give a long life to the coronas. The Power Prep series air preparation units both dry and concentrate the Oxygen in the air feed to the Ozone generator.

Technical Details and Model numbers

Ozone Generator Model	Dimensions (mm)	Ozone Output with Phoenix Power Prep Grams per hour	Ozone Concentration with Phoenix Power Prep (%)	Ozone Output with Power Prep 2450 Grams per hour	Ozone Concentration with Power Prep 2450 (%)
OZ2PCS	180x460x115	0.4	0.20		
OZ4PC10	255x460x150	0.9	0.52		
OZ1BTU	560x750x205	2.1	1.1	3.8	1.1
OZ2BTU	560x750x205	3.1	1.6	5.3	1.7
OZ4BTU	600x915x260			10.1	2.7
OZ6BTU	765x915x260			16.3	1.0
Air Preparation Units					
PP Phoenix	480x270x230				
PP2450	370x560x410				

Special Product Features

- Environmentally Safe
- Economical to operate
- Low Maintenance
- Compact and simple to install
- Chemical free

The Right Product
...At the Right Price
...At the Right Time