177 Olympic Duel Road
Northlands Business Park
Northriding
2162
+2711 791 4403

Ozone Efficacy

Overview –

*"**Ozone (O3), a highly reactive gas** is composed of three oxygen atoms. **Ozone occurs naturally** through reactions **in the atmosphere**.*

***Ozone** is one of **nature's most powerful oxidizers**. Oxidizers break-down organic substances. **Ozone is classified as an "oxidant"** or a substance that converts organic material into their base compounds. **Oxidants can be used as a sanitizer and disinfection agent** or simply to break down organic substances. Other examples of oxidants are chlorine and fluorine.*

***Ozone can be used to convert airborne pollutants** such as ammonia, mercaptans, sulphides and other organic compounds **into inert, non-odorous by-products**. **Ozone can also oxidize pollutants** and organics **in water**.*
*Therefore **ozone is used successfully throughout the world** to minimise and/or eliminate odorous and polluting organic substances, **including volatile and semi-volatile organic compounds** in air and water.*

***Ozone, as a powerful oxidizer** (approximately **double the oxidizing power of chlorine**), it is a very effective disinfecting agent and will **kill viruses, bacteria, protozoa**, including moulds and yeasts. **Ozone is an extremely fast-acting** oxidant. After oxidizing the substance, **ozone converts back into oxygen;** the target substances having been broken-down into their base components.*

Ozone production and its application is a chemical process that is predictable and well understood by scientists and increasingly by health care worker, throughout the world."

Environmental Testing

Biozone Manufacturing has recently undertaken a series of Ozone based environmental efficacy tests making use of one of the most demanding pathogenic environments; the Buhle Healthcare Risk Waste Treatment Facility.

Such testing has been independently performed by **Geozone Environmental (Cert no. OH0036CI04)**, a Department of Labour approved inspection authority.
The complete Geozone Environmental report may be accessed at
https://ozonize.co.za/wp-content/uploads/2020/07/Biozone-Surface-Swab-Sampling-Report-HCRW.pdf

labour
Department:
Labour
REPUBLIC OF SOUTH AFRICA

National Department of Labour
Republic of South Africa

APPROVED INSPECTION AUTHORITY

Registered in accordance with the provisions of the Occupational Health and Safety Act, Act 85 of 1993, as amended.

This is to certify that:

GEOZONE ENVIRONMENTAL (PTY) LTD

has been approved by the Department of Labour as a Type A, Approved Inspection Authority: Occupational Health and Hygiene under the following regulations:

- Asbestos Regulations 8, 18 & 21.
- Hazardous Chemical Substances Regulations 6 & 12.
- Lead Regulations 7 & 14.
- Noise Induced Hearing Loss Regulation 7

CHIEF INSPECTOR

Valid from: **15 July 2018**
Expires: **14 July 2022**
Certificate Number: OH0036 – CI04

Excerpt from GEO:05048:BIOZONE_SURFACE_SWAB_SAMPLING_HCRW_BINS:JUNE2020 / pg10, 11/19

The complete Geozone Environmental report may be accessed at
https://ozonize.co.za/wp-content/uploads/2020/07/Biozone-Surface-Swab-Sampling-Report-HCRW.pdf

Location No		Sample Number	Sample collection date / time	Total Plate count ($Cfu/100cm^2$)	Coliform count ($Cfu/100cm^2$)	Staphylococcus count ($Cfu/100cm^2$)
1	Inner surface of bin lid	BOZ/006/20	26/6 @ 11:02 (Before)	Not detected	Not detected	Not detected
		BOZ/013/20	26/6 @ 11:50 (After)	Not detected	Not detected	Not detected
2	Right hand inner sidewall of bin	**BOZ/007/20**	**26/6 @ 11:05 (Before)**	**>300**	**4**	Not detected
		BOZ/014/20	**26/6 @ 11:51 (After)**	**Not detected**	**Not detected**	Not detected

GEO:05048:BIOZONE_SURFACE_SWAB_SAMPLING_HCRW_BINS:JUNE2020

Location 2: Right hand side inner sidewall of bin

(Before)

The sample obtained from this location before the ozone gas treatment yielded;

- A total plate count of >300 Cfu/100cm2 and
- A Coliform count of 4 Cfu/100cm2.
- *No results were yielded for Staphylococcus aureus – i.e. not detected on the sample.*

(After)

Following the ozone treatment, the collected sample yielded:

- No results for total plate count,
- No results for Coliforms
- *No results for Staphylococcus aureus – i.e. not detected on the sample.*

"Based on the results from Location 2, there was a Measurable reduction in Microbiological Contamination of the bin surface following the ozone gas treatment."

Reference:

GEO:05048:BIOZONE_SURFACE_SWAB_SAMPLING_HCRW_BINS:JUNE2020

----------END----------