

“ANNEXURE A”

TECHNICAL DETAILS

What is BlackHOLE TM

1.1 About BlackHOLE TM

- Unique and distinct garbage Decomposition/Destruction Equipment.
- Special air space filled with super-strong magnetic and hyperthermia (800-1200C).
- Dispose off the Garbage in a scientific way **without consuming power or fossil fuel**
- Decompose any type of waste without segregation.
- Ability to reduce the volume of disposed Garbage by a ratio of 1/350 to 1/400 time.
- Bi-Product is a small volume of Ceramic Ash of about just 1% of the input waste which can be taken to landfills (or) for improving Soil amendment and as a disinfectant.

1.2 Features & Highlight of BlackHOLE TM

- **PATENTED TECHNOLOGY.** System is patented in The United States and 151 other countries for Technology, Design and Process.
- **THD METHOD.** Operates on USA Trademarked Magnetically stimulated & Regulated Plasmic Temperature.
- **POPS TECHNOLOGY.** Functions on a Programmed Oxygenated Plasmic State(POPS) USA Trademarked Technology.
- **PROCESS AT PLASMA STATE.** After initial start-up fire, destruction starts slowly by splitting the molecules into atoms These atoms further ionized as electron, proton and neutron and this state is called as “Plasma State”
- **SMALL FOOTPRINT.** A small floor space depending on the system size sufficient to accommodate system anywhere close to source.
- **QUICK & FAST.** Decomposition of waste takes place at a faster rate in 3-4 hours period for single badge load.
- **SELF-SUSTAINING, NO FUEL, NO BURNING.** Doesn't needs the combustion process,
- Neither electricity nor fossil fuel for primary equipment used for closed chamber Destruction/Decomposition.
- **NO SEGREGATION.** Mixed Solid Waste (MSW) containing mixer of both dry and wet waste generated from households are suitable. Any waste material going to the Landfill can be fed into BlackHOLE TM **INCLUDING tires & Asbestos**
- **DECOMPOSITION AT SOURCE.** De-Centralized and Scientific method of Disposal, which avoids Costly logistics to transport the waste to landfills.
- **USER FRIENDLY** simple operation and easy to load, MSW garbage bags can be loaded
- **4-5 times** a day as such collected from households
- **NO POLLUTION, NO FLAMES, NO DIOXINS.** Does not produce any flames, any dioxins or any other poisonous gases are eliminated, even when plastics and PVC are processed .
- **MASSIVE VOLUME REDUCTION.** Reduces the output by 99% from the amount of the

- input waste loaded.
- **BY PRODUCT** - Small volume of normal Ash of about just 1% of the input waste which can be taken to landfills (or) for improving Soil amendment and as a disinfectant
 - **CAN'T DECOMPOSE** such inorganic substances such as glasses, sand, soil, ceramics.
 - **OPERATIONAL STANDARDS** are compatible to the norms and standards set by the Pollution Control Boards (PCB) of Karnataka,
 - **CERAMIC rich** refractory coating compound containing high percentage (63%) Ceramic applied over inner walls of chamber to protect from corrosion and erosion.
 - **ECO FRIENDLY** - A total ECO FRIENDLY and 100% Environment compliance product
 - **DIGITAL THERMOCOUPLE**: Since temperatures are expected to peak beyond 1000 degrees Centigrade, a digital thermocouple is in place to record temperatures in the inner chamber.
 - **Wet Water Based Sprinkler System**: Even though, the Dioxins, Difurans and Parabens are destroyed inside the machine itself, a Multi layered sprinkling system comes along with the equipment .
 - **Body Type**: The equipment can be made in Mild Steel or Stainless Steel with higher grade SS 304 which is anti rust and corrosion free.
 - **Supertal Heating Modules**: Prefabricated heating modules consisting of vacuum formed ceramic fiber is being used to enhance temperatures beyond 1750 Degrees Centigrade. This provides with the equipment to handle hospital waste as well.
 - **Digital Readers**: To notify inner chamber temperatures
 - **Automated System to remind reloading of waste as the inner chamber gets emptied.**

BlackHOLE™ is a revolutionary self-powered, Non-Combustion system which uses the POPS™ technology to reduce the volume of waste to 1/350-1/400 in 3-4 hrs without using any external power source and is 100% Emission-free.

Flue gas emitted from the heating chamber after the destruction by using this technology complies as per CPCB guidelines of Waste Incineration specification limit.

On the other hand, the chamber temperature is regenerated to dry the input waste by which it is increasing the volume of waste destruction.

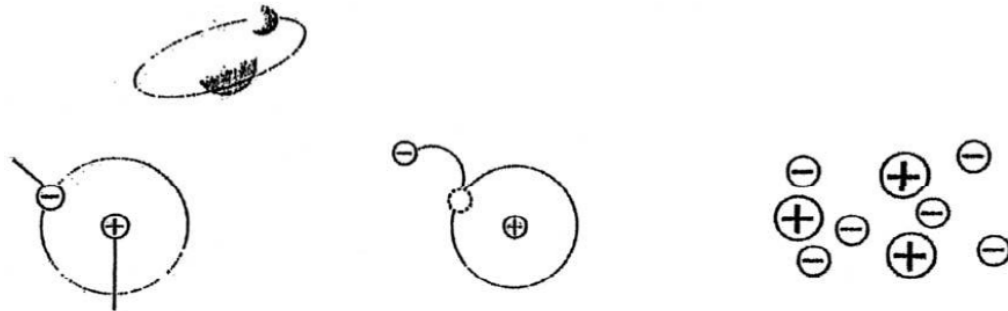
Technical Details

2.1 Theory of Plasma

Plasma (is an ionized gas, in which some electrons are removed from atoms and molecules and are free) is created by permanent magnets at high temperatures, 300–400°C. When a small amount of oxygen is absorbed into the plasma, highly reactive, negatively charged oxygen ions (Atoms and molecules that have lost electrons are positive ions (positively charged); electrons that have been removed are negative ions

(negatively charged) are formed. This oxygen (negative ions) is highly oxidative, thus decomposing dioxins and other harmful compounds by oxidation.

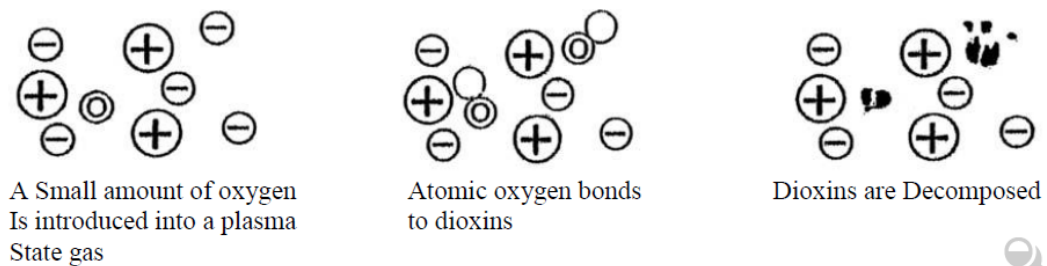
ELECTRON



ATOMIC NUCLEUS

IONIZATION: AS ELECTRON IS REMOVED

PLASMA: GAS IN AN IONIZED STATE



2.2 Working Principle

Works on US Trademarked POPS TM technology. The decomposition temperature is around 350 – 800 Degree Centigrade depending on the solid waste input. Do not require electric, other power or fuel for organic substances for decomposition

2.3 Solutions to Air Pollutions

It has been suggested that one of the causes of dioxins in an incinerator is the retention of oxygen due to imperfect combustion and low processing temperature (300–350°C).

Consequently, it became mandatory to process waste at high temperatures, at 800°C or higher, which requires installation of a secondary combustion system.

On the other hand, Decomposition system processes waste at low temperatures; however, the generation of dioxins is inhibited. Why...How?

The answer is because it hampers the bonding of two benzene rings with oxygen by minimizing the supply of oxygen.

The system also inhibits the benzene rings themselves from being produced by utilizing the effect of anions. ***This process destroys the Dioxins, Difurans and Parabens destroyed within the chamber making the BlackHOLE TM 100% EMISSION FREE***