Odor eliminate
Ionization by Non Thermal Plasma

Industrial odor Control

Deodorisation by the Ionization by Non Thermal Plasma is based on high speed oxidation . The oxidized molecules cannot be detected organoleptically , hence they do not bother the observer

The Ionization by Non Thermal Plasma system consists of a SS304 cabinet with Plasma Teactors. Ambient air is radiated and,as a result , the oxygen and water vapour molecules are dissociated.

This transition is the first step in a process where eventually an extremely reactive gas is formed comprising a mixture of instable oxygen atoms, ions,radicals etc., with elevated electron energy levels

This gas, often called ‘ active oxygen’ has the ability to execute a high speed oxidation process with the odor components after injection in the polluted air.

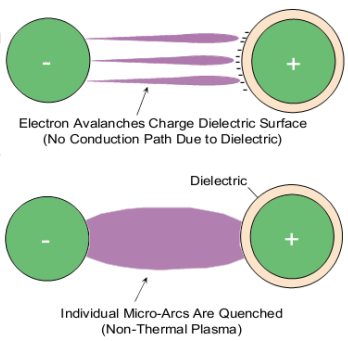
The odor molecules with lose the faculty of exciting man’s sense of smell.

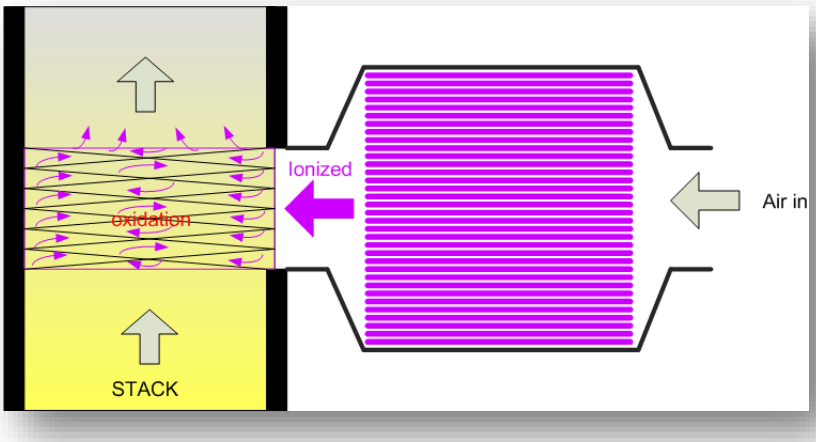
Benefit

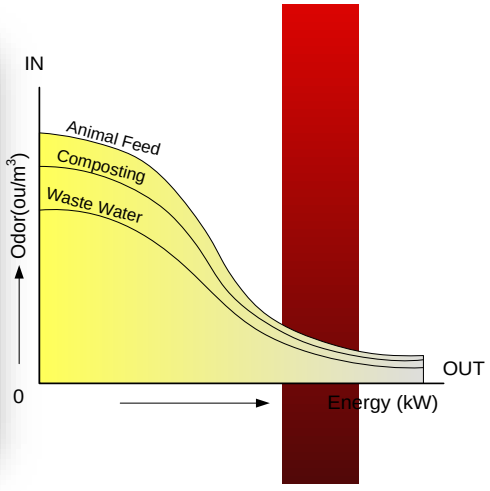
-High odor removal efficiency
-No mechanical wear
-No supply of chemicals ,biomaterial etc.
-No waste at all
-Low costs
-Compact
-No impact from process fluctuations like dust, temperature , humidity etc.
-No impact on the production process
-Almost no maintenance required
-Low energy consumption
-Simple operation (only on/off)
-Modular design

Ionization by Non Thermal Plasma

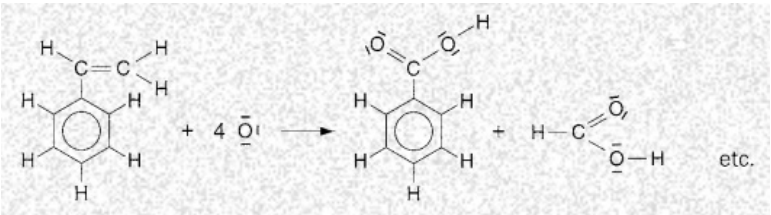
- Only electrons are ‘hot’.
- Gas can be passed through discharge resulting in treatment.
- Gas remains relatively cool, hence the common term of ‘cold plasma’. Similar to a neon sign.
- Active species for oxidation include N_2^+, O_2^+, N•, O•, •OH, $•O_2H$, and O_3.



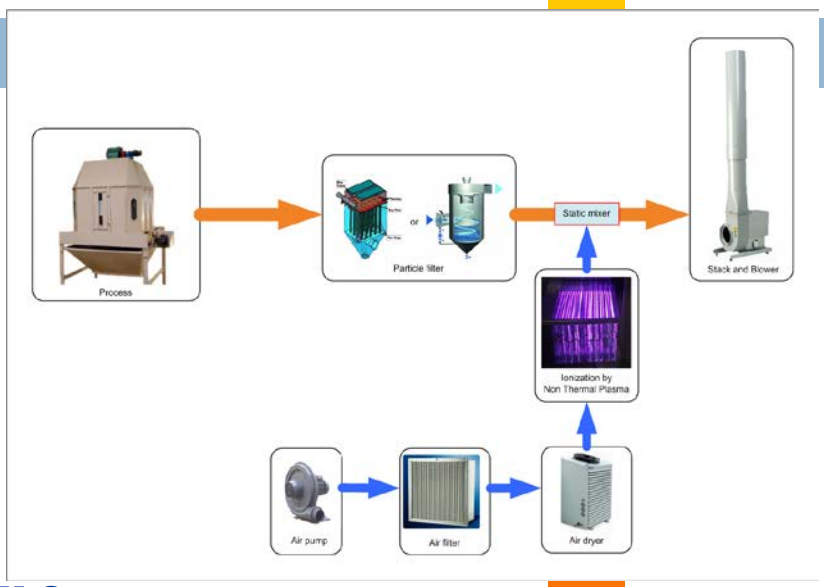




Oxidation



Diagram



Ionization by Non Thermal Plasma systems.

- Air pump
- Air filter
- Air dryer
- Ionization by non thermal plasma
- Static mixer

Environmental Impact

- Odors are converted to CO_2 and H_2O
- Ozone release is controlled to meet regulatory requirements by automated analyzer in feedback control for odor applications.
- No consumed materials
- No noticeable noise

Example operating Cost

- The Ionization by Non Thermal Plasma maximum load field for 20,000 cfm.
- Maximum power consumption uses ~ 15 kW.
  (15kW * BTH 3.7362 * 24 hrs * 365 days = BTH490,936.7)
- Power Supply : 3ϕ , 380 VAC, 50 Hz.

Model	Power Supply	Odor animal food
INTP24000	3ϕ , 380 VAC, 50 Hz. (17.5kW)	24,000 cfm
INTP20000	3ϕ , 380 VAC, 50 Hz. (15kW)	20,000 cfm
INTP16000	3ϕ , 380 VAC, 50 Hz. (12.5kW)	16,000 cfm
INTP13000	3ϕ , 380 VAC, 50 Hz. (10kW)	13,000 cfm
INTP8000	3ϕ , 380 VAC, 50 Hz. (6.5kW)	8,000 cfm
INTP6500	3ϕ , 380 VAC, 50 Hz. (5kW)	6,500 cfm