

**UV-DOX EnviroTek**

- Presents -

***Redefining  
Chemical, Germicidal & Odour  
Pollution Control***

- By -

**Dean Neitz and  
Reinhard Schuetz (P. Eng.)**





# *"Redefining Pollution Control"*

## ➤ **BIO (Dean Neitz)**

- 28 yrs - Petroleum Industry Technologist
- Engineering Consulting Co. CAD Manager
- Engineering Co. P/L Dept. Design Supervisor
- Implementation of Engineering Software/Computer Tools



# **"Redefining Pollution Control"**

## ➤ **BIO (Reinhard Schuetz, P.Eng.)**

- 45 yrs - Petroleum Industry engineering
- Partner - Consulting Engineering Company
- Director - Alberta Biodiesel Association
- Established Tank Fabrication Company
  - developed 2 Patents (Storage Tank & BTEX Condenser)
- Developed UV-DOX Reactor & Patent



# **"Redefining Pollution Control"**

## **UV-DOX REACTOR**

### **"Environmental Pollution Control Device"**

**effectively & simultaneously destroying**

**Harmful Organisms, Noxious Odours**

**and Fugitive Toxic Chemicals**

**Suitable for**

**Residential, Commercial, Industrial & Agricultural Installations**

**[NOT a Filter • NOT an Absorbent]**



# *"Redefining Pollution Control"*

## ➤ **BASIC REACTOR DESIGN FEATURES**

- Configuration: Allows 'unrestricted' internal fluid flow
- UVC Lamp: Constant close proximity to fluid & TiO<sub>2</sub> coating
- Baffles: Provide '6x greater' TiO<sub>2</sub> coating area contact and '8x longer' fluid exposure to UVC & TiO<sub>2</sub>
- TiO<sub>2</sub>: Creates 'powerful' UVC generated Hydroxyl Radicals



# *"Redefining Pollution Control"*

## ➤ **UV-DOX REACTOR BENEFITS**

- 'Simultaneously' combats:
  - Harmful Organisms (eg: Bacteria, Viruses, Mold)
  - Toxic Chemicals (eg: Benzene, Ammonia, H<sub>2</sub>S)
  - Noxious Odours (eg: Sewer Systems, Nitrous Oxides)
- No 'harmful' by-product emissions
- Mitigates detrimental Health & Environmental issues



# "Redefining Pollution Control"

## ➤ CRITICAL HEALTH POLLUTANTS

- **Benzene (C<sub>6</sub>H<sub>6</sub>)**
  - Headaches; Respiratory Issues; Tremors; Leukemia; **Death**
- **Nitrogen Oxides (NO<sub>x</sub>)**
  - Smog; Respiratory Issues; Reduced Immunity; Edema; **Death**
- **Ammonia (NH<sub>3</sub>)**
  - Corrosive; Poisonous; Lung Damage; Seizures; Blindness; **Death**
- **Hydrogen Sulfide (H<sub>2</sub>S)**
  - Dizziness; Nausea; Respiratory Issues; Convulsions; Coma; **Death**
- **Formaldehyde (CH<sub>2</sub>O)**
  - Digestive Disorder; Respiratory Issues; Birth Defects; **Carcinogen**





# "Redefining Pollution Control"



## REFINING AIR QUALITY

### POLLUTION - DESTRUCTION EFFICIENCY

SULFUR DIOXIDE (SO<sub>2</sub>)

99.9%

HYDROGEN SULFIDE (H<sub>2</sub>S)

98.5%

B.T.E.X.

96.7%

AMMONIA (NH<sub>3</sub>)

99.5%

BENZENE (C<sub>6</sub>H<sub>6</sub>)

97.9%

NITROGEN OXIDES (NO<sub>x</sub>)

96.4%

### HARMFUL - CONTAMINANT DESTRUCTION

TOXIC

MOLDS

DEADLY

VIRUSES

DANGEROUS

PARASITES

CARCINOGENIC

FUNGI

CONTAGIOUS

BACTERIA

NOXIOUS

ODOURS

UV-DOX

# **"Redefining Pollution Control"**

## ➤ **POLLUTION ISSUES**

- **'UNAVOIDABLE'** (eg: Natural Climate Changes)  
Volcanos; Forest Fires; Oceans; Decaying Plants; Animal Waste
- **'CONTROLLABLE'** (eg: Manmade Contamination)
  - \* **Hazardous Organisms:**  
Confined Spaces (Buildings; Animal Shelters; Travel Modes)
  - \* **Toxic Emissions:**  
Venting; Commercial; Industrial; Incomplete Combustion

**PROBLEM** - Regulations Address Mainly Large Scale Pollutions



# **"Redefining Pollution Control"**

## ➤ **POTENTIAL REACTOR USES**

### ▪ **Harmful Substance Venting**

- Storage Tanks, Pneumatic Instruments, Dry Cleaners, Beauty Parlors, Gas Stoves/Furnaces, etc.

### ▪ **Toxic Chemical Emissions**

- Petro-Chemical Facilities, Paint Shops, Sewer Systems, Equipment Leakages, Déhydrators, Soil Remediation, etc.

### ▪ **Confined Space Air Purification**

- Hospitals, Offices, Homes, Animal Shelters, Gymnasiums, Schools, Airlines, Cruise Ships, Hotels, Senior Care Centres, Greenhouses, Grow-ops, Public Washrooms, Shopping Malls, Convention Centres, Medical Waiting Rooms, etc.



# "Redefining Pollution Control"

## ➤ EMISSION STATISTICS

- N. America: ~4M registered storage tanks and about 500K Service Station tanks – emitting toxic substances
- Estimated liquid equivalent for Carcinogenic Benzene laden Gasoline evaporation (at Service Stations):  
*[Statistics Canada and Columbia University Data]*  
**3M L/Day = 1B L/Year**  
**790K USG/Day = 265M USG/Year**
- Canada (2015): ~250 MMT total CO<sub>2</sub>e GHG emissions
- USA (2016 EPA): ~3BMT total CO<sub>2</sub>e GHG emission



# "Redefining Pollution Control"

## ➤ AVERAGE DAILY CONSUMPTION/PERSON

Food: 1kg (fresh) - Water: 2kg (pure) - Air: 20kg (clean?)

## ➤ AIR POLLUTION EFFECT

Reported estimated annual premature deaths (due to 'ambient' and 'household' air contamination alone):

- **Canada: ~8,000** (Inst. of Sustainable Devel., 2015)
- **USA: ~200,000** (MIT, 2013)
- **Globally: ~7 Million** (WHO, 2016)



# **"Redefining Pollution Control"**

## **UV-DOX REACTOR**

**Affordable & Compact**

**Environmental Protection Device**

**"REDEFINING POLLUTION CONTROL"**

**by effectively & simultaneously destroying**

**Harmful Organisms, Noxious Odours**

**and Fugitive Toxic Chemicals**

**[Pollution Dilution is NOT a Pollution Solution]**



# *"Redefining Pollution Control"*



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