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Odor control made easy....

# Peacemaker™

OXIDIZING  
DRY-AIR SCRUBBERS

## AN ADVANCEMENT IN ODOR CONTROL TECHNOLOGY

PEACEMAKER™ Scrubbers provide a two stage chemistry for the control of odors from hydrogen sulfide (H<sub>2</sub>S), mercaptans, ammonia, amines and other odors generated in wastewater collection and treatment systems. They are easy to use, effective and economic.

- Lift Stations
- Headworks
- Grit Rooms
- Sludge Processing

In what follows, when we say “odor” we mostly mean H<sub>2</sub>S. We know there are other reduced-sulfur and nitrogen-based compounds involved and we have planned for them, but H<sub>2</sub>S is the main culprit and is most important in discussion and design.



## OUR DESIGN PRINCIPLE... SIMPLICITY

**“The Best Solution Should be the Simplest, but Not Simpler.”** – Albert Einstein

Often it is the simplest solution that works the best. Complexity is the enemy of effective, long-term odor control. Too much fussing, too many bells and whistles spell trouble.

PEACEMAKER™ scrubbers are fixed-bed systems, containing two layers of media. There is one moving part, a blower. There are no chemicals to add and there is no maintenance to do for the service life of the scrubber. When your PEACEMAKER™ does need attention, the entire scrubber is replaced or the media is replaced, depending upon the size of the scrubber and whether you choose to lease or buy (more on this later).

But no matter how simple and easy, odor control solutions must be effective to be worthwhile.

## PEACEMAKER™ SCRUBBERS GET THE JOB DONE

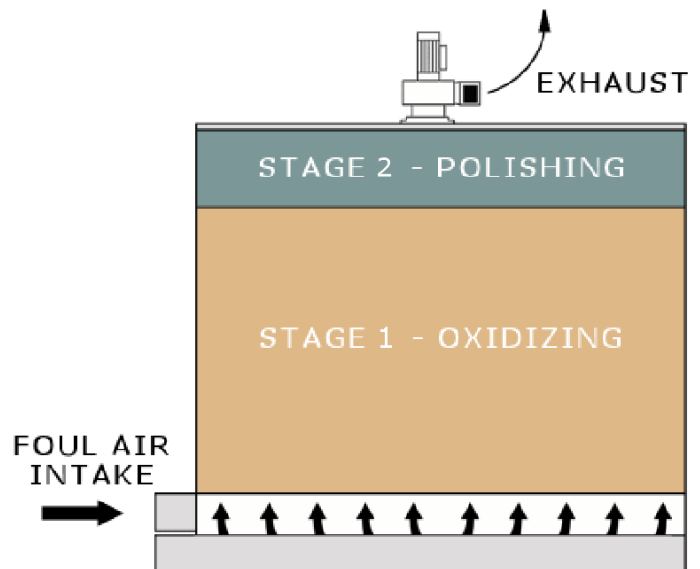
### STAGE ONE - A Chlorine Dioxide Layer

This layer releases chlorine dioxide ( $\text{ClO}_2$ ) when contacted by  $\text{H}_2\text{S}$  molecules. Reactions are instantaneous, and produce inorganic sulfate. Simply stated, salt drops out. Chlorine dioxide is an extremely powerful oxidizing agent. Because it reacts selectively and primarily only with the most offensive odor-producing compounds, it will remain intact longer than chlorine, sodium hypochlorite, peroxide and potassium permanganate. Since unwanted reactions do not occur, power is not wasted and service life is extended.

### STAGE TWO - A Polishing Layer

This layer uses Countervailant® technology.

Malodorous molecules contain one or more chemically reactive groups called osmophores. Polishing reactions with these groups are varied, but are most commonly electrostatic and/or polymeric. The worst odors have the strongest negative charges, which are drawn to the positive charges of the Countervailant® chemistry. The union either facilitates a chemical reaction or creates a large molecule of low vapor pressure. A homo-polymer lattice forms around reacted or absorbed molecules and osmophoric activity ceases.



## CORROSION CONTROL

### IT ISN'T ALWAYS JUST ABOUT ODOR.

Corrosion control is a substantial secondary benefit, and in some cases it is primary.  $\text{H}_2\text{S}$  accumulates in enclosed spaces. Turbulence releases it to atmosphere, but Henry's Law is in play, too. It is not unusual to find several hundred ppm of  $\text{H}_2\text{S}$  in enclosed spaces. It eventually forms sulfuric acid, a highly corrosive compound.

In most cases,  $\text{H}_2\text{S}$  cannot simply be exhausted into a neighborhood. But when it is continuously drawn off and scrubbed, corrosion commonly reduces by ninety percent or more, and complaints stay in check. This can save big money on repairs.

### THERE ARE TWO ESSENTIAL QUESTIONS TO BE ANSWERED.

#### How much airflow is required?

Benefits accrue from moving only enough air to maintain a slight negative pressure. This will prevent fugitive malodors and provide the best economics. Higher-than-necessary airflow increases static pressure through the media bed and reduces residence time. A larger scrubber may be needed and cost would increase.

To calculate optimum airflow we must determine the potential for air displacement (e.g. gpm pumped into a wet well). Of course, if there is an air exchange requirement for confined space entry or a need for higher airflow for any other reasons, it can be accommodated.



#### How much H<sub>2</sub>S is in that air?

This can be a difficult question to answer. It can be influenced by time of day, time of year, residence time, measuring techniques and numerous additional factors. Truth is it is hard to escape applying some judgment in making this determination. Experience helps, of course, but PEACEMAKER™ systems have built-in flexibility and scalability, which helps, too. Ultimately, the formula is simple: cfm airflow x ppm H<sub>2</sub>S in the airflow = required oxidation capacity.

This is an important process, and we need to work together. We start with a review of Form No. 550-A, “Information Required for Sizing PEACEMAKER™ Oxidizing Scrubbers”.

#### AVAILABLE SIZES

When we have determined needed oxidation capacity, we simply match need to the right vessel size and add the right blower to provide desired airflow at the existing static pressure.

Small Scrubber Models range in diameter from 17 to 55 inches, in media capacity from 3 to 60 cubic feet and in airflow capacity from 40 to 900 cfm. They are generally leased and exchanged for “new” at the end of a planned service life.

Large Scrubber Models are available in diameters of 5, 6, 8 and 10 feet, in media capacity from 70 to 385 cubic feet and in airflow capacity from 1,000 to 9,400 cfm. Large scrubbers are generally purchased and media is changed-out on a predetermined schedule, or when it is spent. Syneco Systems provides spent media disposal service at no charge when it is returned to us freight-paid. Custom Scrubbers are supplied when none of the above fits the need.

## LEASE OR BUY? YOUR CHOICE!

### **Lease**

The length of “term” for most PEACEMAKER™ leases is one or two years. At the end of term, we provide a new scrubber, if you wish, and you return the old one to us, freight collect. If conditions change from one term to the next, we can change the new scrubber to match the new conditions. You’ll never get stuck with out-grown and useless equipment. And, our lease agreement is like our scrubbers – simple and straightforward.

### **Buy**

If your PEACEMAKER™ needs to come from a capital budget, this is obviously the way to go. It will still be a great value. Lease or buy, labor and maintenance costs will be minimal. There just isn’t much to do once the scrubber is up and running besides enjoying the nice clean air and the very quiet phone.

## SUPPLEMENTARY INFORMATION

### **FORM NO.**

- 550A -- Information Required for Sizing PEACEMAKER™ Scrubbers
- 550C -- PEACEMAKER™ Standard Blower Specifications Summary
- 550E -- PEACEMAKER™ Small Scrubber Standard Models Specifications
- 550F -- PEACEMAKER™ Large Scrubber Standard Models Specifications
- 553A -- Installation and Operation Models 300 & 900
- 553B -- Installation and Operation Models 450 - 6000
- 553C -- Installation and Operation Large Scrubber Models

The same media technology is used in other devices for odor control:

### **FORM NO.**

- 576 -- PEACEMAKER™ Vent Stack Filters

### **Limited Warranty:**

Our only obligation shall be to replace or pay for any material proved defective. Beyond the purchase price of materials supplied by us, we assume no liability for damages of any kind and the user accepts the product "as is" and without warranties, expressed or implied. The suitability of the product for an intended use shall be solely up to the user.