

# THE AIR SPONGE

*Instructional Bulletin #22891*

## NON-CONTAMINATING ODOR/FUME CONTROL

Hospital Grade - Sorbent Enhanced

**CONSIDER THIS FACT:** Today many of America's leading "Deodorants" or "Odor Neutralants", especially those used in institutional, commercial and industrial odor control. ARE POLLUTANTS IN THEMSELVES!

**OZONE:** (which is a highly toxic and irritating chemical) is used by many Fire Restoration Firms as a primary deodorant.

**FORMALDEHYDE:** (which is a lachrymator and de-sensitizer) is used in many liquid and aerosol "deodorants."

**ACETALDEHYDE:** (which is a local irritant and CNS narcotic) is used as a "green leaf" fragrance and deodorant booster.

ALSO...

Many leading Odor Neutralizers and Deodorants are sprayed as a mist or as an aerosol into air systems servicing many critical areas, especially areas where people work. If these "Deodorants" contain solids (such as chlorophyll, oils or salts) they enter the air system where they float through the air, they dry out and can become particulate contaminants themselves. It doesn't matter if the result smells pleasant or fragrant, the damage has been done. The ambient is now polluted.

Particulate contamination is represented by mists, smoke, bacteria, soot, grit, or any minute substance that can be suspended and carried in the air. If a deodorant aerosol is sprayed into the air, and if the diluter used in its composition is an odorless hydrocarbon which itself is capable of complete evaporation, the fine "mist" or "drops" exist as free airborne oil particles. The resultant smell or fragrance simply masks the secondary contamination caused by the aerosol, which is now unseen and undetectable by our senses, but nevertheless there. If the level of particulates in the ambient air had been measured by an electronic particle counter before using the aerosol deodorant, a measurement after use would disclose a significant increase in the overall presence of particulates.

ANY SPRAYED OR AEROSOLIZED LIQUID PRODUCES PARTICULATE AIR CONTAMINATES.  
THESE CONTAMINATES MAY EXIST FOR SHORT OR LONG PERIODS OF TIME WITHIN A  
BUILDING'S AIR HANDLING SYSTEM.

THE AIR SPONGE was developed to eliminate primary and secondary air contamination or pollution where deodorant action is desired.

**APPEARANCE:**

The product is a solid, paste-gel, blue in color with a characteristic odor similar to alcohol. Dots of black Activated Charcoal appear as impregnated in the gel. These particles are added to speed odor and fume attraction and increase particle absorption and loading capacity.

**CHEMICAL PROPERTIES:**

**THE AIR SPONGE** is a water diluting, neutral, paste-gel consisting of stearate modified high molecular weight poly- (ethylene oxide) resins (polyesters): detergents (emulsifiers): hygroscopic (water attracting) agents: polyvinylpyrrolidone (detoxifying agent) and aromatics to impart threshold-controlled fragrance to recirculated air. Activated Charcoal is the special attractant in HOSPITAL GRADE of the product.

**TYPICAL ODOR LOAD vs. PRODUCT LOAD:**

<b>General Occupancy Mal-Odors:</b>	1/2 to 1 pound for each 1 Ton, HP, or 350 CFM of conditioned air.
<b>Smoke Odor: (after fire or puff-back)</b>	1-1/2 to 2-1/2 pounds Product for each 1 Ton, HP or 350 CFM of air.
<b>Sulfide Odors:</b> (below hazardous concentrations)	1/2 to 1 pounds Product for each 1 Ton, HP or 300 CFM of air.
<b>Mercaptan Odor:</b> (near threshold concentrations)	1-2 pounds Product for each 1 Ton, HP or 355 CFM of air.
<b>Decay Odors:</b> (Garbage, meat, milk cheese, etc.)	1-2 pounds Product for each Ton, HP or 350 CFM of air.
<b>Tobacco Smoke Odors:</b>	1 pound of Product for each Ton, HP, or 350 CFM of air.
<b>Kitchen &amp; Dining Areas:</b>	1 pound of Product for each Ton, HP, or 350 CFM of air.
<b>Hospital/Nursing Home Maintenance:</b> (after establishment of clean air ambient)	1/2 to 1 pound Product for each 1 Ton, HP or 350 CFM or clean air.

**LOAD CONVERSION SCALE:** One (1) Ton Conditioned Air = 400 CFM - 1 HP = approximately 400 square feet of floor area.

The Product is calibrated to lose or gain moisture according to each hot or cold Air System application, and after the initial load surge on the Product, it shrinks at a regular rate. THEREFORE THE LIFE ON EACH AIR SPONGE IS A FUNCTION OF THE INITIAL AND CONTINUING CONTAMINANT LOAD ON THE PRODUCT'S SURFACE.

Exposed product may be cut up (segmented) to expose additional surface area and increase the surface absorption, air cleaning capability and loading factor in heavy odor or particulate situations.

### HOW THE AIR SPONGE WORKS:

Being of a solid paste-gel consistency (containing activated charcoal) and a continuous "wet" surface with available volatile, the **AIR SPONGE** functions on the surface level similar to a "fly paper" (absorbing) media. Off the surface, by means of its volatile content it is closely analogous to the modern PAC-MAN character—the Product "eats" particulate and gasses as it volatilizes itself.

One way to illustrate the Product's action is to take a pea size bit of **THE AIR SPONGE** and work it very rapidly up and down between the thumb and forefinger. You will see fine "hairs" develop and puff off into the air. This illustrates the base material's ability to produce hundreds of thousands of these "cobwebs" as air moves on its surface and creates a "friction" thereon. The "cobwebs" then trap gaseous and odorant particles attracted to the Product's surface where they are neutralized by physical and/or chemical action. In effect then, it works almost like a filter or an air scrubber in as much as it scrubs unclean air by impingement, entrapment and removal of pollutants.

### USE AND TEMPERATURE CONSIDERATIONS:

**THE AIR SPONGE** being a paste-gel when fresh (before used) has a relatively LOW melt point (100 degrees F.), however the melt point increases as a direct function of its exposure to air (opened use). After a few days of continuous exposure to air in a system or a room area, the melt point is above 200 degrees F. After a week of use, the melt point is about the equivalent of a bar of soap.

Because unopened fresh Product can melt at elevated temperatures, it should be stored in a cool area (70 - 80 degrees F.), and opened units for use in an Air Handling System should be installed in the cool sides of both hot and cold producing equipment, i.e. the return and not the supply sides of the systems. In winter, during the heating season, the Product should be placed in plenum chambers or in ducts before (in front of) heating elements, where the air is still cool.

If used in exposed room areas, keep away from direct sunlight, or hot air diffusers, at least for a week, until the melt point becomes higher.

By applying a proper load of **THE AIR SPONGE** to a room area or duct system serving an area laden with typical odors as enumerated above, all such gaseous and particulate pollution will be removed not only from the ambient air, but from all soft goods in the affected area which have absorbed the pollutants. Again the removal process is a function of the density and severity of the pollutants. Usually, in the worst of circumstances, e.g. post fire spots and smoke odor, **THE AIR SPONGE** will clean up the area in 12 to 24 hours. It will even "pull out" smoke odors trapped in walls and insulation through in a somewhat longer period of time.

**THE AIR SPONGE** has most recently been used to help make the bombed out World Trade Center Tower in New York habitable and fit for occupancy.

## PRODUCT EXPOSURE IN AIR SYSTEMS:

While the ideal method to apply this product would be complete impregnation of all filters in an air handling system so that all recirculating air is treated, this is impossible due to the gel-like texture of **THE AIR SPONGE**. However, appropriately configured and properly load-sized product can be used inside the air handling system themselves by placing the opened Product container into ducts, returns, plenum chambers or in static air spaces, i.e. room areas in accordance with the above Load/Sizing Chart.

If the product is used inside a particular Air Handling System, it is simply sized as in the above chart and placed in the system's plenum chamber or in the ducts themselves and then left there to do its job. There is no specific requirements to remove the product at any time. It will keep working continuously to control the impingement of new odors and contaminants, e.g. those generated during home or office construction, restoration, or redecorating, such as odors and VOC. (Volatile Organic Compounds) omission from paint, cleaning solvents, detergents and soaps, as well as wall paneling, new furniture, drapes, carpets, etc., until used up. Periodic visual checks are recommended to determine remaining useful life.

Outside an Air Handling System, e.g. room areas, there is still sufficient ambient motion to pass mal-odored or stale air over the Product surface, thus treating at least 75% of area recirculated air, enough to give the required comfort and contaminant protected zone for human occupancy. The ideal situation would be to have the Air Systems totally cleaned and then apply **THE AIR SPONGE** in the system or individual room areas served by the system.

If unopened Product has accidentally become exposed to high temperatures and has softened or melted, this Product is not harmed, since it is Freeze/Thaw stable. Simply move the Product to a cooler area and allow to reset until firm. It is then ready to use.

Product in use can be recapped if it has done its job, and restored for later use, since it will still retain its odor removing capacity.