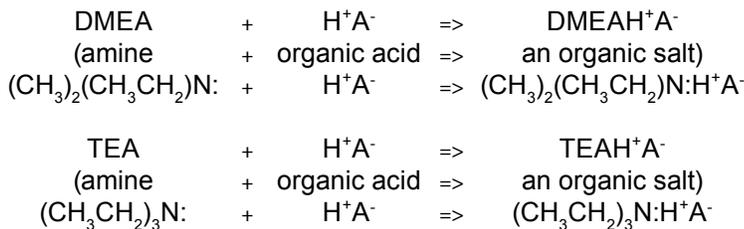


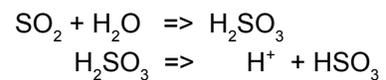
It's a fact of life that every refinery and tank farm in the world has to contend with tank cleaning and that means many days of difficult, messy work. It also means that prior to cleaning, the tanks usually need to be vented to the atmosphere in order to reduce the gas content to a level below the lower explosion limit (LEL) and permit safe worker access. And that means odors; sulfides, mercaptans, gasoline, MTBE, and others. And with those odors come the barrage of angry phone calls from nearby residents, bad press, and even government fines.

Now, there's an odor control system that can single handedly silence neighbor complaints about odors. It's not expensive or elaborate, but it is extremely effective in breaking down and eliminating the many odorous gases produced during tank venting. Ecosorb® system are not odor specific, but act to neutralize a broad spectrum of organic and inorganic odor causing substances. Within the tank cleaning industry, Ecosorb® has been proven effective on Naptha, diesel, MTBE, crude oil, amines, phenols, formaldehyde, ammonia, and sulfur dioxide.



Two amines found in tank cleaning are triethylamine (TEA) and dimethylamine (DMEA). When combined with the non-toxic, organic acids of Ecosorb®, these amines form organic salts.

Sulfur dioxide can be air oxidized to form free sulfides which are easily removed. Ecosorb® has also been proven to drastically reduce amine type odors to acceptable air quality standards in independent laboratory tests.



AN EFFECTIVE, NATURAL SOLUTION

Ecosorb® is non-toxic, biodegradable and safe to use because of a unique blend of natural essential oils and food grade emulsifiers. Ecosorb® contains only ingredients that are listed in the Toxic Substances Control Act (TSCA) inventory and is approved for use by the United States Department of Agriculture (USDA). It has also been successfully tested to meet United States EPA standards. Ecosorb® creates a neutral atmosphere where malodors have been removed but no replacement odor has been added.

EQUIPMENT

Whenever possible, your Ecosorb® representative will use existing hardware to apply Ecosorb®. Tank venting with a “Coppus” fan is normally done prior to tank cleaning and Ecosorb® can easily be injected into the direct-air line of the Coppus fan using a low volume chemical injection pump.

Once the Ecosorb® system is working effectively, there is very little that needs to be done. Most systems operate on an “as needed” basis whereby the system is turned on when the odor reaches a certain perceived level or it may be started up when air movements cause the odor to travel to urban areas or neighbors.



PACKAGING

Ecosorb® is available in 5 gallons pails, 55 gallon drums, totes, and tanker loads. Your Ecosorb® representative will be able to help you determine the most economical size for your application.

CASE STUDY #1

A Louisiana tank farm containing several 500,000 bbl storage tanks would clean an average of two tanks per year. Venting to lower LEL would take 3 to 6 days with crude oil odors blowing over homes in a nearby community. This caused up to 30 complaints per day to be filed by nearby residents, which resulted in major fines for the company. Odor Management was called and the representative introduced Ecosorb directly into the air line driving the Coppus fan during the venting period. The result – ZERO odor complaints.

CASE STUDY #2

A Missouri refining complex with spent caustic tanks containing traces of Naptha and diesel would schedule tank cleaning annually. Venting to lower the LEL could sometimes be delayed for as long as 10 days depending on the direction of the wind and the number of complaints coming from a nearby community. Odor Management was contacted and Ecosorb was introduced directly into the air line driving the Coppus fan. Odor complaints from neighbors ceased completely and total project time was cut to three days.

PHYSICAL DATA

ECOSORB® 606	
Boiling Point (°F) => 212°F	Percent Volatile by Volume => <0.5
Vapor Pressure (mm Hg) => .10 psis @ 100°F	pH => 6.0
Vapor Density (Air=1) => approx same as water	Evaporation Rate (Butyl Acetate=1) => 8
Soluble in Water => yes	Appearance => Milky/opaque white
Specific Gravity (Water=1) => 1.0 - 1.08	