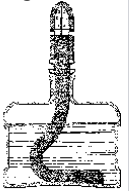


Lamp Aire



HOW DOES IT WORK?

In the 1800's, modern antimicrobial agents were unknown. In the 1820's, two European chemists discovered the concept of oxidizing alcohols, using a precious metal catalytic device. During this time period, hospitals began using catalytic diffusers to reduce problems related to infections. Today, we know that what was actually happening was these diffusers used catalytic alcohol combustion to remove and inactivate particles in the air. The removal or inactivation of these infectious agents from the air helped save lives, and the use of these diffusion systems grew rapidly. As a result, many companies began making these types of products.



Appareil au brevet déposé en juin 1826 par M. Berge

While this technology remained in use primarily in Europe, World War II put virtually every company that produced these types of products out of business because of the scarcity of supplies. While companies went out of business, the technology to remove particles and unwanted chemicals from the air remained valid.

Using modern analytical techniques, today we better understand how catalytic diffusion lamps work. In the case of the patent pending Lamp Aire lamp, the catalytic burner diffusion lamp acts in a three prong manner. First, the Lamp Aire diffuser evaporates therapeutic essential oils directly into the air. These essential oils have various effects, depending on which fuel is used. The effects are directly related to the response of the user in the presence of the lamp. Secondly, the Lamp Aire diffuser undergoes the same catalytic combustion as the earlier lamps. This catalytic reaction results in the formation of free radicals which can interact with oxygen in the air, effecting the potential formation of ozone. Both organic and inorganic substances may be oxidized by ozone, including microorganisms such as mold, virii, fungi and bacteria. Ozone has actually been used to purify waste water to make it safe to drink. The binding of the free radical moiety from the ozone with these materials results in pure oxygen being left behind after the interaction. Finally, alcohol is diffused into the air as the Lamp Aire diffuser operates. This alcohol can also interact with particles in the air, resulting in absorption and inactivation of the particle by the alcohol.

Instead of a flame, Lamp Aire uses a form of catalytic combustion. The flame is used to initiate the catalytic process by heating the stone to 150°C (flame is extinguished after approximately 2 minutes).

The alcohol from the reservoir is oxidised by the hot ceramic in the presence of air, generating heat and allowing the cycle to continue. This is known as "heterogenous" catalytic oxidation. As the catalytic combustion goes on, molecules that destroy odors and bacteria are released into the air, while also dispersing the fragrance of the essential oils. Essential oil fragrance is not combusted, but simply released into the air from the hot surface of the stone.

The following study results show that catalytic lamps continue to remove bacteria from the air long after the lamp is extinguished.

Lyon University (France) Study: Diffuser operated for 30 minutes

Time after diffuser ceased operating:	Bacterial reduction(%)	
	Experiment 1	Experiment 2
1 hour	83%	91.4%
2 hours	83%	91.4%
3 hours	76%	89.5%
30 hours	42%	85%

A second Study by Agro Hall (Independent testing agency) showed a 48 to 69% reduction in micro-organism in a large room.

Protocol: A diffuser was burnt for 45 minutes, in a 93 cubic meter room. Aerobiocollector was used before and after to determine bacterial count in multiple locations.

Lamp Aire offers superior fragrance delivery compared to conventional, scented candles and fragrance dispersal units.



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