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Cleaning Instructions for Fouled Packing

Aeration tower or scrubber packing, if properly maintained, will last for many years. It is particularly important to control the buildup of mineral scale and/or biological growth on the packing surface. The tendency of the packing to foul will depend on the pH and mineral content of the water, the amount of organic compounds present, and on climatic conditions.

The pressure drop across the packed section should be checked weekly. Fouling of the packing will cause a gradual increase in resistance to air flow. Whenever ΔP creeps up to twice its initial value, it's time to shut down and clean the packing. If this is not done, then scale or slime may accumulate to the point where column performance is impaired by channeling (uneven flow through the media) or by reduced air throughput. If the packing becomes severely encrusted, it may no longer be possible to clean it in place, or even to remove it from the tower without damage. But when ΔP has increased by 100% or less, the deposits are usually not excessive, and a brief shutdown for cleaning can restore the packing to its original condition.

Mineral scale, caused by precipitation of iron and manganese oxides or calcium and magnesium carbonates from hard water, can be removed by washing with muriatic acid (hydrochloric acid). Nitric acid or citric acid can also be used. Algae growth can be removed by washing with caustic solutions of bleach (sodium hypochlorite) or hydrogen peroxide. Sometimes fouling deposits include both inorganic and organic matter. When in doubt, a simple lab test with a few pieces of fouled packing can identify the most effective cleaning agent.

To dissolve mineral scale without removing the packing from the tower, drain the sump and fill it with dilute (~3%) acid. With the fan turned off, circulate the acid over the packing, and check the pH of the solution once an hour. If the pH rises above 4, then the acid has been exhausted. If that happens, drain the sump, refill it with fresh acid, and repeat the procedure. If the pH remains below 4 after 3 hours, then the packing should be fairly clean. Drain the sump, neutralize and dispose of the spent acid, and rinse the packing with fresh water. The tower can then be put back into operation.

Bleach or alkaline peroxide can be used similarly to dislodge biological growth.

In cold climates, it is sometimes possible to dislodge biological growth from the packing by simply turning off the water flow long enough to allow wet deposits to freeze, and then washing them off with water. In hot weather, drying the packing will sometimes turn tenacious slime into a brittle solid that flakes off easily. A quick test will indicate whether one of these shortcuts might work for your tower.

Some operators prefer to remove packing from the tower and clean it mechanically using high-pressure water hoses, or by agitation in a cement mixer or other moving chamber. While these procedures avoid the use of cleaning chemicals, they require much more labor and down time, and are more likely to damage the packing.

A number of service companies perform this work on a contract basis. Contact Lantec Products to find one in your area.

Lantec Products, Inc. 5302 Derry Ave., Suite G Agoura Hills, CA 91301 818-707-2285 (fax) 707-9367 engineering@lantecp.com