

Get Ready for the Hot Season: How to prepare your evaporative cooling system

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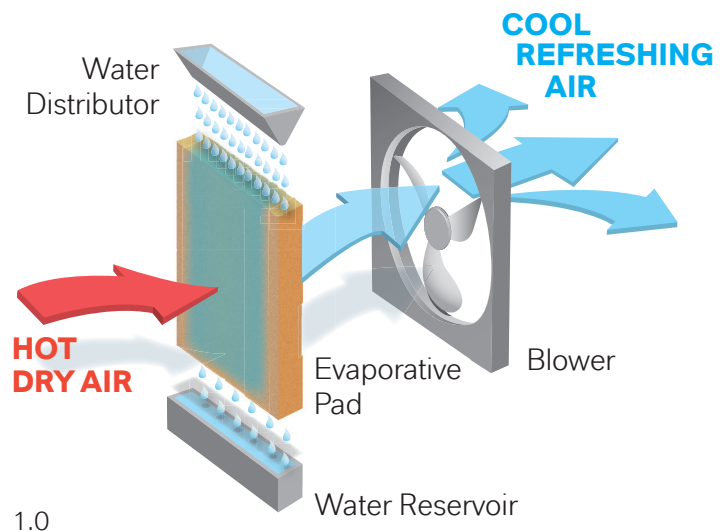
In modern swine production, maintaining an optimal environment is essential for the health, welfare, and performance of the animals. A key component in a swine barn for climate control is the evaporative cooling system, particularly the cool cell pads. These pads play a critical role in regulating the barn's temperature by allowing water to evaporate and cool the incoming air.

The hottest part of the year presents many challenges for growers, especially those managing larger animals. An evaporative cooling system functions like air conditioning for the barn. When temperatures rise, its importance cannot be overstated. This is the time to check your evaporative cooling system to ensure it is ready to keep your pigs comfortable and safe throughout the spring and summer months.

How does the evaporative cooling system work?

By pumping water from a reservoir tank to a feed pipe situated across the top of a corrugated cool cell pad, the water flows slowly downward wetting the entire pad as a large fan, situated on the inside, draws air through it and into the building, see diagram 1.0. As the air passes through the core of the system, it is cooled by the continuous flow of water over the cells, thereby reducing the ambient temperature within the livestock housing unit.

Evaporative cooling systems are used to reduce the internal temperature of the barns, reducing the effect



of heat stress on the animals. This ultimately will increase production efficiency and reduce mortality, in addition to improving the daily weight gain.

The panels are built with very absorbent materials. Both corrugated sheets and adhesive materials allow for permeability. The durability of the evaporative pad and cooling system depends on the regular maintenance over time.

Factors that determine the durability of an evaporative pad include: cleanliness of the system, pH, water hardness and environmental conditions (organic material present). Warm temperatures outside and wet conditions within the cool cell pad provides the ideal environment in which algae and bacteria can grow.



Over time, they accumulate mineral scale, dust, and organic matter, particularly algae. This is why regular cleaning of cool cell pads is essential.

With water constantly flowing over the pads, mineral scale and dust can block the corrugated openings, restricting airflow and decreasing the cooling system's efficiency. As a result, fans must work harder to maintain adequate airflow into the building, which increases energy costs and the need for system maintenance, accelerating pad deterioration, leading to higher replacement costs. Pads should be cleaned at the end of each cycle and during long production periods as needed, especially if visible algae growth or mineral buildup is present.

- Virkon® S is an oxidative chemistry combined with a high level of sequestrant within its formulation which helps to keep minerals in solution, thus mitigating the build-up of scale deposits on the cool cell pads for efficient cleaning.
- Virkon® S has been proven for materials compatibility, it does not have any detrimental effect on the integrity of the materials used in the construction of cool cell pads, especially the adhesive. In a practical use study, sections of cool cell pads (approximately 8" x 3" x 3") were immersed in a 2% Virkon® S solution for three weeks, with no adverse effects, as documented in the pictures below. The adhesive and structural integrity of the cool cell pads remained intact.



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How to apply Virkon® S

For cool cell pads: At the start of the warm weather season, use Virkon® S to clean cool cell pads and help remove mineral and organic deposits.

For evaporative coolers: When build-up and/or algae are visible, treat contaminated hard, non-porous surfaces with a 1% solution of Virkon® S. Additionally reservoir water can be treated every week with 0.5%–1.0% solution of Virkon® S per gallon of water.

(Virkon® S is not approved for use in evaporative cooling systems in California.)



Virkon® S provides a convenient, one-step solution for cleaning and disinfecting evaporative coolers, helping to improve system maintenance and support energy efficiency.

Foaming may occur during application due to the surfactants actively cleaning the pads; this is normal.

Virkon® S is a key component to a successful swine C&D program!

Please consult the Virkon® S product container label for a comprehensive list of organisms and directions for use.

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