OWENS CORNING®
INNOVATIONS FOR LIVING™

VaporWick® Pipe Insulation

Questions and Answers

How does VaporWick work?

Owens Corning VaporWick Pipe Insulation is an innovative insulation product designed specifically for below ambient temperature applications in hot/humid operating environments. The heart of the system is a wick material that transports condensed water to the outside of the system for evaporation to the atmosphere. This keeps the fiber glass insulation dry, and allows the insulation to perform effectively over the life of the project.

Since VaporWick is designed to keep the pipe insulation dry, will I be able to use less insulation thickness on my chilled water jobs?

No. The thickness required will normally be selected to prevent condensation on the exterior surface. This thickness is calculated using the thermal conductivity curve for the product, which is developed based on testing of dry product.

What about mold growth?

The materials used in the VaporWick product were selected to minimize the risk of mold growth. The polymer facing, nylon wicking material and glass fiber insulation provide no sustenance for mold to propagate. The product meets the standard tests for Fungi Resistance of insulation materials and facings (ASTM C 1338). In addition, the wicking material meets the requirements of ASTM G 21 (Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi). Since the evaporator area is oriented in the down position, the quantity of dirt or other foreign matter (potential food source for mold) is minimal. Finally, performance testing of VaporWick in a controlled environmental chamber has shown no visible mold growth after 6 months continuous exposure to extreme hot/humid conditions.

How should VaporWick be cleaned to remove any dust or dirt from the wick surface?

VaporWick may be wiped clean with a damp sponge or cloth. Do not hose down with a water stream as this could overload the wicking material causing subsequent dripping.

Can VaporWick be used on exterior piping?

VaporWick is not recommended for outdoor applications where additional jacketing is required. The polymer jacket is not a weather barrier and is not UV tolerant. Additional weather barrier jacketing will interfere with the evaporation of water from the system.

Can VaporWick be used in protected locations exposed to outdoor conditions, like parking garages and mechanical rooms?

Yes, these are ideal applications for VaporWick.

Can VaporWick be mixed with other insulation materials within a job?

VaporWick can be installed adjacent to other insulation materials as long as block seals are applied at end of sections to isolate the materials.

Will VaporWick work with Victolic Fittings?

Victolic fittings pose no different situation than other valves and fittings. A continuous path of wick must be made using the roll of Wicking material. The fittings are then covered using standard oversizing practices or covered with a molded fitting and a matching PVC cover.

Do I need to use a squeegee to install the lap seal?

A hard, plastic, squeegee is recommended to form the final seal.

Can Calcium Silicate inserts be used as hangers?

No. Heavy density fiber glass or foam inserts are recommended.

Does allowing vapor flow to condense on the wick increase the latent heat transfer to the chilled water pipe?

When the dew point of the ambient air is above the surface temperature of the cold pipe, there is a potential for condensation to occur. As water vapor condenses, it gives up its latent heat of vaporization, which will increase the heat flow to the

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cold pipe (relative to a perfectly dry case). However, the VaporWick product is designed to minimize the latent component. In the worst case, the latent heat transport will be approximately 1-8% of the total heat flow.

What keeps the condensed water from re-evaporating and returning to the cold pipe?

The condensed water is removed from the system by the combined forces of gravity and capillary action. Water movement is downward along the wick through a narrow slot to the exterior side of the vapor retarder. The flow then turns 90 degrees and enters the evaporator section of the wick. The vapor retarder extends behind the evaporator section limiting the amount of moisture returning to the cold pipe.

Will the use of VaporWick add to the humidity level in closed rooms or pipe chases?

No. VaporWick only recycles moisture that originates from the ambient air. Unless there is a water leak in the pipe, VaporWick will not increase humidity levels in a closed room or pipe chase.

If VaporWick is installed in a closed pipe chase, will there be enough air movement for VaporWick to work?

VaporWick is designed to work in still-air conditions. Since evaporation rate increases with increasing velocity, this is considered the worst-case condition. In a closed space, thermal convection will still occur but air movement will be much more limited than if the pipe were in an open space. VaporWick is designed to have sufficient evaporation area so that, even at low air velocity, the product continues to perform.

Since the pipe surface will be wet, will pipe corrosion be a problem?

With below ambient systems, pipe corrosion is always a concern due to the presence of water on the cold pipe surface. In Europe, building codes address this concern by requiring that cold piping and equipment systems be treated with corrosion resistant coatings. This practice is seldom specified in North America, yet cold system failures due to pipe corrosion are infrequent.

Humidity chamber tests where samples of VaporWick were exposed side-by-side with conventional insulation for up to six months showed no measurable increase in corrosion rates of piping. Field experience with the product to date has been favorable, with several VaporWick installations apparently experiencing less pipe corrosion than comparable conventionally insulated systems. While these field observations are not controlled experiments, they support the conclusion that VaporWick does not accelerate corrosion on metallic piping relative to conventional insulation systems, and may in fact help minimize pipe corrosion.

How does VaporWick work for vertical installations?

To ensure that vertical installations perform as designed, Owens Corning recommends that vertical evaporating holes be sealed with VaporWick Sealing Tape. The wick will still transport any moisture that does enter the system to the nearest horizontal section where it can be evaporated. As a rule of thumb, installers should ensure that there is at least 1 linear foot of evaporator area for every 40 sq. ft. of vertical outer surface area. In areas where the vertical piping is over 3 stories high, Owens Corning requires that a "wicking skirt" be installed in between vertical sections of insulation. This allows any moisture accumulation to evaporate the system before the concentration builds at the bottom of the vertical pipe run.

In a multi-storied apartment building - if the vertical comes down several floors and then turns horizontal above the ceiling of an apartment - isn't the humidity increased in that apartment?

In theory, yes. In practice, the contribution to latent load on the cooling coil will be minimal compared to other sources of moisture like air infiltration and people, and it is likely that it would be offset by reductions in latent load in the vertical chase. Remember that VaporWick does not create water; it just moves it from one location to another.

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The SSL II product has a claimed operating temperature range of from 0 F to 850 F. VaporWick's operating temperature range is 32°F to 220°F. If my industrial process has an operating temperature of 25°F, which product should I specify?

VaporWick is not designed to work at temperatures below freezing. For this application, Fiberglas SSLII pipe insulation should be specified. Proper attention to detail will be required to ensure that the ASJ jacket is properly sealed to ensure a continuous and effective vapor retarder.

I'm designing a district cooling plant where the chilled water loop runs through utility tunnels. Is VaporWick appropriate?

VaporWick is not recommended for locations where sustained humidity levels above 90% are experienced. If humidity levels in the utility tunnels are expected to exceed 90% for extended periods of time, VaporWick should not be specified. If humidity levels are this high, you should consider using a sealed PVC jacket over the product to prevent condensation on the outer surface of the ASJ.

Why should I use VaporWick instead of a "closed cell" insulation material like rubber?

Closed cell insulation products are often specified based on the low water vapor permeability of the base material. However, these products are still susceptible to water vapor diffusion through the material as well as water vapor ingress due to imperfect seams and terminations. Once the water vapor condenses, it can be absorbed into the insulation contributing to a loss in insulating value.

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