FREQUENTLY ASKED QUESTIONS

EndoTherm™

Go to...

We recognize each system and situation is unique. Our team of experts are here to offer support, so give us a call or visit our website!

(800) 799-6211 pacesolutions.com/EndoTherm

PACE SOLUTIONS

Performance

1. **How much energy can EndoTherm save?**

   Independent lab tests show savings up to 15%. Buildings can experience higher savings.

2. **How does EndoTherm work?**

   EndoTherm reduces the surface tension of system water by 60% which increases heat transfer. The increase heat transfer improves system efficiency.

3. **How can I measure energy savings?**

   Measured via sub-meter in electrical applications or by isolating boiler consumption in gas applications. Data should be weather normalized using heating degree day data, taking building trends into account, and following International Performance Measurement and Verification Protocol (IPMVP).

4. **How long is the simple payback from adding EndoTherm?**

   The average payback is 18 months. Results vary based on cost of energy, energy demand, and system design.

5. **How do leaks affect EndoTherm performance?**

   Performance is relative to the concentration of EndoTherm within the system. A leak causing 25% loss of system fluid will result in a corresponding reduction in heat transfer performance. Additional EndoTherm can be added to replace losses.

Safety

1. **Is EndoTherm safe to put down the drain?**

   Yes, EndoTherm is safe for sanitary sewers and does not bioaccumulate. If concentrate is discharged, dilution is recommended.

2. **How do we dispose of EndoTherm if it leaks?**

   Dilute and flush down sanitary sewer.

3. **What personal protection do we need for handling EndoTherm?**

   Eye protection is recommended to prevent irritation from direct contact.

4. **What is the embedded carbon of EndoTherm?**

   EndoTherm is 100% organic and thus has a low embodied carbon. A 1 Gallon container has a typical embodied carbon of 5kg of CO_2e. Most EndoTherm installations offset the installed embodied carbon within a few weeks.

5. **What is EndoTherm made of?**

   EndoTherm is a 100% organic surfactant.

Compatibility

1. **Is EndoTherm corrosive?**
   We recommend running a traditional water treatment program when using EndoTherm.

2. **Is EndoTherm safe on copper, aluminum, mild steel, plastics etc?**
   Yes, EndoTherm has been independently verified to be safe on all materials used in traditional HVAC systems.

3. **Is EndoTherm safe on all HVAC seals like EDPM and Viton?**
   Yes, EndoTherm has been independently verified to be safe on EDPM and Viton.

4. **Is EndoTherm safe to use with glycol?**
   Yes, EndoTherm can be used in parallel with inhibited and non-inhibited glycol.

5. **Is EndoTherm safe to use with corrosion inhibitor?**
   Yes, EndoTherm is non-ionic and can be used with all forms of traditional corrosion inhibitors.

6. **Will EndoTherm increase the load on my pumps?**
   No. EndoTherm does not significantly change the SG or viscosity of system water, causing no change to the pump load. Reduction in cycling may even reduce overall pump load.

7. **Will EndoTherm change the specific gravity or viscosity of my system fluid?**
   At only a 1% concentration, EndoTherm will not make a noticeable change to specific gravity or viscosity.

8. **How does EndoTherm impact the freeze protection of glycol?**
   Independent testing shows EndoTherm makes no change to the freeze point of glycol treated systems.

9. **Can EndoTherm be used in a system with an expansion tank?**
   Yes, only if the expansion tank is not open air.

10. **Is EndoTherm a food source for bacteria growth?**
    No, EndoTherm has been independently verified to not be a food source for bacterial growth.

11. **Does EndoTherm replace glycol or inhibitors?**
    No. Inhibitors or inhibited glycol should still be used to minimize corrosion and freeze protection.

12. **Can EndoTherm be added to a dirty system?**
    Yes, but good water treatment is always recommended.

13. Does EndoTherm impact equipment warrantees?

No damage or impact on system warrantees have been reported. Consult your manufacturer for further details.

14. Does the source water quality impact EndoTherm performance?

No.

15. Can I use EndoTherm in an old building?

Yes.

16. What temperature range can EndoTherm work in?

EndoTherm will work in any temperature range whilst the transfer fluid remains liquid. This includes higher temperatures under pressure.

17. Can EndoTherm be used in data center cooling?

Yes.

18. Can EndoTherm be used in oil, propane or electric boilers?

Yes, as long as they are using fluid to transfer heat, EndoTherm will improve heat transfer and energy efficiency.

19. Can EndoTherm be added to a steam boiler?

EndoTherm should not be added directly to a steam boiler system but instead added to secondary hydronic loops separated by heat exchanger.

20. Can EndoTherm be added to a cooling tower loop?

No. EndoTherm should not be added to the open end of a cooling tower loop but can be added to secondary hydronic loops off the chilled water system.

21. Can EndoTherm be added to a district energy system?

Yes, EndoTherm will improve heat transfer in a district energy system. The simple payback could be longer than average due to the large volume of bulk water.

22. How does EndoTherm work with a building connected to a district energy system?

Connected via heat exchanger, EndoTherm will improve heat transfer on secondary loops.

23. What types of buildings can use EndoTherm?

EndoTherm can be used in any type of building including residential, institutional, commercial, industrial, health care, military etc.

24. What size of buildings can use EndoTherm?

EndoTherm is applicable to all building and system sizes from single family residential to large commercial or institutional buildings.

25. Does EndoTherm work in a heat pump system?

Yes, EndoTherm will improve heat transfer in a hydronic heat pump system which will result in greater energy efficiency.

26. Does EndoTherm work in a chiller system?

Yes, EndoTherm will improve heat transfer in a chiller system which will result in greater energy efficiency.

27. Does EndoTherm work in a geothermal system?

Yes, EndoTherm will improve heat transfer in a geothermal system which will result in greater energy efficiency.

28. Do I need to flush my system before adding EndoTherm?

No. EndoTherm can be added to your existing system without flushing.

Application

1. How do we add EndoTherm to the system?

EndoTherm is added via injection pump or through a pot-feeder.

2. Can we test for or measure EndoTherm in the system?

Surface tension analysis is used to confirm EndoTherm concentration.

3. How long does EndoTherm last?

With no leakage, EndoTherm treatment is thermally stable and will last at least nine years.

4. How often do I need to add additional EndoTherm?

Additional EndoTherm is only required if the system losses concentration from leaks.

5. How much annual leakage from my hydronic system is acceptable to still use EndoTherm?

Depending on the payback, annual leaks up to 20-50% can be acceptable for EndoTherm treatment.

6. What happens if I want to upgrade my boiler?

Isolate the loop to maintain system fluid with EndoTherm while changing the boiler. If a full drain is required, capture system fluid with EndoTherm in drums or totes to be re-injected after completing of the install.

7. How much does EndoTherm cost?

EndoTherm treatment depends on the volume of they hydronic system. Consult a treatment expert for pricing.

8. How much EndoTherm do I need for my system?

EndoTherm is dosed at 1% concentration, so treatment depends on the system volume.

9. How do I calculate my system volume for EndoTherm?

Contact a treatment expert to determine system volume.

10. How much does EndoTherm reduce surface tension?

When dosed correctly, EndoTherm will reduce surface tension by up to 60%.

11. How can I measure system water loss?

The addition of a water meter is the best way to measure water loss. Monitoring inhibitor levels can also indicate water loss.

12. Can I add EndoTherm myself?

Yes. If you currently add inhibitor or glycol to your own system, you should be able to add EndoTherm. Consult a treatment expert for advice.

13. Does EndoTherm cause foaming?

Surfactants, like EndoTherm, require air to foam. Closed loop systems should not contain air and therefore foaming will not occur in the system. Leaks or samples drawn from an EndoTherm treated system will have some foaming which dissipates quickly. ***Do not add anti-foam to any system treated with EndoTherm.***