



HEAT TRACING RISK ASSESSMENT

This guide helps facility managers evaluate the risk of frozen systems and quantify potential financial exposure. Use the checklist and formula to assess your facility's vulnerability and determine the ROI of heat tracing solutions.

1. Why Frozen Systems Are So Costly

The financial impact of frozen pipes goes beyond repairs. Consider these industry benchmarks:

- **\$24,000** — Average commercial water damage claim from burst or leaking pipes
- **\$5 million+** — Extreme claims in multi-story or high-sensitivity facilities.
- **\$125,000/hr** — Average cost of unplanned downtime in industrial plants
- **\$260,000/hr** — Downtime costs for high-output manufacturing lines



Repairs are just the start. The real exposure is downtime, lost production, and insurance fallout.

2. Facility Risk Scan

Assess your facility's risk by rating each factor below for **Probability** (1–5, where 1 = low, 5 = high) and **Impact** (1–5, where 1 = low, 5 = high). Multiply Probability × Impact to get the **Risk Score** for each factor.

Factor	What to Look At	Example Data	Probability (1–5)	Impact (1–5)	Risk Score
Exposure	Feet of uninsulated/exposed pipe; outdoor or unheated areas	e.g., 400 ft uninsulated			
Condition	Age of pipes; history of past freeze events	e.g., 2 freeze incidents in 3 yrs			
Mitigation	Existing heat trace, insulation, monitoring	e.g., 40% of piping protected			
Downtime Cost	\$ per hour of lost production	e.g., \$125K/hr × 4 hrs downtime			
Safety & Compliance	Slip/fall hazards; electrical code issues	e.g., 1 prior slip injury claim			

Instructions:

1. Fill in the Probability and Impact for each factor based on your facility's data.
2. Multiply Probability × Impact to calculate the Risk Score.
3. Sum the Risk Scores to understand your overall risk level. Higher scores indicate greater vulnerability.



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3. Cost Exposure Formula

Use this formula to estimate your facility's annual risk cost from frozen systems. Plug in your numbers below.

Expected Annual Risk Cost =

(Probability of Freeze %) × (Downtime Cost + Repair Cost + Insurance Premium Impact + Safety/Compliance Costs)

Example Calculation:

- Freeze likelihood: 30%
- Downtime cost: \$125,000/hr × 3 hrs = \$375,000
- Repair cost: \$24,000
- Insurance premium increase: \$5,000
- Safety/compliance costs: \$0 (no prior incidents)

Total: $0.30 \times (\$375,000 + \$24,000 + \$5,000 + \$0) = \mathbf{\$119,900}$ annual expected exposure

Your Calculation:

- Freeze likelihood: ____ %
 - Downtime cost: \$/hr × ____ hrs = \$
 - Repair cost: \$____
 - Insurance premium increase: \$____
 - Safety/compliance costs: \$____
- Total Expected Annual Risk Cost: ____ %

4. Why Heat Trace Changes the Math

Investing in heat tracing systems significantly reduces risk:

- Mitigation cost (insulation + heat trace + monitoring): Often a fraction of one freeze event.
- Reduces freeze probability: From ~30% to <5%.
- ROI: Achieved in just one avoided incident.

5. Next Steps

Book a Winter Risk Audit with our team for tailored recommendations specific to your facility

Website: TRIVACO.com | Toll Free: 800.500.8889 | Local Call: 859.525.9890

Key Insight: By quantifying your risk, you can make a data-driven case for investing in heat tracing to protect your facility and bottom line