



Refrigerant Management for Refrigerant and Energy Savings

Leak Detection for Refrigerant & Energy Savings

Potential Refrigerant Impact on Store Operations

Recurring
Expense



Energy
Efficiency



Regulatory
Liability



Refrigerant Management Benefits

Refrigerant Savings

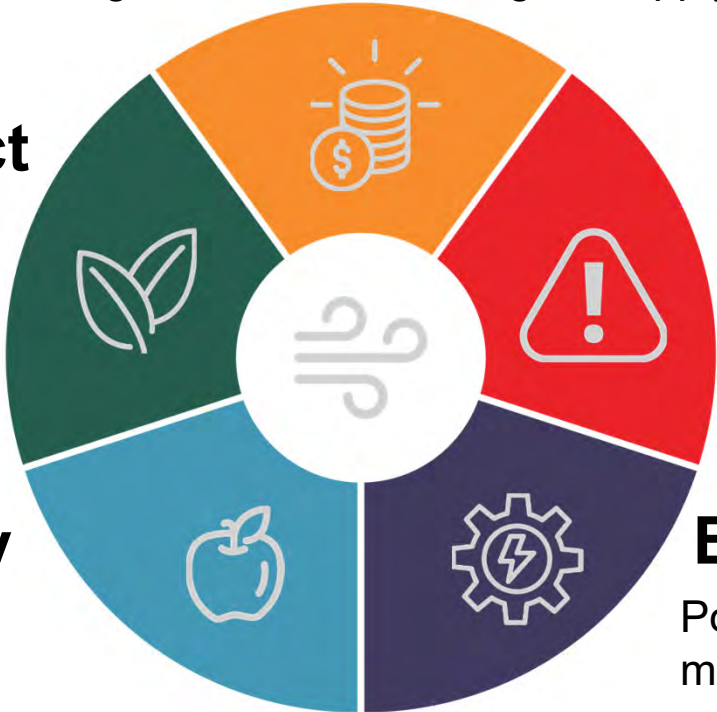
Operating cost reduction; mitigate supply risk

Environmental Impact

Reduce significant CO2 equivalent emissions per store; avoid regulatory fines

Product Quality

Maintain freshness, food availability, and brand



Safety Compliance

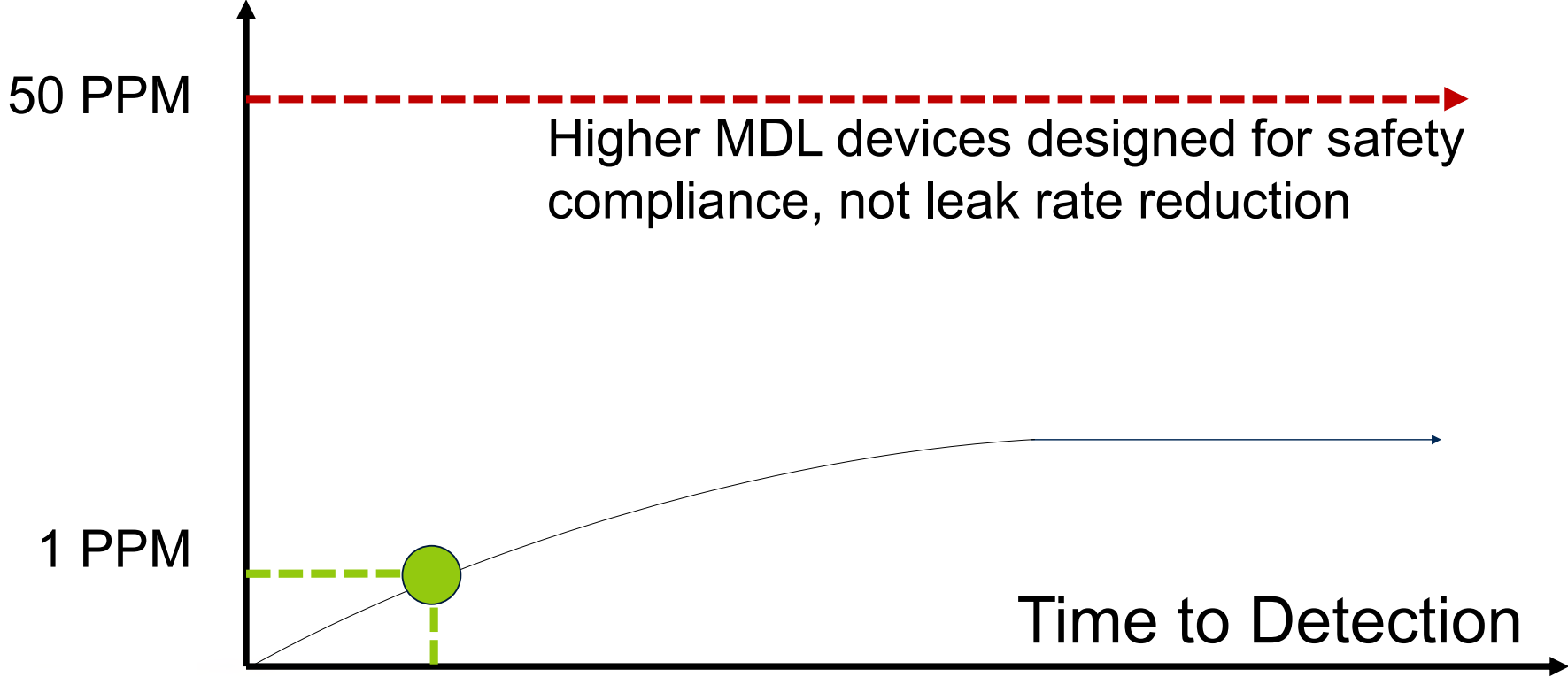
ASHRAE 15
Corporate safety policies

Energy Savings

Potential energy savings by maintaining optimal system charge

Low Minimum Detection Levels Matter!

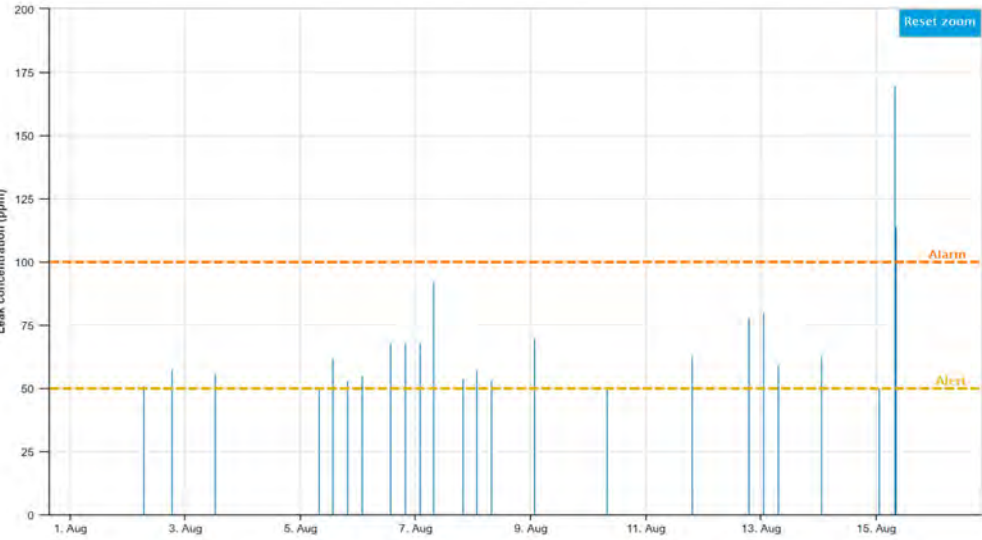
Concentrations through-out a large facility will be detected early saving refrigerant and reducing leak rates



Leak Patterns Identified Early Reduce Emissions

Leaks Have Identifiable Patterns Only Visible With Parasense Time-Series Data

Refrigerated Case Example #1



Defrost-Cycle Leak Pattern
(not always active when the technician inspects)

Refrigerated Case Example #2



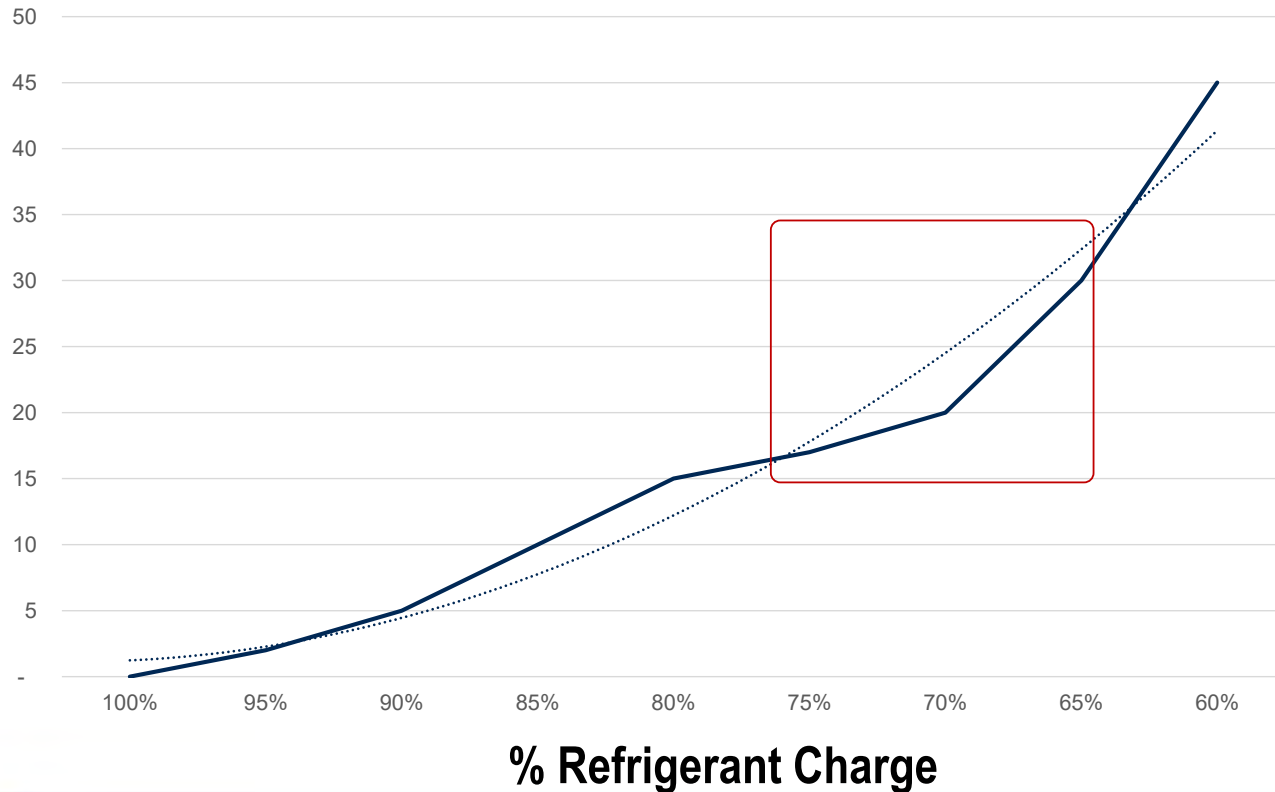
Preventable Catastrophic Leak
(data revealed significant leak)

Leak Detection for Refrigerant & Energy Savings

Refrigerant charge can impact energy costs if systems are not properly maintained



**% Increase in
Energy Cost**



Potential for Energy
Consumption Increases
With Higher Leak Rates

Managed Leak Detection for Refrigerant Savings

Emissions Reduction Example



5000

Refrigerant
charge (lbs.)

30% → 10%

Starting Leak
Rate per Year

Target Leak
Rate per Year

\$10

Refrigerant
Cost (\$/lb.)

\$10,000

Savings per store (\$/yr)

\$1M

Equivalent sales
increase (\$/yr)

1,772
Metric Tons
CO₂e

Drive Savings with Low Level Leak Detection

Proven Results with Fixed and Portable Leak Detection using 1PPM MDL

Fixed Leak Detection



60+ different Refrigerants, CFCs, HFCs, HCFCs, HFOs and natural refrigerants

Portable Leak Detection



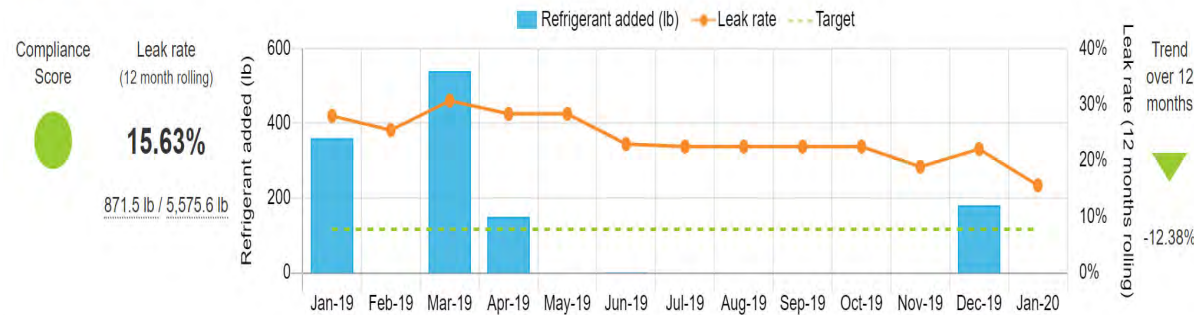
50+ different Refrigerants, Halogen, CO₂, N₂O and SF₆ versions

Comprehensive Refrigerant Management

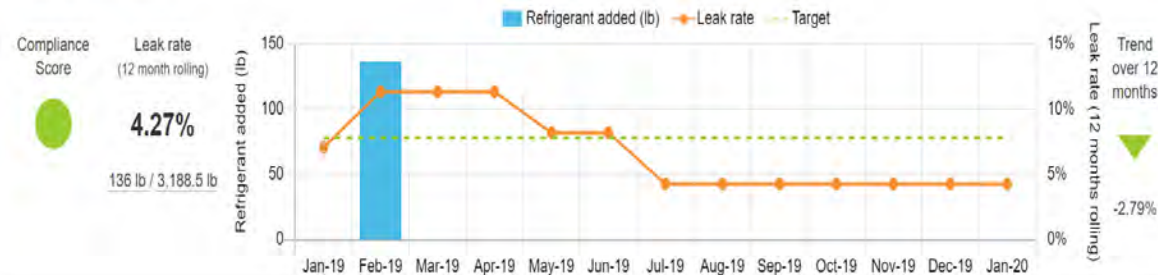
Enterprise-scale solution to identify and alert active leaks and improve performance

- **Identify low-level leaks early!**
Aspirated infra red leak detection detects down to 1ppm
- **Alert contractors** for immediate repair action to avoid regulatory fines
- **Capture data** for regulatory reporting
- **Reduce cost** for refrigerant top-offs
- **Monitor, Track & Report progress** of your refrigeration management efforts using Parasense Refrigerant Tracking and Compliance software – Now Free!

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tracking and compliance software now:
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