



KAET® Technology — Advanced Fuel Safety & Internal Explosion Prevention System

KUWAIT ANTI-EXPLOSION
TECHNOLOGY COMPANY

**Protecting Critical
Infrastructure.
Securing the Future
of Energy.**

Engineered for Oil & Gas, Energy,
and High-Risk Industrial
Infrastructure

**Patent
Protected
Until 2042**





EXECUTIVE OVERVIEW

Overview

KAETCO is a Kuwait-based advanced engineering company specializing in fuel system safety, explosion prevention, and infrastructure protection across the global energy sector. The company is the exclusive developer and patent holder of KAET® Anti-Explosion Technology, a proprietary system engineered to eliminate explosion risks and stabilize fuel storage environments from within.

Industry Position

- ◆ Oil & Gas Infrastructure
- ◆ Fuel Storage & Distribution
- ◆ Industrial Safety Engineering
- ◆ Environmental Performance Optimization

Strategic Relevance

- ◆ Operational risk
- ◆ Environmental pollution
- ◆ Financial losses from inefficiencies

KAETCO delivers a preventive engineering solution addressing all three dimensions simultaneously.



**“Protecting Critical Infrastructure.
Securing the Future of Energy.”**

VISION

To establish KAET® as a global engineering standard for fuel system safety and explosion prevention across the energy sector.

MISSION

- ◆ Eliminate explosion risks in fuel storage and transport systems.
- ◆ Enhance operational safety across energy infrastructure.
- ◆ Reduce fuel loss and environmental impact.
- ◆ Support national energy companies in achieving world-class safety standards.

VISION & MISSION



The Industry Reality

Fuel systems across the energy sector remain exposed to critical risks:

- * Explosion scenarios (BLEVE)
- * Pressure buildup within storage environments
- * Electrostatic ignition
- * Localized heat concentration
- * Continuous fuel evaporation losses

Hidden Loss: Fuel Evaporation

Fuel evaporation represents a continuous and often unaccounted financial loss across:

- * Refineries
- * Storage terminals
- * Underground fuel tanks
- * Distribution systems

**\$50
Billion+**

Estimated annual
global losses

\$500M

Major incident cost
per event

**Ongoing
Losses**

invisible fuel
evaporation



THE GLOBAL CHALLENGE

Impact

- * Loss of fuel inventory
- * Increased VOC emissions
- * Reduced operational efficiency
- * Environmental impact

Industry Gap

Current systems are reactive, addressing incidents after occurrence, and do not effectively mitigate evaporation losses or internal instability.

**THE CHALLENGE IS NOT JUST SAFETY — IT IS
THE SILENT, CONTINUOUS LOSS OF VALUE.
KAET® ADDRESSES BOTH.**

The Need

A preventive, internal engineering solution capable of:

- * Eliminating explosion conditions
- * Stabilizing tank environments
- * Reducing fuel evaporation losses

Strategic Insight

Energy operators are not only exposed to catastrophic risks — they are losing millions annually through invisible fuel evaporation.

KAET® enables operators to transition from risk mitigation to risk elimination.



OUR SOLUTION

KAET® Anti-Explosion Technology

KAET® is a patented internal system designed to eliminate the fundamental conditions required for explosion formation within fuel storage and transport systems.

Engineering Performance

KAET® Technology stabilizes the internal tank environment by rapidly distributing heat and pressure at high velocity, preventing the system from reaching critical explosion thresholds.

Simultaneously, the technology neutralizes electrostatic charge accumulation, eliminating ignition risks associated with fuel systems.

Provides continuous internal control over thermal, pressure, and electrostatic conditions, resulting in a non-reactive internal environment where combustion conditions cannot be sustained.

Asset Integrity

In addition to safety performance, KAET® reduces internal stress conditions, extends tank operational lifespan, and mitigates corrosion over time.

Core Advantage

KAET® operates internally and passively, delivering continuous protection without external systems or energy input.

PATENTED ♦ INTERNAL ♦ PASSIVE ♦ CONTINUOUS

TECHNOLOGY OVERVIEW

Engineering Mechanisms

The internal configuration enables continuous disruption of flame propagation pathways while maintaining thermal and pressure equilibrium within the tank environment.

KAET® functions through:

- Rapid heat dissipation
- Pressure redistribution
- Flame propagation interruption
- Electrostatic neutralization

Structural Design

- Engineered internal mesh and spherical configuration
- Occupies approximately 1.5% of tank volume
- Fully compatible with all fuel types



Performance Outcome

The system maintains dynamic equilibrium within the tank by continuously redistributing thermal and pressure gradients.

Explosion risk:

Eliminated

Pressure spikes:

Controlled

Heat concentration:

Dissipated

PASSIVE SYSTEM

No external energy required.

MINIMAL MAINTENANCE

Reduced operational upkeep requirements.

LONG OPERATIONAL LIFESPAN

Durable engineering for multi-decade service.

NO CHEMICAL INTERACTION

Maintains fuel integrity and composition.

SCALABLE ACROSS INDUSTRIES

Adaptable to diverse storage and transport applications.

RAPID INTEGRATION

Efficient deployment with minimal operational disruption.



ENVIRONMENTAL & EFFICIENCY IMPACT

60–75%

FUEL EVAPORATION
REDUCTION

1–3%

POTENTIAL ANNUAL
FUEL SAVINGS

100%

REDUCTION IN INCIDENT-
RELATED LOSSES

VOC EMISSION REDUCTION

Measurable reduction in emissions for key volatile organic compounds: Benzene, Toluene, and Xylene

ESG COMPLIANCE ENHANCEMENT

KAET® makes a direct contribution to environmental and operational efficiency by reducing VOC emissions, minimizing fuel evaporation losses, and enhancing overall ESG compliance

Measured Impact

Operational Benefit: KAET® transforms fuel storage from a loss-generating system into a controlled, optimized environment

REDUCES VOC EMISSIONS ♦ MINIMIZES LOSS ♦ ENHANCES ESG COMPLIANCE

APPLICATIONS

KAET® is deployable across multiple high-value sectors:

OIL & GAS

- Upstream storage facilities
- Downstream refineries
- Fuel terminals

INFRASTRUCTURE

- Underground gas station tanks
- Industrial storage systems

AVIATION & MARINE

- Jet fuel storage
- Marine fuel systems

DEFENSE & AUTOMOTIVE

- Military fuel systems
- Vehicle fuel tanks



KAET® Technology is engineered to support compliance with international safety frameworks and is designed for integration within operator-specific engineering standards and approval processes.

ISO

ISO

API

API (American
Petroleum
Institute)

NFPA

NFPA fire
safety codes

SAES

Saudi Aramco
Engineering
Standards
(SAES)

TECHNICAL ASSURANCE

Full documentation available for:

- Engineering evaluation
- Vendor qualification
- Regulatory review

FINANCIAL & OPERATIONAL IMPACT

Cost Avoidance

- Eliminates explosion-related losses
- Reduces maintenance costs
- Minimizes downtime

Revenue Protection

- Reduces fuel evaporation losses
- Preserves fuel inventory
- Enhances operational efficiency

Estimated Impact Per Tank (Illustrative)

60–75%

FUEL EVAPORATION
REDUCTION

1–3%

POTENTIAL ANNUAL
FUEL SAVINGS

100%

REDUCTION IN INCIDENT-
RELATED LOSSES

For large-scale storage facilities, this represents millions in annual recoverable value per site

ROI Positioning

‘KAET® represents a low-cost, high-impact solution with immediate and long-term financial return.

KAET® directly converts safety into measurable financial return through loss prevention and operational stability.

STRATEGIC POSITIONING

Market Opportunity

- GCC energy infrastructure valued in hundreds of billions
- Increasing global safety regulations
- Rising ESG compliance requirements
- Growing demand for preventive engineering solutions

KAETCO Advantage

Patent-protected technology

Until 2042

First-of-its-kind internal explosion prevention system

Scalable across global markets

'To establish KAET® as a recognized safety standard across the global energy sector.'

Competitive Advantage

Feature	KAET®	Traditional Systems
Explosion Prevention	ELIMINATES	Reactive
Maintenance	LOW	High
Fuel Loss Reduction	YES	No
Installation Complexity	LOW	High
Lifecycle Cost	LOW	High

DEPLOYMENT MODEL



Implementation

- Rapid integration into existing tanks
- No structural redesign required
- Minimal operational disruption

Maintenance

- Annual inspection
- No consumables
- Long-term reliability

Scalability

Applicable across:

- Small fuel systems
- Large refinery infrastructure
- National energy assets



KAETCO

Kuwait Anti Explosion Technologies Co.

Protecting Lives

Saving Fuel

Securing the Future

Engineering the Future of Energy Safety

KAET® — Patent Protected Until 2042