ENVIRO-KLEAN
REMEDIATION GROUP INC.

KM-4

Completely Portable

What Makes the KM-4 Portable?

- Reduced airflow
- Custom heat exchanger
- Highway-legal trailer

The KM-4 is designed for easy transport and fast setup.

The foundation of this design is the efficient soil processor which reduces the amount of combustion air required to fire the burners.

The smaller airstream size, in turn, reduces the size of the other major components–the thermal oxidizer, the heat exchanger and the baghouse.

Added to this mechanical advantage are other customized components, like high temperature pleated filter bags, a triple pass heat exchanger, and lightweight foam insulation that has the same heat retention value as hard refractory twice the thickness.

Together, these innovations give the KM-4 an impressive 20 tonne-per-hour throughput, yet mounted on a single, portable, highway-legal trailer.

All components mounted on one trailer

Portability Saves Time

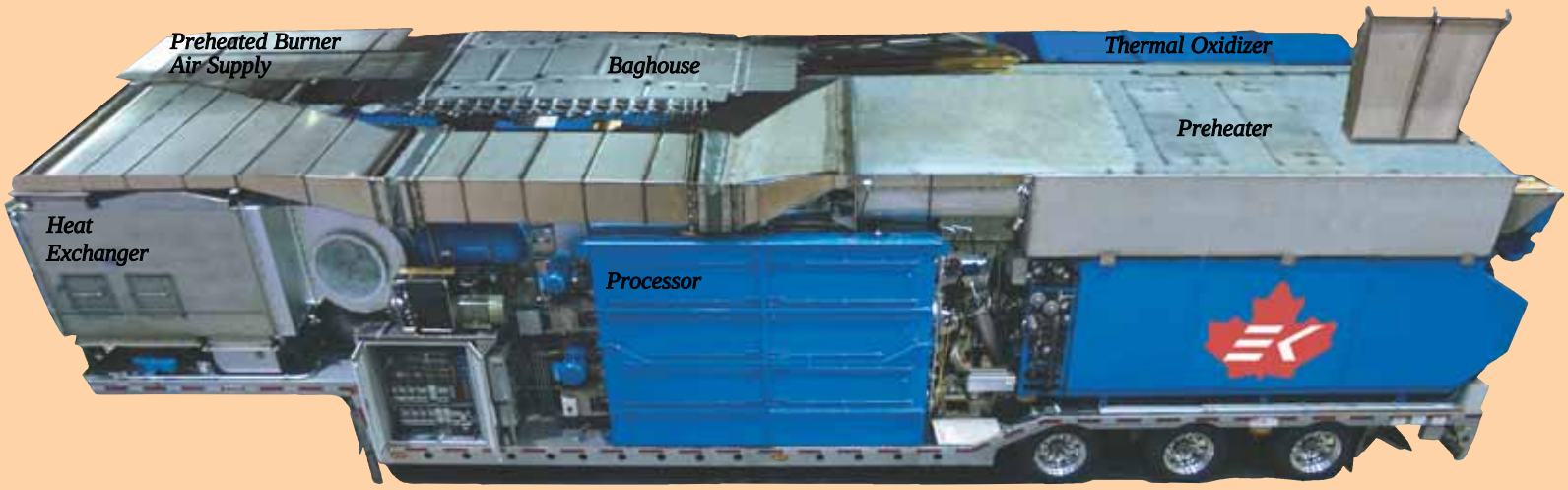
Large capacity thermal oxidizer on back of trailer with flame inspection window, and showing fuel supply (right) and feed system hook-ups (left).

Highway Legal World-Wide

The KM-4 is mounted on trailer with a height of 4 meters and a width of 2.5 meters for transport on highways world-wide.

Setting up the equipment at a new site requires a day or less

High efficiency 400-tube, air-to-air heat exchanger instantly reduces temperatures from 1000C to 200C (1800F to 400F) between the thermal oxidizer and baghouse.



Fast, Trouble-Free Set-up

The KM-4 air ducting between the processor, thermal oxidizer, heat exchanger, baghouse and I.D. fan are all preconnected making set-up time easier and faster. As well, the ducting connections are sealed and fitted with flexible joints to eliminate any problems with leakage of ambient air into the system.

ENVIRO-KLEAN
REMEDIATION GROUP INC.

KM-4 Fully Automatic

KM-4
Control House

Spacious and operator-friendly

- Siemens-based
- Proprietary PLC
- Centralized electrical panel

How is the KM-4 Fully Automatic?

All the KM-4 motors, sensors, and fuel gauges are managed by a Siemens-based programmable logic control (PLC) system.

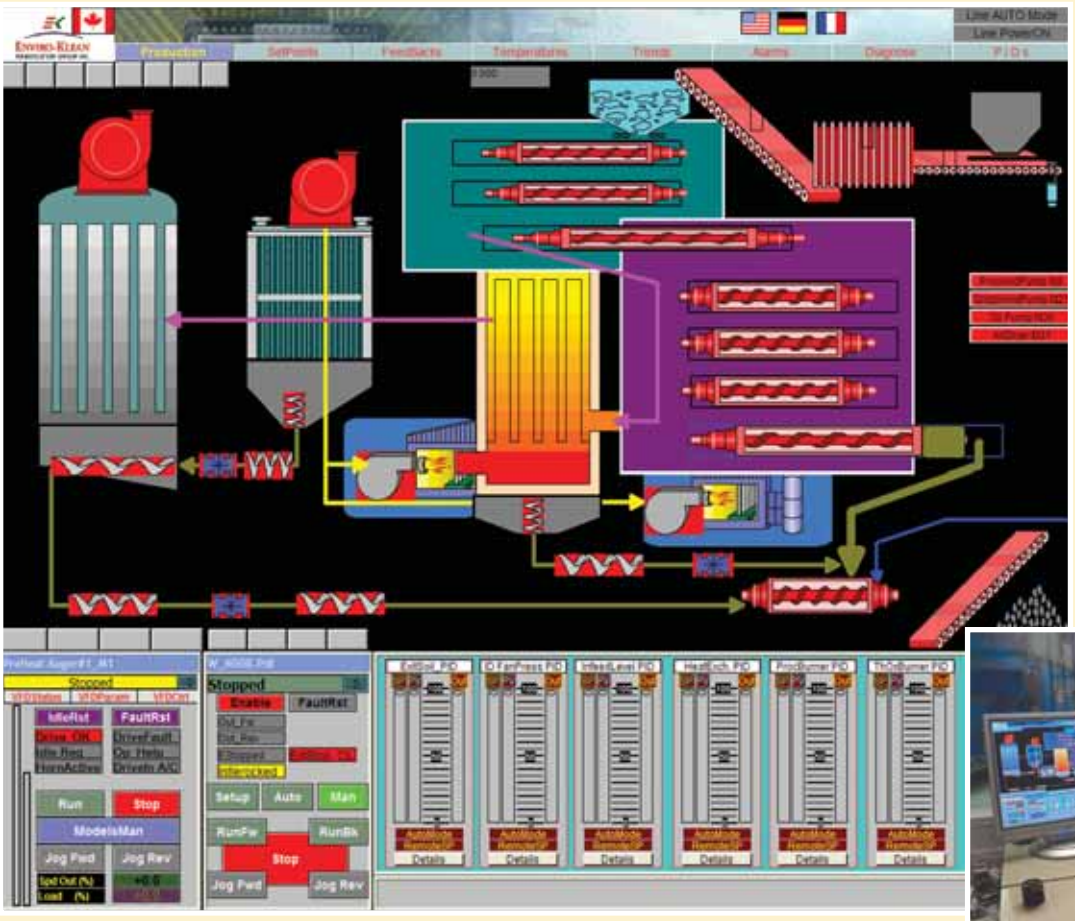
The proprietary computer program automatically adjusts the fans, burners, and drives to achieve maximum throughput of material depending on ambient conditions and environmental requirements.

A single operator manages the KM-4 from a climate-controlled, weatherproof station that can be positioned to view all machine functions simultaneously.

Quick connect couplers are used on both the control house and main trailer.

Over 20 temperature and pressure sensors, more than 30 motors, plus all fuel system gauges are centrally connected on the main trailer.

Automation Increases Output

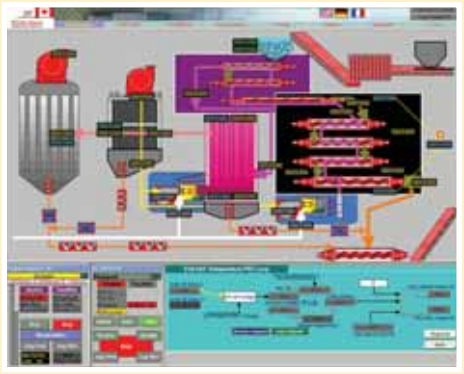


Graphic display shows all the important KM-4 functions at a glance.

Easy to Learn and Operate

The KM-4 is operator friendly. Since the system is completely automatic, a few basic lessons familiarize the operator with the entire program.

Twin monitors display additional production data.



Avoid Potential Problems by Anticipating Upset Conditions

This KM-4 display shows how it anticipates potential non-conforming conditions and corrects them automatically.

Siemens Control Recognized as Best Worldwide

Siemens controls are widely recognized as the best in the world and are available in five language choices.

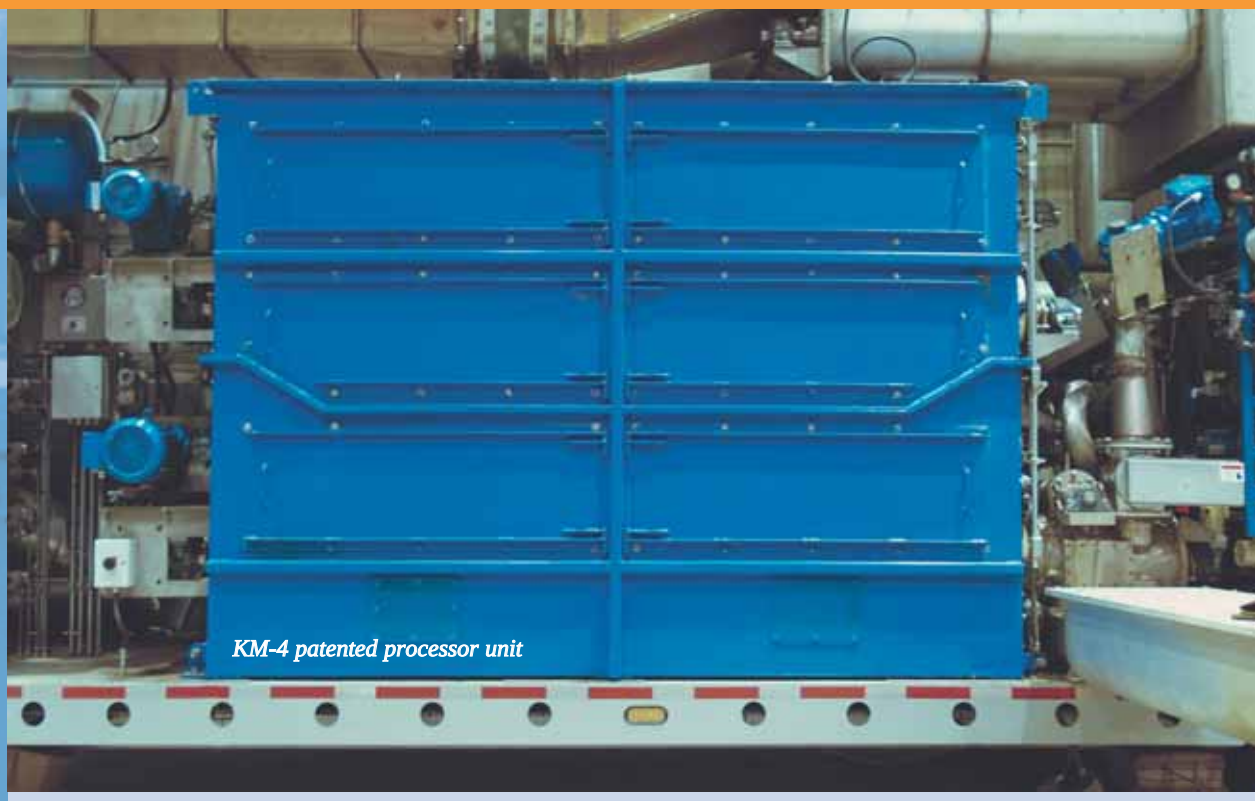
System Runs at Maximum Speed

The KM-4 operator presets the parameters for each job so the equipment runs at maximum throughput.

ENVIRO-KLEAN
REMEDIATION GROUP INC.

KM-4

Engineered for 24/7



KM-4 patented processor unit

How is the KM-4 Engineered for 24/7?

- *Advanced technology*
- *Operate outside or indoors*
- *CSA, UL, EU Certified*

Enviro-Klean's KM-4 is designed for discriminating equipment owners who value the time-and money-saving advantages of world class design.

This OEM equipment is manufactured on Canada's West Coast, an area widely-recognized as a North American leader for technical innovation.

It represents a significant advancement in the field of thermal desorption and results from the dedication of a committed group of mechanical, electrical, burner, mass balance, environmental, air flow and controls engineers.

The KM-4 will operate continuously under most extremes of outdoor conditions, whether in a dry desert or Northern sub-zero climates. And, although the equipment is designed for the rigors of continuous 24/7 operations, it's equally adept at 8- to 12-hour shifts.

KM-4 patent pending preheater unit

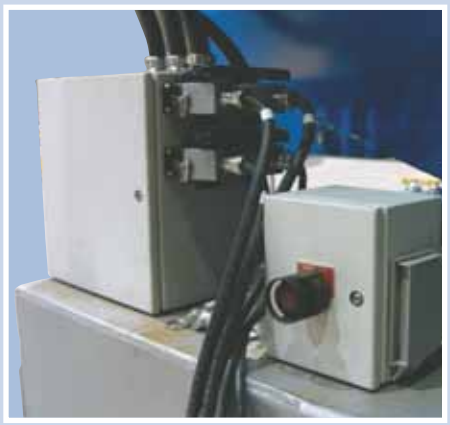
24/7- Longer Equipment Life

Quality Components
We select and install the highest quality components for 24/7 trouble-free operation.

The processor unit maintains smooth operation with top-of-the-line SEW Eurodrive motors and gear reducers

Precision Fabrication
Stainless steel withstands all weather conditions as shown on the end view of the KM-4 proprietary heat exchanger.

Durable, Lightweight Refractory
Foam refractory protects furnace walls and keeps exterior surfaces of the KM-4 from overheating.



Heavy Duty Parts
The KM-4 uses shielded VFD cables and electrical components designed to withstand all weather conditions. Each major cable has a unique connector that prevents cross wiring of components.

ENVIRO-KLEAN
REMEDIATION GROUP INC.

Energy Efficient

KM-4

How is the KM-4 Energy Efficient?

- Fast energy transfer
- Hot air recycling
- Variable frequency drives

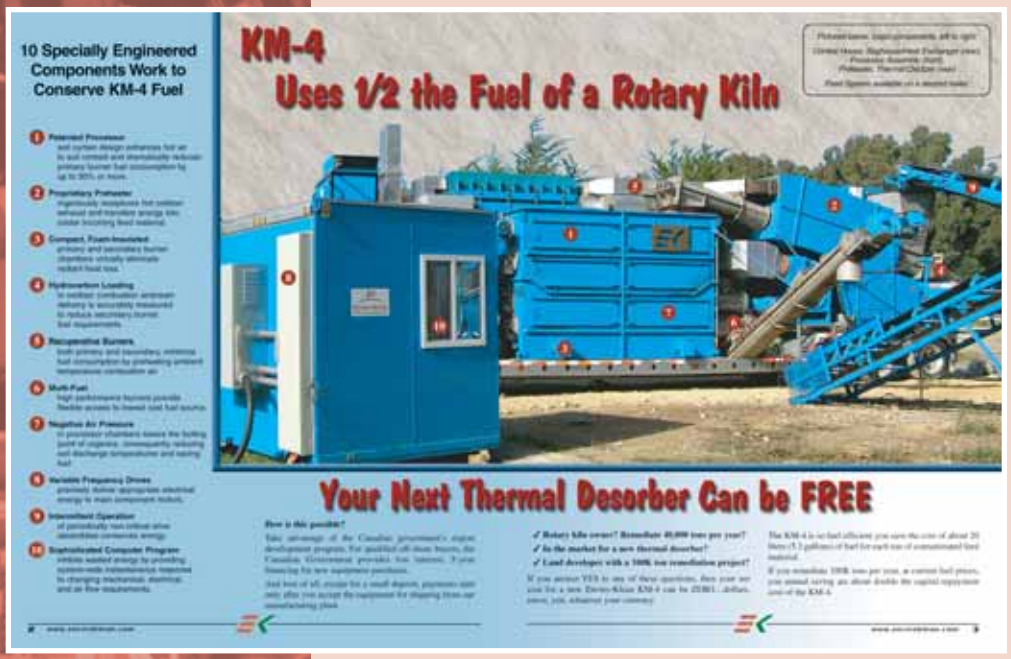
The KM-4 is manufactured to use a minimum of fuel for thermal remediation projects.

There are three main design strategies: (1) fast, efficient heat transfer to the soil, (2) recycling heat whenever possible, and (3) providing the precise energy value to each component.

The patented soil curtain and preheater designs are highly efficient at transferring heat to the soil. The preheater also utilizes waste heat from the thermal oxidizer to preheat the incoming material. The motors are either managed by variable frequency drives, or cycle on and off to conserve energy.

The combustion air for the burners is supplied by waste heat from the air-to-air heat exchanger. And, the PLC operates the system within strict parameters of temperature and pressure to eliminate the problem of wasted energy.

Enviro-Klean's KM-4 is a high-temperature thermal desorber (or hot plant) and the brochure shown at left describes the energy savings in detail.



Detailed fuel efficiency brochure

Fuel Efficiency Benefits

Choice of Fuels

Shown on the left is a KM-4 fitted with a multi fuel system. There is a separate fuel train for oil, propane, and natural gas. This option allows the use of the most convenient or competitively-priced fuel available at the work site. Alternatively the machine is available with a burner that uses any one of these three fuels.

Fuel represents the single highest operating component for any thermal desorber. The KM-4 allows you to choose the best fuel option for your needs.

Low Remediation Cost

The KM-4's low energy cost helps to create more thermal remediation options. Shown above is the optional material feed system, complete with trommel, which is connected directly to the control house. The KM-4 can also be configured to work with other feed systems.

Fast Capital Cost Recovery

Because the KM-4 is so fuel efficient compared with competing thermal remediation equipment, it's possible to recover the capital cost of the equipment within a year, depending on the throughput. A saving of 20 liters of fuel per tonne adds up quickly, and over the life of the equipment can equal 2 or times the original capital cost.

ENVIRO-KLEAN
REMEDIATION GROUP INC.

KM-4

Environmentally Responsible

Tree Island photo courtesy of Hazco Environmental Services

How is the KM-4 Environmentally Responsible?

- Meets or exceeds environmental standards
- Safe to operate in residential areas
- Sealed material processor

The KM-4 easily meets or exceeds environmental standards worldwide.

Because the soil processing components are so compact and efficient, 75% of the space on the trailer can be devoted to managing the air emissions. And, since the air control components are completely sealed from outside air, the system easily maintains particulates, total petroleum hydrocarbons, and carbon dioxide at completely safe levels.

In fact, the KM-4 is so clean that air emissions from a day's operations are equivalent to a diesel-powered truck driving for 24 hours within city limits. Enviro-Klean takes pride in making certain the KM-4 does its part in keeping the environment safe.

Thermal Oxidizer

Hydrocarbons released in the material processor are converted to water vapor and carbon dioxide within the thermal oxidizer. The KM-4 provides a 2-second residence time for >99% hydrocarbon destruction.

Heat Exchanger

In some applications, it's important to instantly reduce the thermal oxidizer gas output to below 200C (400F). The KM-4 is fitted with a powerful, air-tight heat exchanger.

Baghouse

The KM-4 baghouse controls particulate emissions by extracting clean dust from the airstream and conveying it back to the pugmill for rehydration.

ID Fan

In order to manage the complex air flow through the various components of the KM-4, a powerful I.D. fan automatically senses the air pressures required for hydrocarbon destruction and for recycling clean air from the combustion system to the atmosphere.

Environmental Benefits

Permanent Solution to Restore Brownfields

A thermal desorber like the KM-4 provides landowners and end users with a permanent solution to contaminated soils.

There are millions of contaminated sites world-wide and each of them poses serious potential risk to humans and wildlife. Hauling the contaminated material to a landfill can be a temporary solution and may shift the clean-up burden to future generations.

Thermal desorption, especially with portable equipment like the KM-4, can remediate the soil on the site and use the cleaned material as backfill.

Fast Solution for Landowners

From the time material enters the system until it's cleaned usually requires less than three minutes. The KM-4 can remediate 500 tonnes in a single day.

Accurate Results for Engineers

The operating stability of the KM-4, especially when fitted with a continuous emissions monitor, makes certain the system works within prescribed environmental limits.

Energy Conservation for Contractors

Thermal remediation contractors strive to minimize energy consumption. Not only does the KM-4 reduce total operating costs, but it reduces transport expense for fuel, thus helping them do their part to protect the environment.