

UNIFRAX APPLICATION STORY



Product Solutions: PUREFRAX® Fiberfrax Hot Gas Filter
Industry: Soil Remediation
Applications: Hot Gas Filtration
Location: Europe

DECEMBER 2018

Business Challenge

At this particular site the soil was being contaminated continuously by a large number of pollutants. Among them, heavy metals are an exclusive group of toxicants because they are stable and difficult to disseminate into non-toxic forms. The ever-increasing concentrations of such pollutants in the soil are considered serious threats toward everyone's health and the environment. Many techniques are used to clean, eliminate, obliterate or sequester these hazardous pollutants from the soil. However, these techniques can be costly, labour intensive, and often disquieting.

Soil remediation provides a common platform for biologists, agricultural engineers, environmental scientists, and chemists, working with a common aim of finding sustainable solutions to various environmental issues.

The soil was contaminated with oils, tars and other organic materials from a previous coking plant. Almost 500,000 tonnes of contaminated soil were processed over 4 years to complete the project.

Application

Unifrax supplied PUREFRAX® elements to this soil decontamination plant. The soil was contaminated with oils, tars and other organic materials from a previous coking plant. Almost 500,000 tonnes of contaminated soil were processed over 4 years to complete the project. The filter house originally contained 2592, 1.5 metre long (60 mm O.D.) filter elements. When the project commenced it suffered continuous problems.

The contaminants in the soil contained high levels of Mercury and because of this the operating temperature of the plant had to be reduced from the design temperature of 500°C to around 220°C to reduce the volatilization. This resulted in condensation of tar and VOCs on the ceramic filter elements which caused cleaning problems. Many methods were tried to remedy this but all of these caused the elements to break.

*“shape capability
combined with
performance”*



Solution

In 2000, during a partial refit, 1296 of our PUREFRAX® 1.25 metre long (60 mm O.D.) elements were installed. Even with the surface area reduced by 15% the plant was able to handle nearly double the flow and none of the elements failed.

Of the approximately 500,000 tonnes of contaminated soil processed at the facility, 350,000 tonnes of this was undertaken following the inclusion of our PUREFRAX® elements.

Rigiform shapes can be manufactured from either Fiberfrax® (refractory ceramic fibres) or Insulfrax®/ Isofrax® (low bio-persistent fibres), blended with specially selected inorganic and organic binders to give rigid insulating shapes with exceptional characteristics.

The vacuum forming manufacturing method permits considerable freedom to vary shape, thickness, density and hardness.

Rigiform shapes often provide the most economical answer to producing large quantities of parts in simple or complex configurations for a wide range of applications up to 1300 °C.

Customer Advantages

Rigiform shapes and boards have the following outstanding characteristics:

- High temperature stability
- Low thermal conductivity
- Resistance to thermal shock
- Lightweight
- Complex shape capability

About Unifrax

Unifrax is a global leader in high-performance specialty products used by many industries in a diverse group of industrial applications. Our products provide substantial improvement in thermal performance, save thousands of dollars in energy costs and can help reduce your operations environmental footprint.

Contact Us

To learn more about Unifrax Thermal Management Solutions, contact your Unifrax sales representative or the Unifrax Application Engineering Group in your region:

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