The mica/graphite/mica story has been around a long time. **Unfortunately, the ending never gets any happier.**

In 1987, Flexitallic experimented with a mica-encapsulated graphite seal to resist extreme temperature, and pressure conditions. Although unsuccessful, our search led to discovery of vermiculite's use in sealing—the basis for the incredibly versatile material, Thermiculite®. Unlike mica, vermiculite can be exfoliated. But unlike graphite, it will not oxidize—enabling Thermiculite to create a lasting, gas-tight seal in high-temperature (up to 982°C) and high-pressure environments. **Something mica/graphite/mica still cannot do.**

815 CUT GASKET*

835 SPIRAL WOUND

845 FLEXPRO™ KAMMPROFILE

715 CUT GASKET*

Mica-shielding-graphite only delays the inevitable.

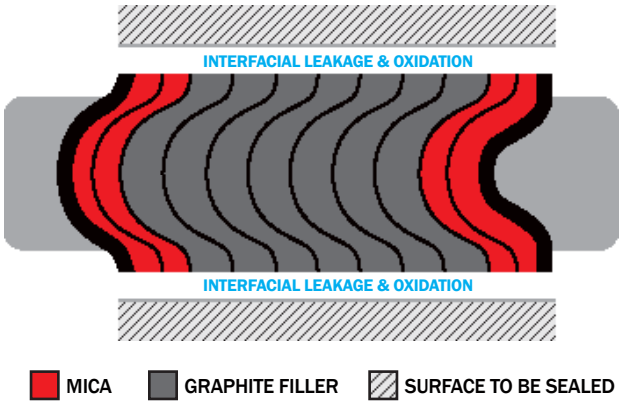
REQUIRED SERVICE LIFE	GRAPHITE	THERMICULITE® 815, 835 & 845	THERMICULITE® 715
1 YEAR	366°C	982°C	454°C
3 YEARS	332°C	982°C	454°C
5 YEARS	321°C	982°C	454°C
10 YEARS	304°C	982°C	454°C

Lab results that support the premise that mica/graphite/mica creates an effective seal are due to the brevity of the test period. All results whether in the lab or on-site are dependent on time, media, installation, design and bolt-load. Mica around graphite may delay oxidation but it will not prevent it.

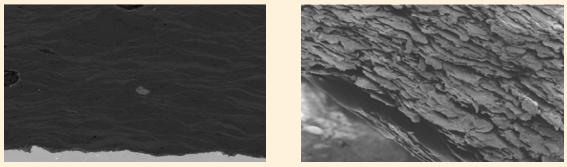
Mica leaks too fast to be measured on ASTM test rigs. Mica alone is very porous. At DIN Gas Leakage of >100ml/min vs. typical <1.0 ml/min for a laminated sheet. Standard mica max pressure is 5 bar (72.5 psi).

No wonder mica manufacturers don't list sealability.

MICA LEAKS TOO FAST TO BE MEASURED ON ASTM TEST RIGS



THERMICULITE SEALS BETTER



LEAKAGE IS MINIMIZED BECAUSE THE CRYSTAL PLATES IN THERMICULITE ALIGN PARALLEL TO EACH OTHER, PRODUCING A SMOOTH SEAL WHEN COMPRESSED. IT IS ALSO VERY SOFT AND THEREFORE FILLS IMPERFECTIONS ON THE FACES OF THE SURFACES TO BE SEALED.

The real world is a different story.

Failure in under four months. A Japanese ethylene producer running hydrocarbon steam at 598° C found that within an installed base of 22 mica/graphite/mica spiral wound gaskets, six (27%) were leaking within 3.7 months. At six months, 15 of 25 gaskets (60%) were leaking. All were replaced with Thermiculite and have performed successfully since 2005.*

100% oxidation in four weeks. A multinational chemical company in Delaware USA, using mica/graphite/mica gaskets, style LSI—at temps of 648.88° C—saw 100% in four weeks when they opened the joint.*

A long term solution. A silica manufacturer using superheated steam—732.22° C, Class 150-1500—found that mica/graphite/mica and ceramic-filled spirals all failed. They have used Thermiculite spirals successfully for the last ten years.

Thermiculite replaces all mica/graphite/mica gaskets and prevents oxidation—while increasing the range of temperature resistance.

* Data on file at Flexitallic.

Thermiculite protects workers, communities and your good name.

No wonder the world's leading gas, power and chemical companies trust Thermiculite to add an extra measure of safety to sealing applications like: ethylene furnace, combustion, engine exhaust, coal applications, super heated steam, nitrogen fertilizer, power, and many more.

Thermiculite is available in a wide range of forms—815 Sheet, 835 Spiral Wound, 845 Flexpro™ Kammprofile, and 715 Fiber Sheet—to fit even the most difficult applications.

Thermiculite products can replace aramid, glass, and carbon fiber; PTFE and graphite gaskets in a wide range of industrial applications.

Be Flexitallic SAFE. Especially when seal deterioration could be catastrophic. **Insist on Thermiculite.**

For more information, visit flexitallic.eu

USA | FLEXITALLIC L.P.
Deer Park, TX
Tel: +1 281 604 2400
Fax: +1 281 604 2415

CANADA | FLEXITALLIC, INC.
Edmonton, Alberta
Tel: +1 780 466 5050
Fax: +1 780 465 1177

UNITED KINGDOM | FLEXITALLIC LTD.
Cleckheaton, UK
Tel: +44 1274 851273
Fax: +44 1274 300303

SIEM SUPRANITE | A FLEXITALLIC COMPANY
Paris, France
Tel: +33 (1) 48 88 88 88
Fax: +33 (1) 47 66 88 44

CHINA | FLEXITALLIC SEALING TECHNOLOGY CO., LTD.
Wuijang, Jiangsu
Tel: +86 512 6303 2839

Flexitallic®