

SIGRAFLEX® Foil ZX

Graphite foil with highly-effective corrosion inhibitor

SIGRAFLEX Foil ZX is a further development of the SIGRAFLEX graphite foil of the quality class Z (ash content $\leq 0.15\%$).

SIGRAFLEX Foil ZX is produced from high purity SIGRAFLEX graphite foil of the quality class Z, which is subsequently treated in several process steps with barium molybdate – a highly-effective corrosion inhibitor.

SGL Carbon recommends this special quality for critical applications in armature and plant engineering to strictly prevent corrosion of sealing points and therefore avoid cost-intensive repairs or machine downtimes.

In some cases in which flexible graphite was used as a packing material, pitting-like corrosion phenomena could be observed on armatures made of stainless steels in contact with demineralised water.

These corrosion phenomena appeared in particular on low-alloyed steels, which are primarily used in armatures for power plants.

This effect occurs in particular on valves with long resting periods, whereas it was less observable on shafts which were in continuous motion, as e. g. in the case of pumps, pilot valves or the like.

Also, long storage periods of new armatures are problematic, as they frequently cause corrosion of the parts prior to installation.

Extensive studies have shown that even the use of graphites with high chemical purity cannot fully prevent corrosion. Supplementary use of sheet zinc or similar electrochemically active substances in the gasket material does not yield satisfactory results, as this “corrosion protection” can only be maintained over a certain period of time.



Under certain circumstances, supplementary use of zinc (principle of the sacrificial anode) may even have a corrosion-promoting effect, especially under increased temperatures. Additionally, such packings feature worse sealing performance than packings made only from flexible graphite. The resulting zinc oxide always leads to an increase in volume of the packing during operation, which can lead to a blockage of the spindle. Due to operational failure, some plant operators have already banned zinc completely as a corrosion inhibitor.

SIGRAFLEX Foil ZX does not have these disadvantages.

Pitting corrosion does no longer occur with the use of SIGRAFLEX Foil ZX.

In extensive studies with steels customary to apparatus engineering, corrosion could not be detected in a single case with SIGRAFLEX Foil ZX.

Properties

The physical, chemical and sealing-related properties of SIGRAFLEX Foil ZX are largely identical to the properties of the high-purity quality classes Z.

Further studies have demonstrated that the corrosion protection remains in effect under temperatures of up to ca. 300 °C. After prolonged overheating, this effectiveness is impaired; however, the sealing performance remains unaffected.

Fields of application for SIGRAFLEX Foil ZX

In acute cases of corrosion of any kind, the use of SIGRAFLEX Foil ZX is recommended.

In addition to that, it is advisable to apply this quality for packings, flat gaskets and shaped gaskets for armatures which are under the influence of water or steam.

SIGRAFLEX Foil ZX is suitable for usage in nuclear power plants (primary and secondary circuit) with regards to safety and maintenance freedom.

Additional typical fields of application

- Conventional power plants
- Industrial steam and hot water systems

Technical data

Foil thickness: 0.37 mm ± 0.05 mm

Density: ca. 0.95 g/cm³

Ash content: ca. 2% (attributable to inhibitors)

Total chloride content: ≤20 ppm

Total sulfur content: <300 ppm

Forms supplied

SIGRAFLEX Foil ZX is delivered as rolled material in the dimension 500 mm x 48 m on cardboard winding cores with an inner diameter of 105 mm. Stable side disks with handles prevent the wound roll from touching the ground and allow for easy handling. The drum is delivered in a stable cardboard box.

General

In the case of any special application-related questions, please refer to your gasket supplier.

SIGRAFLEX ZX gasket systems are offered by many noted gasket suppliers.



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