

SIGRAFLEX®

Physiological inertness

SIGRAFLEX flexible graphite foil is manufactured from natural graphite without the use of binders or fillers. Natural graphite is mined in many different parts of the world.

Natural graphite as a raw material does not contain any organic contaminants. The only known contaminants are of a mineral nature, these are in the form of inorganic oxides or silicates that occur naturally in the surrounding rock. Owing to the low level of impurities, their almost inert nature and their low potential for release, no harmful effects are anticipated.

SIGRAFLEX graphite foil has a plate-like formation, it does not break up into fiber particles as asbestos does. Due to its mineral origin SIGRAFLEX flexible graphite foil does contain a small proportion of crystalline quartz/silicon dioxide. If the natural graphite foil is further processed and respirable dust is generated the local permissible exposure limits should be observed.

The total impurities of uncoated/non-impregnated SIGRAFLEX graphite foil ranges from $\leq 5\%$ to ≤ 5 ppm, depending on the grade.

Even at elevated temperatures, such as in the event of a fire, no harmful organic compounds are released, other than the formation of mainly CO_2 in air at temperatures above approx. $450\text{ }^\circ\text{C}$ ($840\text{ }^\circ\text{F}$).

Pure graphite is chemically inert and insoluble, it does not release soluble constituents, e.g. in the form of ions.

Graphite consists of the element carbon and differs from other allotropes of carbon only in its crystalline lattice structure.

Some SIGRAFLEX flexible graphite foil grades, and some metal reinforced SIGRAFLEX sheets, are used in food stuff and drinking water applications. Various approvals, test reports and certificates available include:

Food stuff applications

- TÜV Rheinland, LGA: Assessment according to Food Legislation: "Regarding the tested parameters the tested article complies with the requirements of § 31 LFGB"
- Fraunhofer IVV: Food regulatory assessment: Determination of metals soluble in hydrochloric acid, determination of PAHs and screening analysis
- SGS Institut Fresenius: FDA 21 § 177.1550, Regulation (EC) No. 1935/2004 and LFGB
- The U.S. Food and Drug Administration (FDA) classifies graphite as safe for use in contact with food, named GRAS (Generally Recognized As Safe) and according to CFR 21 Part 174.5 (d) (1). In particular, contamination with polycyclic aromatic hydrocarbons (PAHs) can be excluded, as PAHs do not exist in the raw material and in the individual process steps of SIGRAFLEX production. Expanded natural graphite is registered under CAS # 7782-42-5.

Drinking water applications

- Hygiene-Institut des Ruhrgebiets: Test certificate according to the evaluation basis for enamels and ceramic materials in contact with drinking water of the Federal Environment Agency (draft). Remark: Former KTW
- Water Regulations Advisory Scheme UK (WRAS): Approval according requirements of BS6920-1:2000 and/or 2014 "Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of water".

Not all SIGRAFLEX products are suitable for use in food and drinking water applications! Please note the information on the certificates and test reports, which we make available at www.sigraflex.com/downloads or contact us.



Additional information on our SIGRAFLEX sealing materials can be found under "Download Center" on our homepage.
www.sigraflex.com/downloads



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