NEOGRAF™ SOLUTIONS

GrafGuard®

GrafGuard® Expandable Graphite Flakes

Product Overview

GrafGuard® expandable graphite flake is a non-halogenated fire retardant additive for materials that require improved fire-protection characteristics including wood, foam, plastics, roofing, coatings, and other construction and building materials. Expandable graphite can be found in critical fire-stop automotive applications. This product improves the performance of fire-retardant additives such as phosphates, magnesium hydroxide, and nitrogen compounds.

Crystalline graphite flake is the starting material required to make expandable graphite. During manufacturing, chemicals are trapped between the graphite layers. The graphite expansion initiated from a fire can be more than 100 times its original thickness, resulting in a non-burnable, insulating layer. GrafGuard expandable graphite flake enables the building products and automotive industries to meet increasingly stringent fire safety codes for wood products and foam insulation panels, putties, coatings, and structural panels.

NeoGraf's Value Proposition

NeoGraf Solutions has unparalleled expertise in the use of expandable graphite in polymer systems and coatings for over 25 years. Our graphite material science experts offer advice on synergistic compositions of flame retardant materials based on your polymer system and the fire test requirements.

NeoGraf is the only North American manufacturer of expandable graphite for intumescent applications with a global manufacturing and distribution network. Our supply chain coupled with a world-class manufacturing operation has a daily output exceeding 20mt/day.

Features

- Customized onset temperature from 160°C to 280°C
- Forms an effective insulating char layer
- Expands up to eight times more than competitive products
- Highest expansion volume
- Manufactured without lead or chromium
- Enables ideal application as an intumescent additive

Benefits

- Engineered activation temperatures to meet processing requirements
- Performance does not degrade with time or environmental exposure
- Controlled surface pH
- Reduces smoke evolution
- Engineered particle size

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Expansion Comparison

GG180-60N GG160-50N GG200-100N GG220-50N GG160-80N GG220-80B GG250-50N

GrafGuard flake has been shown to expand up to eight times more than other intumescent systems, exhibiting superior performance even at low temperatures. This high expansion makes it possible to reduce overall loading levels of the non-halogenated fire-retardant system. As the amount of additive is reduced, the probability that the physical properties of the final product will be negatively affected is also reduced. Before expansion, GrafGuard expandable graphite flakes have a typical tap density between 0.69 to 0.85 g/cm^3 with a physical identity of 1.8 to 2.2 g/cm^3.

Every GrafGuard product is identified by a specific grade. For example, GG220-50N represents a flake with an onset temperature of 220˚C, manufactured from 50 mesh natural graphite, with neutral surface chemistry.

Commitment to Excellence

GrafGuard expandable graphite flakes are produced in North America and meet or exceed all environmental and quality standards in a sustainable manner. Most GrafGuard grades are on the OEKO-TEX[1] list of accepted chemical products.

- ✓ ISO 9001:2015
- ✓ ISO 14001:2015
- ✓ RoHS Compliant
- ✓ Conflict-Free Minerals
- ✓ Lead-Fee/Chromium-Free
- ✓ REACH Compliant

Technical Support

NeoGraf Solutions' global team of Application Engineers specialize in providing technical support to a wide variety of applications, design and modeling for the latest high tech devices, fuel cells, industrial gaskets, fire-rated building materials, and LED lighting. With over 140 years of carbon and graphite innovation and leadership, we specialize in the development and manufacture of high quality flexible natural and synthetic graphite sheets as well as expanded and expandable graphite powders.

Regardless of your product design phase (concept, prototyping, or mass production), NeoGraf offers technical answers and thermal modeling support to some of your most challenging problems with a fast response time.

Please contact NeoGraf Solutions today at neograf.com/contact.

[1] OEKO-TEX® https://www.oeko-tex.com/en/apply-here/active-chemical-products/accepted-acps?tx_solr%5Bfilter%5D%5B0%5D=type%3Afla

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