



DynaGuard™

Cavity Filler 1800

Microporous Insulation

DynaGuard® Cavity Fill Insulation Systems

DynaGuard™ Cavity Fill Insulation represent one of ThermoDyne's microporous products for use in industrial, commercial, and other applications. The DynaGuard™ cavity fill material is a pourable, granule based material comprised of microporous insulation for use where conventional products cannot be used. It is ideal for filling the cavities of complex shapes and structures. Cavity Filler provides excellent thermal protection with minimum space and weight requirements. DynaGuard™ Cavity Filler is also specially formulated to minimize heat transfer via conduction, convection, and radiation through the material by optimization of the following. DynaGuard® microporous insulation is a blend of ceramic powders, opacifiers, and fibers combined to produce a high temperature material that provides excellent thermal stability, low thermal diffusivity and the lowest thermal conductivity. DynaGuard® is specially formulated to block all three forms of heat transfer. Conduction is minimized through the use of a ceramic powder which intrinsically has low thermal conductivity. In addition, the powder is formed to create a porous structure, minimizing the energy conducted through the solid material. Convection is minimized by using a powder with an extremely fine particle size which forms void spaces too small for convection currents to exist. Radiation increasingly becomes the dominant mode of heat transfer as application temperature increases. The infrared heat transmission through the insulation is reduced to the lowest levels possible with the addition of special opacifiers in the DynaGuard® formulation.

Materials of Construction

DynaGuard® Cavity Fill Insulation materials are designed for more specific applications verses some of our other industrial materials that are used for a wide variety of industrial applications. These are available in a variety of densities, sizes, thicknesses, and configurations. Most of all these applications are engineered systems of some kind to meet the need of a host of applications and design criteria. These materials can be used as they are as a material or as most of the applications there are other materials involved in the configuration that we develop and supply.

DynaGuard® Insulation Systems Advantages

Our materials are typically engineered into assemblies that are ready to be installed in an upstream system or sub assembly. Any type of configurations can be engineered and produced. Many additional materials can and are typically intergraded together. Stainless steel, Inconel, titanium, aluminized mylar coverings are typically intergraded in.

Lowest Thermal Conductivity for the configuration

Our formulations work together to form a material with the lowest possible thermal conductivity, thermal diffusivity and heat storage. This enables DynaGuard® XB to provide the maximum thermal protection utilizing the least amount of weight and space.

Lightweight and Saves Space

Low densities result in mass savings for weight sensitive applications commonly encountered in the industrial, automotive, commercial, and electronics industry. In applications where space is a problem, low thermal conductivity means less material thickness is required to achieve the desired insulation value saving space.

High Temperature Capability

DynaGuard® can be made to meet high temperature requirements including intermittent exposure up to 2000°F. Other average temperature applications are 1800F..

Physicality of this material

This material is good in compression, generally poor in tension, and can withstand environments with reasonable vibration so encasement or an entombed final configuration is recommended.

Assemblies

Complex shapes can be filled and intergraded into designs. Most times we design all the components we produce for our customers.

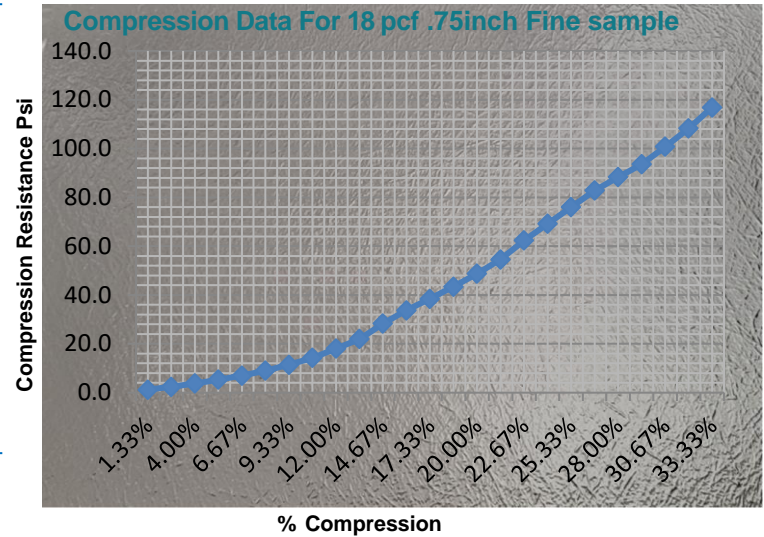
Typical Characteristics

Fine 15 pcf pour density 240 kg/cuM
 18 pcf tap density 288 kg/cuM

Medium 15 pcf pour density 240 kg/cuM
 16 pcf tap density 256 kg/cuM

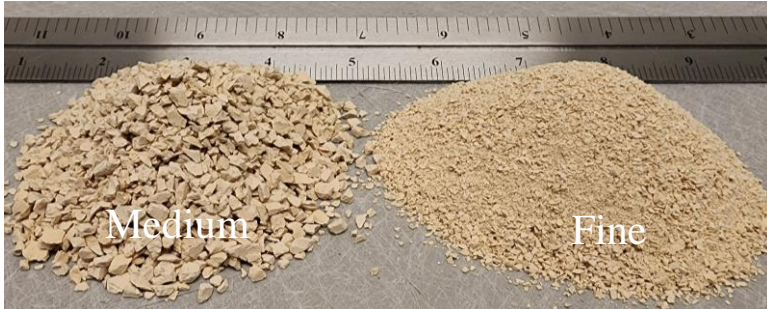
Temperature (1800°F)

Standard Sizes 25 lb boxes
 1400 lb super sacks approx.



Thermal Conductivity Data (Btu - in/hr - ft 2 - °F)*

Mean Temp F	Fine	Medium
200	.18	.23
400	.20	.25
600	.21	.28
800	.26	.31
1000	.30	.35
1200	.35	.40
1400	.41	.44



**NOTE: These thermal conductivity values have been calculated based on other of our materials of similar density that have been tested in accordance with ASTM Test Procedure C-177. When comparing similar data, it is advisable to check the validity of all thermal conductivity values and ensure the resulting heat flow calculations are based on the same condition factors. Variations in any of these factors will result in significant differences in the calculated data.*

Technical and installation support for DynaGuard® microporous insulation is provided by ThermoDyne's application engineering team. For more information on DynaGuard Cavity Fill® microporous insulation, contact ThermoDyne at 574.522.3606 or Fax 574.293.0047



Industrial

- Fuel cells
- Complex Stainless Shapes
- Fire walls
- Night storage heaters

Batteries

- EV batteries
- Thermal runaway protection
- Molten batteries
- Thermal batteries

Transportation

- Exhaust systems
- Heat Shields
- Diesel aftertreatment systems
- Double wall exhaust tubing

Specialty

- High performance ovens
- High performance furnaces
- High performance kilns
- Specialty equipment



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