

What is heat insulating materials?

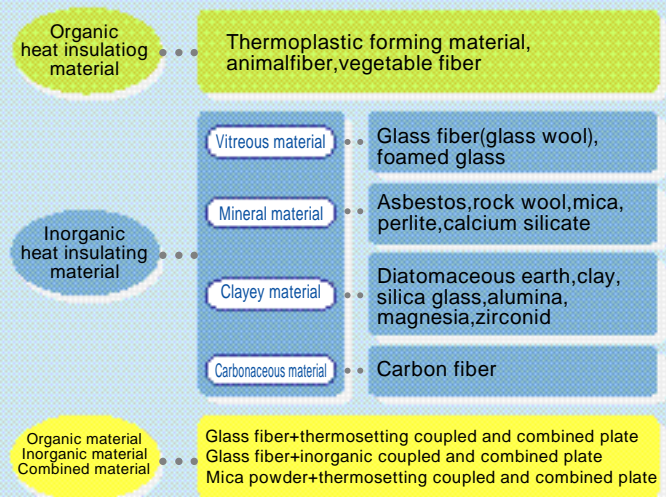
"Heat insulating material" means a material to insulate heat literally. Utilization of heat insulating material is spreading over various fields from ultra-low temperature applications (-253 °C) of using liquid hydrogen for fuel to high temperature applications (above 2,000 °C) that of nuclear reactors. Why do such various fields demand heat insulating materials? It is because the safety and productivity improved by the heat insulating materials are necessary for today's industry. It is widely recognized that remarkable economic results, improvement of product accuracy as well as productivity, reduction of energy cost on the production line, comfortable working environment and minimization of deformation which are all attributed to heat insulation. An increasing number of industries are expecting more effective heat insulating materials and are taking a great interest in them.

1 Types of heat insulating materials

Figure-1

There are three types of heat insulating materials, i.e., solid, liquid and gas, and each of them has unique characteristics. Solid heat insulating materials have various types of products that have been developed based on various materials. As shown in Figure-1, these products are classified as "organic material", "inorganic material" and "combined material" composed of organic and inorganic materials. Generally, "organic" heat-insulating materials have an advantage in workability and cost, but have problems in durability at high temperatures. On the other hand, "inorganic" heat insulating material is excellent in heat-resistance and strength, but it tends to be costly.

Nikko Kasei has been conducting diversified and multilateral researches on heat-insulating materials for a long time and pushing forward the development of more powerful and effective non-asbestos heating insulating materials.



2 Selection and processing of heat insulating materials

In general, materials are examined by comparing physical characteristics shown in catalogs issued by manufacturers. However, measuring methods of physical characteristics are not standard and, therefore, the values stated in the catalogs cannot be directly compared in many cases. For example, a value of thermal conductivity varies greatly depending on the measurement method. To avoid troubles in selecting materials, it is highly recommended to consult with manufacturers and processors over and over again.

In most cases, heat-insulating materials are made into flat plate and therefore, cutting, drilling, milling, tapping and polishing works are required for practical use. The dust generated in the process of such works sometimes causes environmental problems. Though Nikko's products do not contain any harmful asbestos, it is advisable to ask material processors to handle the processing works. The processors authorized by us control the dust and finish up the work with precise craftsmanship. For further information on authorized processors, please contact our dealers or our head office directly.

Notes on handling



Notes on transportation

1. For heavy materials, use a suitable transportation equipment and handle with care.



Notes on processing

1. Install a local ventilator in places where fine chips may be produced upon processing.
 2. Put on any protector to protect yourself from fine chips dispersed upon processing.
- When you complete your work or leave your working area, remove the fine chips from your protector and clothes, and be sure to gargle.



Notes on storage

1. Select a place with low humidity that is not exposed to the sunlight.
2. Stack the products on a flat bed. If you lean them against walls, etc., support or take necessary measures to prevent them from falling.



Notes on scrapping

1. Take necessary measures to prevent fine chips from dispersing.
2. For disposal of cut pieces and fine chips, follow your governmental/local rules and regulations and request a qualified industrial waste treatment contractor.