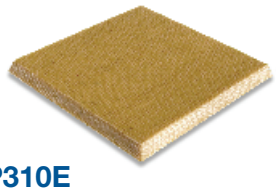
NORPLEX MICARTA

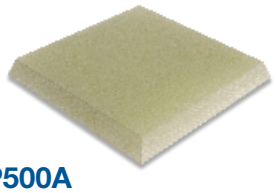
High Performance
Thermoset Composites

High Performance Thermoset Composites For the Oil & Gas Industry



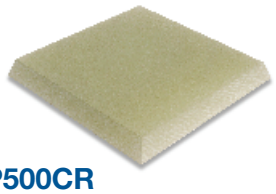
NP310E

Electrically insulating, less abrasive than fiberglass, ideal for explosion-proof environments, rubber-clad for a better seal against the pipe flange



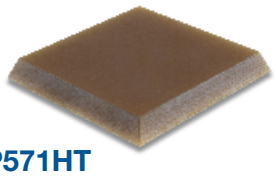
NP500A

Excellent structural support and insulation properties, ideal for pipe shoe and vacuum applications



NP500CR

Superior physical properties and excellent electrical characteristics in high-humidity conditions



NP571HT

High T_g composite grade ideally-suited for high-temperature steam gasketing

The oil & gas industry requires high- and low-temperature thermoset composite materials that provide superior thermal insulation and corrosion resistance, as well as high mechanical strength. Norplex-Micarta offers a full line of these specialty composites, all certified to meet the most challenging industry specifications. From gasketing used in oil well heads, to support structures for pipelines, to components in refineries, Norplex-Micarta is the preferred high performance composites manufacturer for OEMs and fabricators around the world.

Norplex-Micarta composites provide thermal insulation from arc welding to cryogenic temperatures. This is critical for components used in midstream applications, not only to maintain temperatures of gases and liquids being transported in a pipeline, but also to protect the entire length of the pipeline from damaging temperature fluctuations that cause it to expand and contract excessively. Metal alternatives, such as copper or steel, easily conduct heat, resulting in thermal efficiency losses.

To protect equipment and structures from the damaging effects of chemicals and environmental factors, Norplex-Micarta composites provide excellent resistance to corrosion. Even with long term or repeated contact with corrosive elements, thermal insulation and strength properties are maintained. This is particularly important for offshore drilling platforms and pipelines that are exposed to saltwater and wind for decades, as well as refinery equipment that is repeatedly exposed to cleaning and processing chemicals. Stringent resistance testing for specific chemical combinations guarantees exact qualifications.

Material strength is also a critical characteristic for composites used in oil & gas applications because of extreme mechanical and shear forces, particularly in pipelines. Not only do supports need to hold up to the weight of the pipeline, but they also need to withstand movement caused by the expansion and contraction of the metal structures during temperature shifts. Norplex-Micarta composites also exhibit excellent creep resistance, making them a good alternative to PTFE.

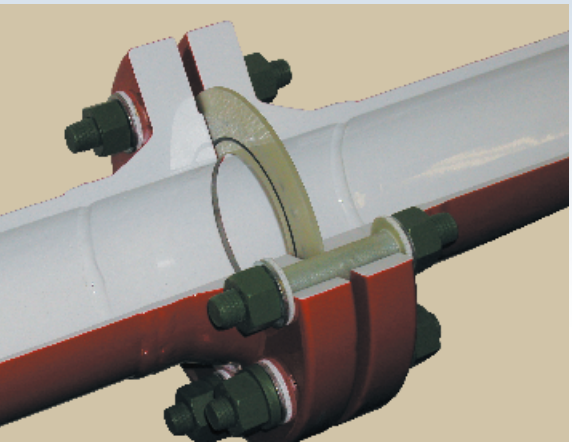


Photo courtesy of Pikotek, Inc.

Gaskets protect against cathodic corrosion, as well as expansion or contraction caused by temperature fluctuations.

Pipeline Supports prevent temperature migration between the pipeline and support structure.

Pipe shoe photo courtesy of Piping Technology and Products, Inc.

Upstream Applications require materials that withstand exposure to extreme weather conditions for years.

Gasketing

Gaskets isolate one section of a pipeline from another, protecting them from cathodic corrosion caused when two pieces of metal contact each other. For high- and low-temperature applications, a disk of Norplex-Micarta composite material is placed between the two flanges of connecting pipeline sections, separating the metal when sections are bolted together. Norplex-Micarta gasket material is also used in high-temperature steam applications. Utilizing a unique processing technique that combines glass cloth and epoxy reinforcements, the resulting thermoset composite has a tight molecular structure that functions well in acidic and high-temperature environments. The tough, non-brittle material has a T_g of 210°C and provides excellent mechanical strength, while maintaining inherent dielectrically insulating values. Tubing material and composite washers are also used to completely insulate the connecting bolt.

During installation for pipeline and steam applications, gaskets, tubes, and washers must withstand compressive forces as high as 2,000 to 5,000 psi as the sections are sealed together. Shear force is an ongoing factor, as the metal components expand and contract with temperature changes. Gaskets can be manufactured in sizes ranging from 0.25" to 16' in inside diameter, and 0.01" to 0.25" thick.

Pipeline Supports

In midstream applications, Norplex-Micarta materials are used to insulate the pipeline from the support structure, both of which are typically made of steel. These supports perform two functions: first, they prevent temperature migration between the pipeline and support structure, which allows for efficient temperature control of the material being transported; second, they provide both mechanical and shear strength to support the weight of the pipeline and protect the support structure against movement caused by expansion or contraction of the metal. Supports are normally manufactured to fit pipelines ranging from 2" to 16' in diameter.

Specialty Components

Because of their thermal insulation, chemical resistance, and mechanical strength properties, Norplex-Micarta materials are used to manufacture various components from upstream to downstream applications. Contact our engineering department to discuss your particular requirements.

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