SUMMARY ~~OF INVENTION~~

Technical Problem

[0009]

However, gaskets that are composed of the conventional filled fluororesin sheets, for example clay- or talc-filled fluororesin sheets described in Patent Literatures 1 and 2, are still insufficient in terms of stress relaxation properties, in particular at a high temperature.

[0010]

The present ~~invention~~disclosure has been made in view of the problems in the art described above. It is therefore an object of the present embodiments disclosed herein~~invention~~ to provide a filled fluororesin sheet excellent in stress relaxation properties, in particular stress relaxation properties at a high temperature, a process for the production thereof, and a filled fluororesin sheet gasket having excellent stress relaxation properties.

[0011]

Patent Literatures 3 and 4 do not teach or suggest that the high-hardness filler is added to the fluororesin (such as PTFE) to improve stress relaxation properties of the fluororesin sheet, or the fluororesin containing the high-hardness filler is used as a gasket material.

Solution to Problem

[0012]

The present inventor carried out studies and has found that a fluororesin sheet containing a specific filler solves the problems described above. The present ~~invention~~disclosure has been completed based on the finding.

[0013]

A filled fluororesin sheet according to the ~~invention~~disclosure comprises a fluororesin and an inorganic filler having a revised Mohs hardness of not less than 8, in a fluororesin:inorganic filler volume ratio of 30-55:70-45 (wherein the total of the two is 100).

[0014]

A process for producing filled fluororesin sheets according to the ~~invention~~disclosure comprises a step of rolling a sheet-forming resin composition which comprises a fluororesin, an inorganic filler having a revised Mohs hardness of not less than 8 and a processing aid and in which the volume ratio of the fluororesin and the inorganic filler (fluororesin: inorganic filler) is 30-55:70-45 (wherein the total of the two is 100).

[0014a]

In one aspect, there is provided a process for producing filled fluororesin sheets, comprising

a rolling step of rolling a sheet-forming resin composition which comprises a fluororesin, an inorganic filler having a revised Mohs hardness of not less than 8 and a processing aid and in which the volume ratio of the fluororesin and the inorganic filler (fluororesin:inorganic filler) is 30-55:70-45 (wherein the total of the two is 100),

a drying step in which the sheet that has been rolled in the rolling step is allowed to stand at ordinary temperature or is heated at a temperature not more than then melting point of the fluororesin, thereby removing the processing aid, and

a calcining step of heating the dried sheet at a temperature not less than the melting point of the fluororesin to sinter the sheet.

[0014b]

In another aspect, there is provided a filled fluororesin sheet produced by the process described above, wherein the filled fluororesin sheet has a stress relaxation of not more than 40%.

[0015]

The inorganic filler may be at least one material selected from the group consisting of diamond, cubic boron nitride, boron carbide, silicon carbide, silicon nitride, tungsten

carbide, α-alumina, tantalum carbide, fused zirconia, garnet, topaz and zirconia.

[0016]

In another aspect, there is provided a~~A~~ gasket ~~according to the invention~~ comprise~~s~~ing the filled fluororesin sheet as defined above~~of the invention~~.

Advantageous Effects ~~of Invention~~

[0017]

The filled fluororesin sheet of the ~~invention~~disclosure has excellent stress relaxation properties, in particular at a high temperature.

[0018]

The inventive process for producing filled fluororesin sheets can produce filled fluororesin sheets which have excellent stress relaxation properties, in particular excellent stress relaxation properties at a high temperature.

[0019]

The gasket of the ~~invention~~disclosure has excellent stress relaxation properties, in particular at a high temperature.

DESCRIPTION OF EMBODIMENTS

[0020]

The present invention will be described in greater detail hereinbelow.