

heating chamber kept at a temperature in the neighborhood of 1000° C.

What is claimed is:

1. The method of producing expanded silica granules which comprises granulating an initial mixture of powdered fused quartz, powdered silica gel free from alkali metal ions and a suspension of colloidal silica in water, drying the resulting granules to remove free water from the mixture, firing said granules at a temperature between 1000° C. and 1200° C. to remove loosely bound water from the silica gel and to bond the particles of which the granules are formed, and then dropping said granules through a zone maintained at a temperature of at least 2000° C. to fuse and spheroidize them and to cause the tightly bound water of the silica gel to be released so as to create small voids within the granules, the proportions of the various forms of silica in said initial mixture being between 10 parts and 90 parts by weight of fused quartz, between 10 parts and 90 parts by weight of silica gel and between about .7 part and about 2.2 parts by weight of colloidal silica.

2. The method of producing expanded silica granules which comprises granulating a mixture of 10 parts to 90 parts by weight of powdered fused quartz, 10 parts to 90 parts by weight of powdered silica gel free from alkali metal ions and 4 parts to 12 parts by weight of an 18 percent by weight suspension of colloidal silica in water, drying the resulting granules to remove free water from the mixture, firing said granules at a temperature between 1000° C. and 1200° C. to remove loosely bound water from the silica gel and to bond the particles of which the granules are formed, and then dropping said

granules through an atomic hydrogen arc to fuse and spheroidize them and to cause the tightly bound water of the silica gel to be released so as to create small voids within the granules.

3. The method of making a microphonic material which comprises granulating a mixture of powdered fused quartz, powdered silica gel and a suspension of colloidal silica in water, drying the resulting granules to remove free water from the mixture, firing said granules for about 4 hours at about 1100° C. to remove loosely bound water from the silica gel and to bond the particles of which the granules are formed, dropping said fired granules through an atomic hydrogen arc to fuse and spheroidize them and to cause the tightly bound water of the silica gel to be released so as to create small voids within the granules, and then coating said granules with a microphonic layer of carbon, the amount of colloidal silica present in said initial mixture being about 1.4 parts by weight per 102 parts by weight of the mixture of fused quartz and silica gel, the fused quartz and silica gel being present in proportions relative to one another of between 40 parts and 80 parts by weight of fused quartz and between 20 parts and 60 parts by weight of silica gel, the silica gel having a collapse temperature above said firing temperature.

#### References Cited in the file of this patent

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