UNIVERSAL CERAMICS FILTERS

Description
A unique technology of obtaining of porous ceramic pipes is designed. The technology uses the method of self-propagating high-temperature synthesis and such natural concoctions as ilmenite, quartz, etc. Technological and cost efficiency of the new technology is provided by low power consumption, simplified technology cycle, possibility of obtaining products with large work surface, upgraded quality as compared with the traditional technologies.

Pipes obtained of porous ceramic material using the method of self-propagating high-temperature synthesis

Filtering rate (linear) at pressure differential 1 kGs/sm²: up to 30 m/min (air) up to 0.6 m/min (water)

Filtering capacity: 1–300 mcm
Pore size: 3–1000 mcm
Overall dimensions: up to 2 m long and 50–300 mm dia
Work surface: up to 1.9 m²
Tensile strength: up to 8 MPa
Compression resistance: up to 30 MPa
Thermal stability: up to 1000°C.
Specific electrical resistivity: $10^{-6}–10^{-5}$ Ohm•m.
Work time: unlimited
Regeneration: all methods of regeneration from contamination are allowed

Technical appraisal and economic benefits
As against activated carbon:
- higher gas–liquid permeability,
- possibility of 100 % regeneration,
- increased chemical stability,
- enhanced mechanical strength,
- increased stability to high temperature,
- high electroconductivity.

Application areas
- In oil-and-chemical industry for purification of fuels, oils and other oil products, as well as flow-through electric heaters.
- In gas industry for purification of natural gas.
• In chemical industry for purification of air, vapor, acid solutions, alkali, as working elements for capillary drying of high-concentration suspensions.
• In metallurgy for purification of gas effluents and industrial wastewaters.
• In heat power industry as gas burners, for purification of natural gas before burning.
• In public utilities for purification of drinking water.
• In space technology as capillary pumps.

**Development stage**
Pilot production based on the Department of Structural Macrokinetics has been established. Filters were introduced at SAYANSKKHIMPLAST (Sayansk, Irkutsk Region).

**Patent situation**
The technology is protected by 3 patents.

**Commercial offers**
Selling license on production of ceramic filters, supplying of pilot lots of products, joint production.

**Estimated cost**
One-meter long pipe cost 4,000-6,000 rubles depending on the sales volume.

**Contacts**
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