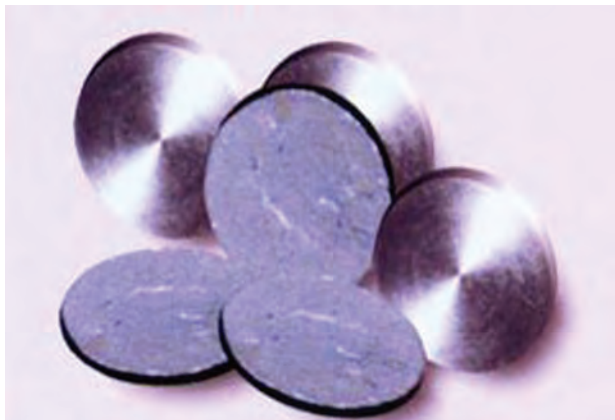


DEVICE FOR ACCELERATED START OF DIESEL ENGINES AT LOW TEMPERATURE



Ferroelectric semiconductor heating elements

Areas of Application

The devices based on high-performance ferroelectric-semiconductor heating elements (PTCR) are used to accelerate the start of diesel engines at low temperature, in wintertime

Specification

The devices reduce the minimal temperature of diesel engine start by 10 °C with the use of vehicle power source and by 15–20 °C in the case of external power sources

Stage of Development. Suggestions for Commercialization

IRL7, TRL7
Manufacture, tests, and delivery,
upon request

IPR Protection

IPR1, IPR3

Contact Information

Anatolii H. Belous, Vernadsky Institute of General and Inorganic Chemistry of the NAS of Ukraine;
+38 044 424 22 11, e-mail: belous@ionc.kiev.ua



Heated fuel filter



Heated oil intake compartment

Advantages

The PTCR heaters have significant advantages as compared with conventional electric heaters as they consume the minimum required power from the source (accumulator); they do not require any electronic control schemes; the PTCR heater automatically maintains a certain temperature independently on ambient temperature and voltage supply. Such heaters are reliable because they have no moving parts of any kind. The required temperature is set by ceramics chemical composition and manufacturing conditions. The heaters can take arbitrary shape, which enables heating in the hard-accessible places. Heat transfer from PTCR heater can be effected through both heat conduction and convection. The PTCR ceramic heaters can operate in various environments, including in motor oil and diesel fuel due to their high chemical resistance