

The invention relates to a process and installation for automatic remote air sampling by a drone from atmospheric layers up to a height of 150 m to control harmful impurities in the form of gases and aerosols, including low concentrations, to determine the dynamics of the distribution of impurities in the vertical and horizontal direction in hard-to-reach places adjacent to stationary and mobile sources.

The process for air sampling from the atmosphere consists in forced filtration of atmospheric air through a fibrous filter, installed in a container (2), at the same time additional filtration is carried out through a second filter with carbon nanoclusters C_n (4), where $n=40\dots100$, which preliminarily together with container (2) are subjected to vacuum heat treatment. The container is kept under vacuum until an air sample is taken. Then the impurities entrapped by the fibrous filter with solvents and the filter with carbon nanoclusters C_n (4) are removed by thermal desorption. Transportation of the installation along the route to the sampling site, registration of coordinates and management of the sampling process is carried out using a drone (14).

The installation for air sampling from the atmosphere comprises an air distribution device (10), equipped with a ventilation valve (9), connected to an adjustable pneumatic pump (11), an air duct (12), a container (2) connection mechanism (8), a program control unit (13) and at least one container (2) with two valves (1 and 7), inside which a fibrous filter is placed at the inlet. At the same time, the second filter in the container (2), intended for additional filtration, is made in the form of a housing (3) of a porous composite material with absorbent substance of carbon nanoclusters C_n (4).

Claims: 2

Fig.: 3

