

Technology for the destruction of chemical munitions at the mobile unit

A flow chart for the destruction of air-launched and artillery munitions and warheads of tactical missiles filled with the nerve agents sarin, soman and VX at a mobile unit is shown in figure 21.

The calibres of the munitions to be destroyed range from 1 kg to 500.0 kg.

The arrangement comprises a chamber for removing CW agents, a "Neutral" neutralization unit, an ARS-14U chemical tanker, an IIG426 burner, an AL-4 mobile chemical laboratory, a lift truck, a casing neutralization chamber, a vacuum pump and instrumentation to control and monitor the operation of the unit and the state of the environment.

The destruction technology is essentially a thermochemical process involving neutralization of the CW agents and combustion of the neutralization products to form inorganic compounds in concentrations within the specified maximum permissible range.

The munitions to be destroyed are placed, depending on calibre, in one of the removal chambers (RM, RS and RK), which is connected by flexible pipes fitted with seals to the "Neutral" unit and the ARS-14U chemical tanker.

The munitions are opened in a hermetically sealed chamber by drilling a hole in the casing; obturation and evacuation of the CW agent into the "Neutral" reactor is then effected under a vacuum created by the vacuum pump.

The process of neutralization takes place at temperatures of 100-120°C over a period of 30-40 minutes.

The content of toxic substances in the reactive mass of sarin neutralization products is less than LD₅₀, or 1,200 mg/kg, for a rabbit.

Once the reaction is completed, the neutralization products are pumped out of the "Neutral" reactor into the chemical tanker and fed into the burner.

The combustion of the neutralization products takes place at a temperature of around 1,200°C. The combustion products are carbon, sulphur and phosphorus oxides and hydrogen fluoride.

Neutralization of the munitions casing, after removal of the CW agents, is carried out in a separate chamber.

The basic functional components of the unit - the removal chamber, "Neutral" unit and casing neutralization chamber - are hermetically sealed, thus preventing toxic substances from being released into the environment.

The destruction process is monitored by steady-state instruments on control panels.