

on the allowable burning rate. For extra safety, however, plume rise was not accounted for eventually in the tables resulting from the calculations.

18. These tables were to be used for the determination of the allowable burning rate during incineration upon indication of measured wind speed, wind direction and turbulence of the atmosphere. Furthermore, using portable measuring devices for sulphur dioxide and hydrochloric acid, it would be checked regularly whether the concentration of these gases at ground level was indeed below the standards set by their MLC and MAC values.

19. An incinerator should thus be designed and constructed that would enable the burning of mustard to be varied between zero and, according to the calculations, a maximum of 200 litres of mustard per hour.

20. The mustard would be pumped from the storage tanks into a transport tank of 2,000 litres (for greater flexibility two such tanks would be made available) using a pump unit, which would be designed to minimize the possibilities for contamination of personnel and surroundings. The full transport tank would then be moved towards the incinerator, which would be constructed some 4.5 km from the storage site on the artillery shooting range.

IV. DESCRIPTION OF THE EQUIPMENT

21. The incinerator was designed and built by the Central Technical Institute TNO. It consisted of a central chimney and two identical furnaces. Each furnace was equipped with a modified Oertly OJ 5 two stage burner, which allowed burning of oil, of mustard and of mustard and oil simultaneously. The modification implied a separate mustard pump for which a one stage oilburner pump was chosen. Each furnace was also equipped with a ventilator which supplied air to the top of the furnace in order to cool the effluent gases, to maintain an underpressure in the furnace preventing leakages and to dilute the effluent gases initially. The burning rate could be varied from 0 - 200 litres per hour by adjustment of the liquid pressure on the nozzle and by changing the nozzle. The incinerator was provided with a number of automatic control devices, i.e.:

(a) an infra red flame safety device monitoring the existence of a proper flame inside the furnace;

(b) automatic switches monitoring the availability of sufficient combustion and dilution air (with combustion air shortage unburnt mustard might leave the furnace, with dilution air shortage the temperature of the effluent gases might increase to such an extent that the chimney's mechanical stability would be endangered);

(c) minimum and maximum temperature controls respectively ensuring that the furnace temperature was always above 800°C (and therefore the combustion efficiency of mustard was at least 99.9994 per cent) and that the furnace temperature could not rise above 1000°C.

22. If either one of these devices would be unset, the process would be stopped automatically. When changing nozzles of the burner, the dilution air ventilator had to be switched off and the furnace was shut off from the chimney. A safety