

# PRINCIPLES OF MODELING OF THE SCENARIO OF CALMATIVE APPLICATION IN A BUILDING WITH DETERRED HOSTAGES.

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In the paper there are considered methods and software intended to support elaboration of scenarios for gas application in a building with hostages deterred by terrorists.

The model must take into account factors of uncertainty:

- 1- dispersion of personal tolerance,
- 2- non-homogeneous spatial distribution of calmative gas in the building,
- 3- scattering of contact time since gas attack to medical aid.

The aim is to look for chance to eliminate fatalities.

The solution may be formulated as product of “accumulated doze” and “medical vulnerability”. Two main parts of the solution should be elaborated:

*Physical task.*

- Analysis of scenario and defining parameters of mathematical problem.
- Parameters may be spatial, atmospheric, aerodynamic, chemical properties, sedimentation, evaporation, condensation, etc.
- Analysis of the problem geometry, air flows, convection, properties of aerosol source.
- Calculation of aerodynamics of flows as function of coordinates and time.
- Calculation of physico-chemical behavior of aerosol particles.
- Calculation of spatial/temporal concentration fields.
- Calculation of the fields of integrated doze.

*Medical task.*

- Collection of available information on the effect and targets.
- Selection of biological reference objects.
- Carrying out medical tests.
- Correlation curves for human adaptable region.
- Selection of mathematical model of human effect.
- Interpolation of human curves into the region of great doses.

The simplified algorithm for rapid evaluation of tactic situation is very desirable.

**Key words:** modeling, calmative, transfer, target effect