Materials of Conferences

THE INDUSTRIAL POISONS TOXICITY DEGREE RATING UNDER THE DUST HIGHLY ENRICHED CONTENT IN THE AIR CONDITIONS

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The hazardous and the harmful substances with the dust combined action challenge has the considerable significance for the industrial and the agricultural hygiene in connection with the fact, that this type of the combinations are being met in the agriculture, at the mining, the building, the metallurgical, the chemical industry enterprises and the others. So, the existing literary material analysis is being testified on the comparatively this challenge not too deep development. In the overwhelming majority cases, the performed experiments and the tests results have already been come to the different and the various substances toxicity increase qualitative fact statement.

The researches series results generalization attempt on the dust impact study and the dust influence examination for the hazardous and the harmful substances toxicity degree, with respect to the living organisms and the life forms has been undertaken in the present work. For all this, the task has been raised up to be carried out not only the qualitative, but and the quantitative received results analysis and also to be presented the calculating dependencies, having permitted to be taken into the consideration these factors combined influence at the hazardous and the harmful substances content hygienic normalization and the sanitary standardization.

The data on the industrious poisons series have already been generalized, for the purpose of the quantitative dependence receiving of the substance toxicity degree change dependence, in the combination with the dust. All kinds of the poisons have already been classified by the impact and the influence danger and the risk level upon the human organism, in accordance with the State Standard Specification 12.1.007 – 76.

The correlation type of $lgLD_{50} = a\ lgP + b$ has been accepted, as the generalized dependence, where LD_{50} – is the fatal dose, mg/м^3, P – is the dust concentration, mg/м^3.

The calculating formulae, having permitted to be considered the LD_{50} changes, at the dust highly enriched content in the working zone air have been received, as a result of the generalization:

For the extremely hazardous and the dangerous substances (the 1-st group):

$$lg\ LD_{50} = -0{,}1011lg(P) - 2{,}1612;$$

where 1 mg/m^3 <= P <= 120 mg/m^3;
with the error up to 1,5%.

For the highly hazardous and the dangerous substances (the 2 – nd group):

$$lg\ LD_{50} = -0{,}0832lg(P) - 1{,}068;$$

where 1 mg/m^3 <= P <= 120 mg/m^3;
with the error up to 1,4%.

For the moderately hazardous and the dangerous substances (the 3-rd group):

$$LD_{50} = -0{,}0013P + 0{,}8136;$$

where 1mg/m^3 <= P <= 120mg/m^3;
with the error up to 23,35%;
where LD_{50} – is the fatal dose, mg/м^3,
P – is the dust concentration, mg/м^3.

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