

## **THE SUMMARY OF THE DOCTORAL THESIS**

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entitled: „The definition of the influence of the use of selected binders on the strengthening soils”

The doctor's thesis undertakes the problems of the stabilization of grounds making the basis of rural earth roads.

For purposes of the doctor's thesis is the exhibition of the influence, which exert different binders of binding on the durability of modified soils which will be of service as constructional material to the construction of roads of agricultural. Research works showed which influence of optimum binders and their combination on the carrying capacity of investigated soils.

In the first chapter one talked over the problems of the rural transport in aspect of the carrying capacity and the practicability on rural earth roads. Once represented the division and the characterization of soils appearing in roads construction with emphasis of their carrying capacity and subject to frost – heave.

In the second chapter one represented manners of the stabilization with different binders with hydraulic and special adds to binders hydraulic, targeting the strengthening of the road construction.

In the third chapter one represented the methodology of research. The methodology contained the section of basic research of geotechnical soils: the physical properties, the curve of the granulation, the humidity the optimum- and maximum bulk density of the ground framework and research of the compression strength, the extension, freeze resistance and water absorption of mixtures of grounds with binders.

The fourth chapter contains research of geotechnical of three selected grounds: not subject to frost – heave (ordinary sand), subject to frost – heave (sandy clay) and the doubtful (clayey – rubble).

In the fifth chapter one represented results of mixtures of grounds with binders. To research one used hydraulic binders eg. the cement, the pozzolana binder CQ25 and adds (chemical EN-1, ionoreplaceable K-1 and of polymer) strengthening of the ground with hydraulic binders. The choice of binders was dictated with the possibility of the purchase the materials to research. Binders were collected through the good will of producers and performers of road works.

In the sixth chapter one talked over the manner of the calculation of errors and the statistical analysis of obtained results. The analysis concerns the three-factor research, one accepted the method of analysis of the linear variance, across the verification of null hypotheses by means of the Fischer function.

In the seventh chapter one surrendered {one subjected} to the estimation and the discussion obtained results. Obtained results confirmed the accepted hypothesis that adding of binders to grounds would bear on their mechanical properties, will cause the growth of their compression strength and remaining technical parameters, what will enlarge the range of the possibility of the application them in the construction of earth roads. Optimum during the regard on researched durability parameters turned out mixtures of the doubtful ground with the combination of adds to the hydraulic binder. The clayey rubble is characterized with the large different-granularity, and the cohesion of the ground perfectly comes true in bonds with the cement with the polymer with the addition ionoreplaceable and chemical

The realization of the main objective of the work was carried out based on researches in the laboratory and the literature compact in the bibliography and other literature positions, both given in the country, as and abroad. Especially essential sumptuous regulations by law,

in the form of Law Gazettes, binding norms and guidelines. For the proper description and analysing all manner of problems moved in the present work, unusually helpful were materials as web sites of internet producers of binders, articles, reports, reports and the information gathered during research.