SUMMARY

In this research the variance of data of freeze-thaw-tests with and without deicing chemicals, carried out within the tests concerning the authorisation of new cements and cement additives, was analysed.

It turned out that there are deviations in the results of the experiments concerning the resistance of frost within equal concrete mixtures up to 1000%. There is an obvious tendency of the damage rate between institute 1 and institute 3 as well. The reason therefore could not clearly be analysed. Analysing the data of the freeze-thaw-tests with de-icing salt led to similar results. Here was also a higher damage of all analysed concrete tested in institute 1 comparing to the test-results in institute 3.

In an available round robin test [15] by the “Verein der deutschen Zementindustrie” these two institutes (1 and 3) led to similar results which were in the middle of all other involved institutes. In an additional round robin test [17] the influence of fluctuations in the experiments were investigated within the permitted limits. Deviations from up to 30% were caused by the variations of temperature.

Therefore the existing variances in the test results which were found within the examinations concerning the obtained licensure tests of the DIBT could not only be led back to deviations of that kind.

Studies by Setzer et. Al [10,11] showed on the basis of the CIF or rather the CDF-methods that it is possible to determine the freeze and freeze-thaw-resistance of different concrete mixtures with low variances with an exactly defined test procedure.

With other exactly defined test procedures in further round robin tests the variances should be examined for the reasons for the variances as well as the influence of the deviation of the test material. So the established freeze-thaw-tests with and without de-icing chemicals should be improved.