

CHARACTERIZATION OF PHYSICAL AND MECHANICAL PROPERTIES OF ROCK AGGREGATES FOR RAILWAY BALLAST BY STANDARD METHODS

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A comparative study conducted with coarse-grained aggregate material from Finnish crystalline bedrock was carried out using the test methods of railway ballast according to the suggestions of the European Committee of Standardization (CEN) and those traditionally used in Finnish State Railways. The most remarkable differences concerning these methods include: 1. The CEN tests concerns the end products (0 - 80 mm) only. 2. Modifications to the test procedure for the Los Angeles coefficient and Impact value indicating the resistance to fragmentation make the test results less indicative, the same also concerning the determination of the Flakiness index. 4. As to the resistance to wear, the Nordic Ball Mill value will be replaced by the micro-Deval coefficient. According to the traditional Impact and Ball Mill values the material could be divided into four different classes while the new Los Angeles coefficient would place all the material to the best category (LA15). Thus, for example, material with the original Impact and Ball Mill values (15.2 and 21, respectively) entitles it to be not better than the fourth class of ballast while the new Los Angeles coefficient (LA15 13.5) gives the best quality. According to the new tests practically no differences can be obtained for the coarse-grained aggregate material consisting of hard rocks (granites, dolerites, amphibolites, etc.). However, a great variety of different qualities exists among them. Because of the strict demands, many samples have been ruled out of high-class railway ballasts.