



The effect of static and dynamic recrystallization, differences in technical properties of the bedrock of the southwestern part of Sweden.

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The southwestern part of Sweden consists mainly of precambrian, high-grade gneisses and has been tectonic reworked at elevated pressure/temperature conditions between 1.70-1.55 Ga. The gneiss region is divided into the eastern, the central and the western, crustal segments separated by major tectonic boundaries, where the Mylonite Zone is the most conspicuous one. The rocks of the eastern segment show the highest metamorphic conditions of the three, normally amphibolite facies conditions, occasionally granulites and even eclogites. Minor occurrences of mafic plutonites and dikes exist but most of the region lacks metasedimentary and volcanic rocks. Intrusions of coarse-porphyrific granites end the magmatic events of this region. Even these late granites often show a gneissic structure. The southwestern parts of Sweden are known to have a poor rock quality compared to other Swedish regions. Rock material from this region is often quite brittle high LA-values, which not satisfies the demands laid down by national road and railway administrations on aggregates. Mixing of brittle gneiss or granite with a more ductile, mafic rock is done in some quarries to achieve the needed rock quality. In the absence of high-quality rock types such as quartzite or rhyolite, which is aggregated and used in other parts of Sweden for the top-course of motorways, this region mostly imports high-quality rocks from far away situated quarries. The Geological Survey of Sweden has for the last decade been mapping the bedrock regarding the rock-quality in purpose to enable the correct land-use for all the operators of the aggregate industry and for the authorities as well. Through the major tectonic reworking of the rocks in southwestern Sweden, a certain degree of static recrystallization has been developed in most rocks. This caused a major deterioration

of the rock-quality in the region. However, later tectonic events (for example at app. 1.0 Ga, the Mylonite Zone) developed more strained gneisses, kataclasites and even proto-mylonites. These are quite heterogeneous concerning the rock quality. Certain parts of these tectonic belts are the best rock materials of the region why others are very mica-enriched and of a rather poor quality. One of the main tasks for the Survey's mapping has been to find areas that lodge the high-quality materials to avoid long transports and accomplish a sustainable use of aggregates