

# **A STUDY ON THE APPLICABILITY OF MELT-SOLIDIFIED SLAG TO PAVEMENT MATERIALS**

**Abstract** : Recently, recycled materials including melt-solidified slag has been increasing due to exhaustion of final disposal sites. Particularly, waste producing industries other than the road sector have been developing recycled materials as pavement material increasingly. These recycled materials from other industries can contribute to recycle use for waste, but it is not clear that these materials can contribute reducing the effects on the environment throughout a lifecycle in total.

In this study, we investigated industry reproduction material used in the field of the paved road, and durability of waste tire, waste plastic and melt-solidified slag as recycled pavement materials was examined by laboratory and accelerated loading test in the pavement test field. As a result, when it used other industry reproduction material, it became clear that I could secure the durability at the same level as material for normal pavement by considering quantity of mixture or a manufacturing method of the other industry reproduction material.

We estimated the accumulation situation of reproduction materials when the asphalt mixture which other industry reproduction material was mixed in was recycled repeatedly, and we calculated about the life cycle cost (LCC) when the durability of the asphalt mixture deteriorated. As a result, when we use other industry reproduction material, we understood that we could secure the durability at the same level as material for normal pavement by considering quantity of mixture. In addition, accumulation amount in pavement materials of the road infrastructure stock were estimated by calculation of a material flow analysis focusing on asphalt pavement recycling systems. When the durability of the reproduction asphalt mixture deteriorated, the LCC is increased.

**Key words** : recycle, nonferrous metal slag , melt-solidified slag, waste tire, waste plastic, durability, LCC