

## **Performance Evaluation of Aged Prestressed Concrete Sleepers in Cold Regions**

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In order to evaluate the performance of aged Prestressed Concrete (PC) sleepers installed in a region with a high risk of frost damage, we conducted various tests and numerical analyses on load capacity and material deterioration due to frost damage. The results clarify that the sleepers not using the air entraining agent have low frost damage resistance, and that if the scaling is generated throughout sleepers, the bending load resistance becomes less than the minimum required value specified Japanese Industrial Standard. On the basis of these results, we propose a method for evaluating the soundness of PC sleepers with frost damage.