A Study on the Countermeasure Method for Gauge Corner Cracking by Reducing the Contact Pressure Between Wheel and Rail

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Gauge corner cracking (GCC) occurs in heat-treated rail installed on curved high rails with a radius of 600m to 800m. The GCC can propagates to the bottom of rail, resulting in rail breakage. However, no countermeasure has yet been developed to prevent GCC from occurring. The aim of this study is to investigate suppression method of GCC initiation by reducing the contact pressure between wheel and rail. Therefore, we focused on wear development of rail, and evaluated the effect of worn profiles of rail on wheel and rail contact. The results showed that the worn profiles of rail are effective in suppressing rolling contact fatigue that can develop into GCC by reducing the contact pressure between wheel and rail.