

Study on the Correlation between the Revised JASO M 609 Method and the Accelerated Evaluation Method for Corrosion Resistance

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Corrosion protection is essential for ensuring the safety, reliability, and long-term durability of vehicles throughout their service life. To evaluate the corrosion resistance of painted automotive components, automakers have traditionally employed proprietary test methods designed according to their specific vehicle designs, operating conditions, and service environments. Although these methods have been effective for individual manufacturers, differences in test conditions and evaluation criteria can make it difficult to compare results across the automotive industry.

Recently, the JASO M 609 standard was revised with the aim of improving the correlation between laboratory test results and corrosion behavior observed in actual vehicle service environments. The revised method is expected to provide a more realistic assessment of corrosion performance and contribute to the development of more effective corrosion protection technologies. In parallel, accelerated corrosion evaluation techniques have been developed to shorten testing periods, improve evaluation efficiency, and facilitate the implementation of rust prevention measures during product development.

In this study, the correlation between the revised JASO method and the accelerated corrosion evaluation method is examined regarding the corrosion suppression period and the corrosion progress rate (Fig. 1).

Fig. 2 shows the evaluation results for the corrosion suppression period obtained using the revised JASO method and the accelerated evaluation method, while Fig. 3 shows the evaluation results for the corrosion progress rate obtained using the same methods. Both methods showed a good correlation.

The accelerated evaluation method is expected to serve as an effective complement to the revised JASO method by providing a rapid and efficient means of assessing corrosion protection performance. Its application has the potential to reduce development lead times, improve the efficiency of material and formulation screening, and accelerate the optimization of corrosion protection technologies during the development process. Furthermore, the method may contribute to enhanced quality assurance by enabling the early detection of quality anomalies and process deviations before they manifest as significant performance deterioration, thereby supporting more proactive and reliable quality control practices.

By appropriately combining the strengths of the revised JASO method, which offers standardized performance verification, with those of the proposed evaluation method, which enables rapid and sensitive assessment, a more comprehensive and robust evaluation framework can be established. Such an integrated approach is expected to facilitate not only more efficient and advanced corrosion protection technology development but also more effective quality management, ultimately contributing to improved product reliability and reduced development costs.

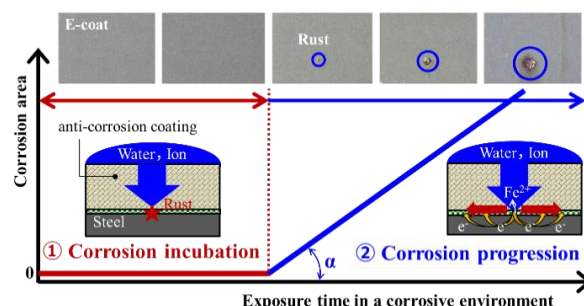


Fig.1 Functions of anti-corrosion coating

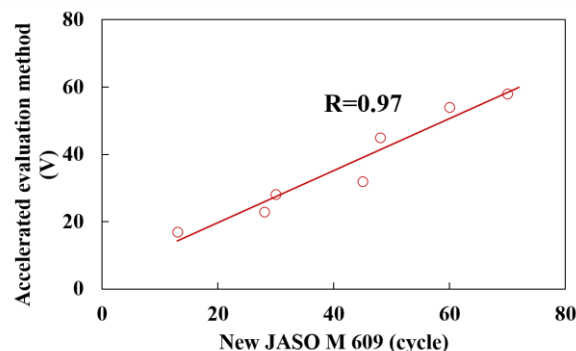


Fig.2 Correlation of corrosion incubation determined by the new JASO method and the accelerated evaluation method

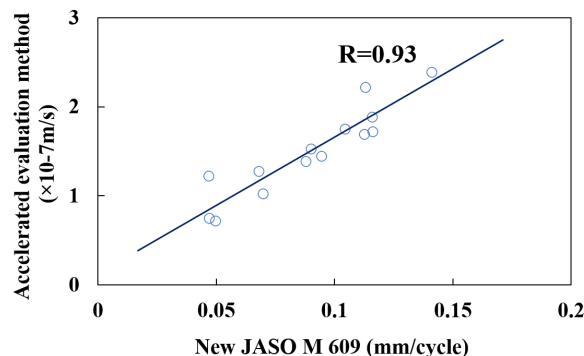


Fig.3 Correlation of corrosion progression determined by the new JASO method and the accelerated evaluation method