Deterioration Characteristics of Anti-corrosion Paint Coating on Welded Part of Structural Steel

Mikihito HIROHATA[a, *] and Yoshito ITOH[a]

[a]*Department of Civil Engineering, Graduate School of Engineering, Nagoya University*

Furo-cho, Chikusa-ku, Nagoya, Aichi 4648603, Japan

Abstract: Corrosion of steel is one of the most important problem for maintaining steel structures. Although the corrosion characteristics and the deterioration behavior of paint coating of the steel base metal have been elucidated, those of the welded part have not been investigated sufficiently. In order to examine the deterioration characteristics of anti-corrosion paint coating on the welded part of structural steel, an accelerated exposure test with combined salt water spray cycles (as shown in Fig. 1) was conducted in this study. By using the test specimen shown in Fig. 2, the deteriorations of the paint coating on the general part of the base metal and the welded parts were compared after the 1600 cycles of the test.

A tendency was confirmed that the salt remained around the weld toe rather than the general part. Blister of paint coating was observed around the initial coating defects of the base metal part and the welded part. The blister volume of the welded part was 17% larger than that of the base metal part when the test cycle was 1600. Even though the chemical compositions of weld metal was advantageous to the base metal from the viewpoint of anti-corrosion, the deterioration of paint coating on the weld metal was larger than that on the base metal. The result indicated that the geometric shape of weld bead affected the deterioration of paint coating.

Keywords: Structural steel, Corrosion, Paint Coating, Accelerated exposure test

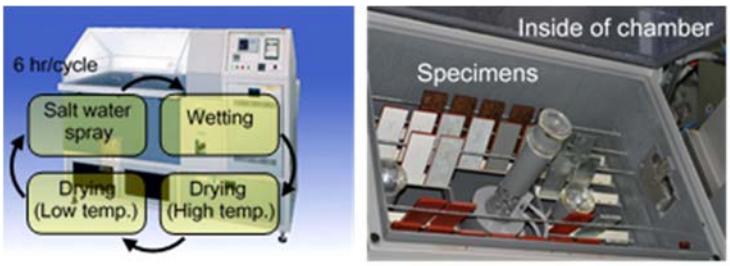

Fig. 1. Accelerated exposure test machine.

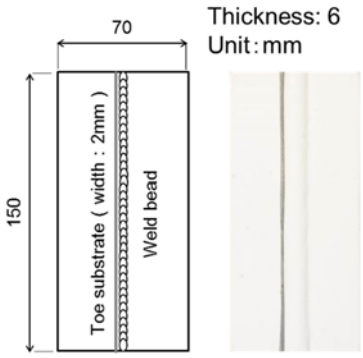

Fig. 2. Test specimen.

*Corresponding author. Tel.: +81-52-7894619, Fax.: +81-52-789-3734

E-mail address: hirohata@civil.nagoya-u.ac.jp