

Accepted Manuscript

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PII: S0257-8972(13)01129-8
DOI: doi: [10.1016/j.surfcoat.2013.11.037](https://doi.org/10.1016/j.surfcoat.2013.11.037)
Reference: SCT 19031

To appear in: *Surface & Coatings Technology*

Received date: 21 September 2013
Accepted date: 16 November 2013



Please cite this article as: Junbo Wang, Guojian Wang, Influences of montmorillonite on fire protection, water and corrosion resistance of waterborne intumescent fire retardant coating for steel structure, *Surface & Coatings Technology* (2013), doi: [10.1016/j.surfcoat.2013.11.037](https://doi.org/10.1016/j.surfcoat.2013.11.037)

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Influences of montmorillonite on fire protection, water and corrosion
resistance of waterborne intumescent fire retardant coating for steel
structure

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Abstract: Organic-modified montmorillonite (OMMT) was used as nano-layer filler to improve the fire protection, water and corrosion resistance of waterborne intumescent fire retardant coating. The influence of OMMT on the properties of fire retardant coating and the mechanism of OMMT effect on the coating were investigated in detail by X-ray diffraction (XRD), scanning electron microscope (SEM), thermogravimetric (TGA) analysis, fourier transform infrared spectroscopy (FTIR), fire protection test, water and corrosion resistance test. It was found by XRD that OMMT could be exfoliated and dispersed well in the coating with the addition of 1 wt.%, while excessive OMMT was easy to aggregate and dispersed badly. SEM micrographs and EDS analysis results showed that well-dispersed OMMT nano-layers

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