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**Development of On-line Analysis Methods for Zinc Alloy Coatings
for Automotive Use**

Chiaki Kato, Yasuharu Matsumura, Akira Yamamoto, Toshio Irie

Synopsis :

On-line analysis methods, which analyze Zn alloy and organic resin coated steels for automotive panels, have been developed and employed in Kawasaki's galvanizing and coating lines. X-ray fluorescence spectrometry is applied to the analysis of Zn-Ni alloy electroplated coatings and electrolytes. For the analyses of Fe-P/Zn-Fe alloy electroplated double-layer coatings and hot-dip galvanized coatings, X-ray diffraction is used in combination with X-ray fluorescence spectrometry to distinguish Fe in coating from that in the base steel. On-line thickness measurement methods for the thin organic resin top layers on Zn-Ni alloy coatings are also discussed.

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The body can be viewed from the next page.

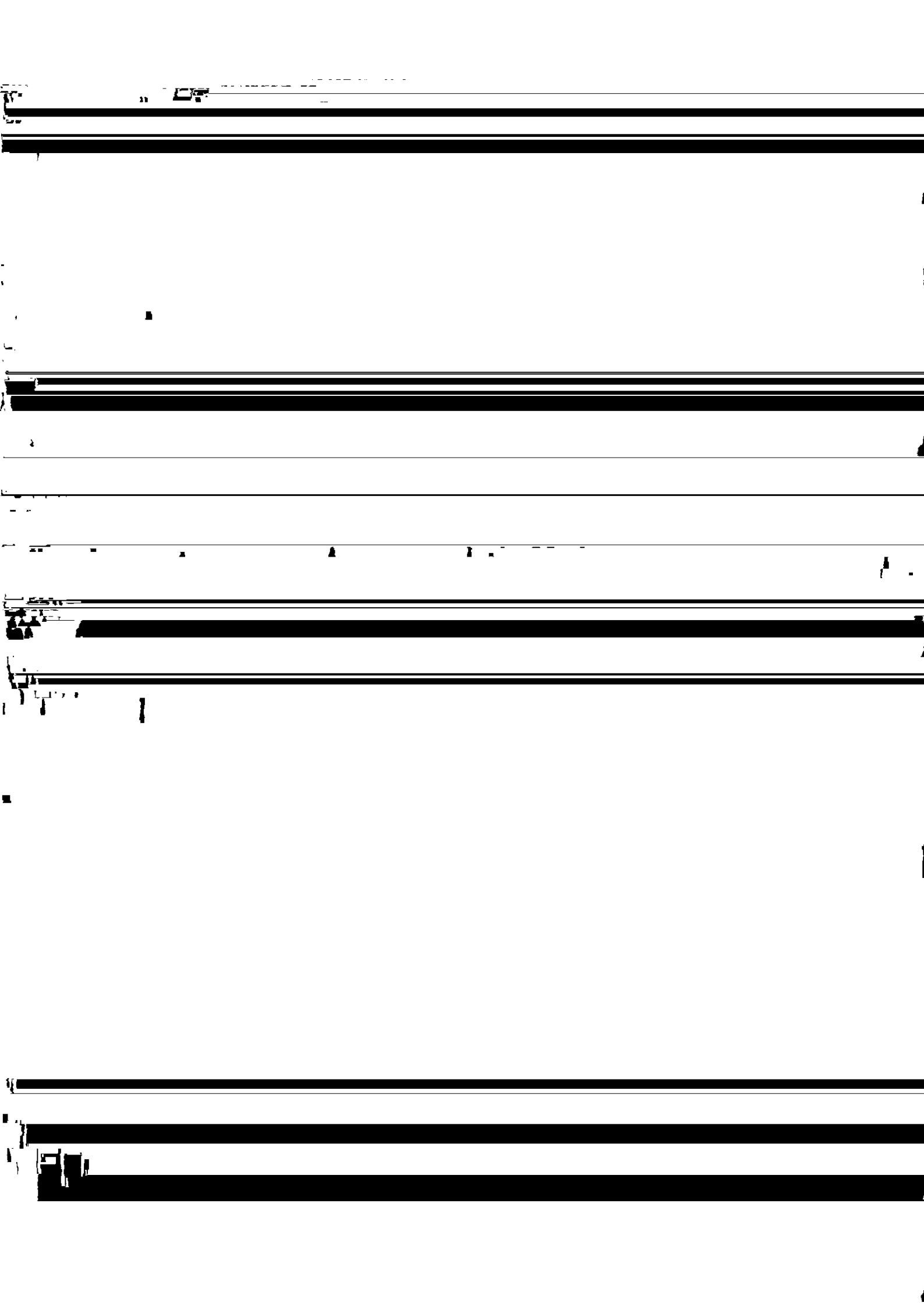
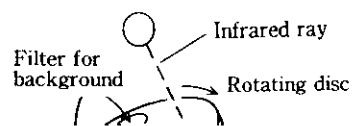
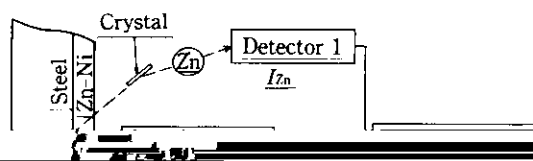


Table 1 On-line analysis apparatus for measuring coating weight and alloy content

| Products | Coating line | Installation | Analysis items | Analytical method |
|----------|--------------|--------------|----------------|-------------------|
|----------|--------------|--------------|----------------|-------------------|



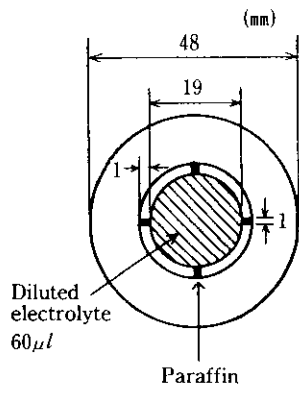


Fig. 3 Filter paper used for microdroplet on-line electrolyte solution analysis

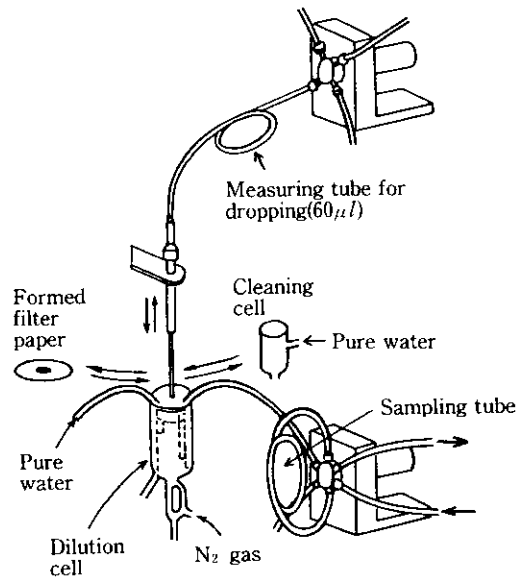
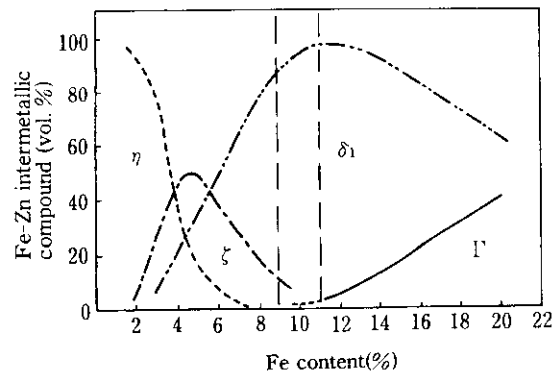
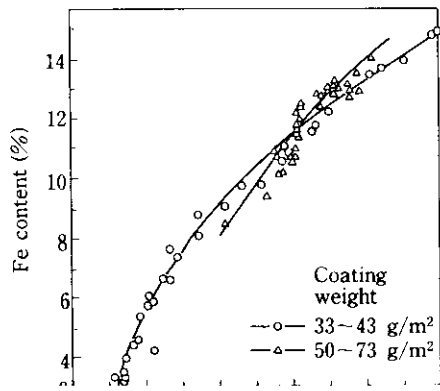


Fig. 4 Sampling-dilution-dropping system used for on-line electrolyte solution analysis

Chloride bath
Fe content

μ_1^A, μ_2^A : Mass absorption coefficient of Zn-Fe and
Fe-P coating at incident X-ray



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Fig. 7 Relation between Fe content and diffracted X-

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