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**Development of Organic Composite-Coated Steel Sheet
"Zincrometal-KII" with High Corrosion Resistance**

Shunichi Tsugawa, Taizo Mohri, Hiroshi Hosoda, Shigeru Kobayashi, Toshio Ichida

Synopsis :

"Zincrometal-KII", a new organic composite-coated steel sheet with high corrosion resistance has been developed, in which improvements are made in coating adhesion during forming and weldability of conventional zinc rich paint coated steels for automobiles. It consists of a

Development of Organic Composite-Coated Steel

Sheet "Zincrometal-KII" with High Corrosion Resistance*¹

Shunichi TSUGAWA*²
Shigeru KOBAYASHI*²

Taizo MOHRI*³
Toshio ICHIDA*⁴

Hiroshi HOSODA*³

"Zincrometal-KII," a new organic composite-coated steel sheet with high corrosion resistance has been developed, in which improvements are made in coating adhesion during form-

It consists of a specially improved thinner zinc rich paint layer on a thin Zn-Ni alloy electroplated layer, and has been improved according to the following ideas:

- (1) Corrosion resistance is improved by the complex effects of a Zn-Ni alloy electroplated layer and zinc rich paint layer which contains zinc potassium chromate as an anti-corrosive pigment.*
- (2) Better coating adhesion during forming is obtained by the addition of MoS₂ as a lubricant agent.*
- (3) Weldability is improved by the thinner paint layer.*

Therefore, coating adhesion during forming and corrosion resistance are superior than conventional paint coated steels, and the number of welds in continuous spot welding is more than 5 000.

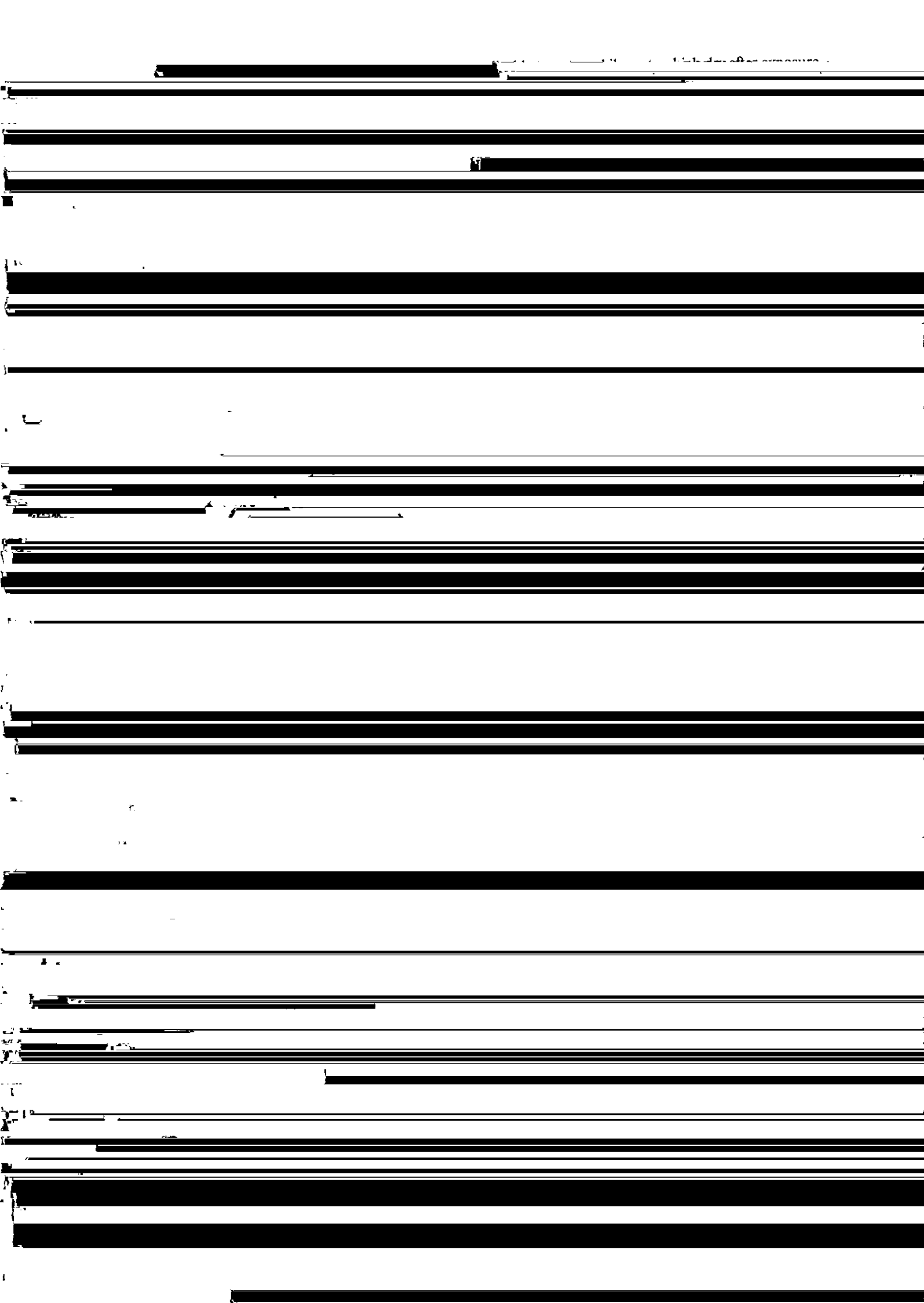


Table 1 Testing method

Properties	Testing methods
Corrosion resistance	<p>Specimens → Cross Cutting (in lower half side) → Cyclic corrosion tests (CCT-A* and CCT-B**) → Evaluation by red rust initiation cycle at which the red rust is spread over 10% of the total area</p> <p>* CCT-A</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">→ Salt spray → Drying → Humidity</p> <p style="text-align: center;">5% NaCl, 40°C 60°C 50°C, 95%RH</p> <p style="text-align: center;">4 h 2 h 2 h</p> </div> <p style="text-align: center;">→ Immersion → Humidity → Drying</p>

rich coating was examined as a measure to prevent decrease in corrosion resistance resulting from a decrease



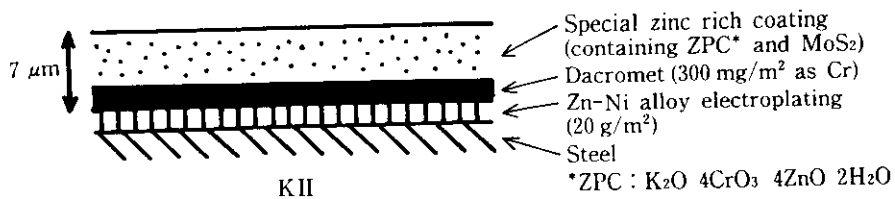


Fig. 10 Schematic cross-section of KII

was added, to a Zn-Ni alloy electroplated steel sheet (20 g/m^2) at a coating thickness of $4.5 \mu\text{m}$ after Dacromet coating (300 mg/m^2 as Cr).

3 Properties of Organic Composite-Coated Steel Sheet with High Corrosion Resistance (KII)

KII was produced on the coil coating lines at the Hanshin Works of Kawasaki Steel and the Chiba Works of Kawatetsu Galvanizing Co., Ltd. using RIVER HI-ZINC (Zn-Ni alloy electroplated steel sheet, coating weight 20 g/m^2 , Ni content 12%) as material. The coating system of KII is schematically shown in Fig. 10. Properties of KII are described below.

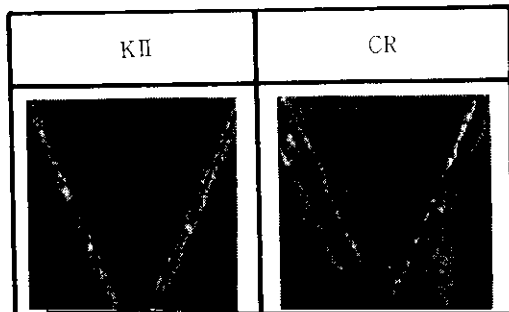
CCT-A 100 cycle	CCT-B 3 000 cycle	SST 2 000 h

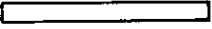
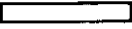
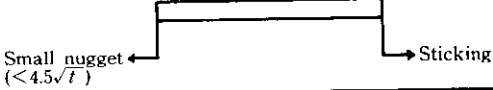
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KII provides better perforation corrosion resistance

□ 80

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	Welding current (kA)					
	6	8	10	12	14	16
GA 45/0						
KII						
						

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