

KAWASAKI STEEL TECHNICAL REPORT

No.46 (JUNE 2002)

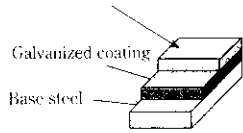
"Environment-friendly Steel Products" and
"Environment Preservation Technology"

Properties of Chromate-Free Coated Electrogalvanized Steel Sheets for Electrical Appliances

Shigeru Umino, Hiroyuki Ogata, Chiaki Kato

Synopsis :

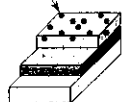
In the field of electrical appliances, a material used for the chassis needs a good electric-conductivity to accomplish a stable ground property in addition to good white rust resistance. On the other hand, in reply to the social requirement of eliminating hexavalent chromium, which is one of the environmentally un-friendly materials, chromate-free treated electrogalvanized steel sheet has been developed. "RIVER ZINC FC-X" has been developed to meet those requirements. "RIVER ZINC FC-X" shows good white rust resistance, high electro-conductivity and anti-fingerprinting property. Furthermore, "RIVER ZINC FC-E" accomplishes a good frictional property in addition



Portions

The specimens were cut into 50×100 mm test pieces. The edges and reverse surfaces were sealed with polyester tape. Some of the test pieces were drawn to a

Lubricant wax



was then performed as specified in the Japanese Industrial Standards (JIS) Z-2371. The area covered with white rust on the flat pieces and Erichsen drawn test pieces was visually inspected.

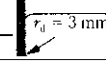
2.3 Electric Conductivity

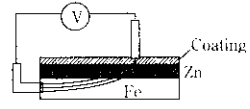
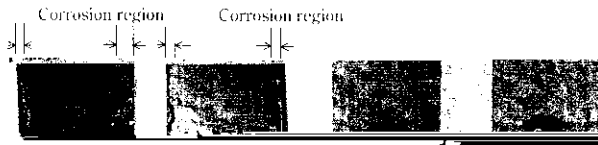
Sheet thickness: 1.0 mm
Coating weight of Zn: 20 g/m² of each side
- Evaluation of drawn part appearances

Clearance = 1.0 mm

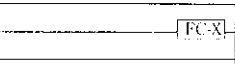
Holding force: 49 kN

$r_0 = 3$ mm





5.0
4.0
3.0



Color difference ΔE between before and after immersion for 168 h in the solution described below

1 (%)

Painting ⇔ Cross cut and 7 mm-Erichsen ⇔ Tape peeling

Paint: Alkyd enameling resin base

Table 2 Degradation of PC-V PC-F-1-1

Corrosion resistance	Anti-fingerprint ^{#2}	Surface electric	Paint adhesion	Lubricity ^{#5}
----------------------	--------------------------------	------------------	----------------	-------------------------