
Properties of Chromate-Free Treated Electrogalvanized Steel Sheet for Electrical Appliances

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6

0.8 μ

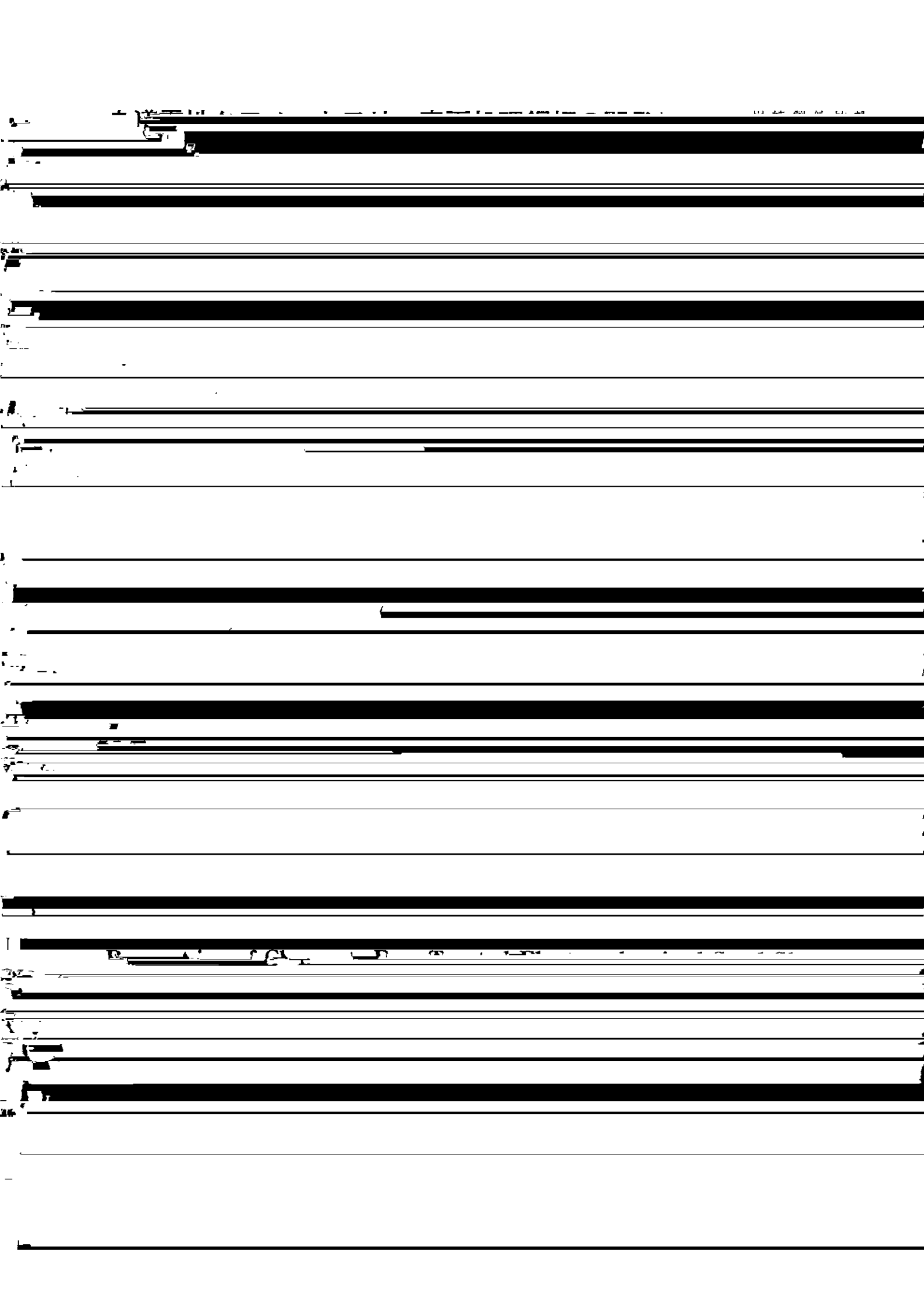
FC-X FC-X

FC-E

Synopsis :

In the field of electrical appliances, a material used for the chassis needs a good electro-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. "Riverzinc FC-X" has been developed in reply to those requirements. "Riverzinc FC-X" showed good white rust resistance, high electro-conductivity and anti-fingerprinting property. Furthermore, "Riverzinc FC-E" accomplished a good frictional property in addition to the performance of "Riverzinc FC-X" by applying lubricant wax. The performance of those new products has been found to be good enough for actual uses in comparison with the conventional electrogalvanized steel sheets having a chromate layer.

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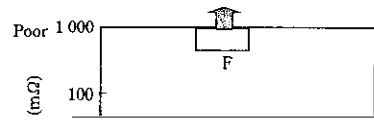
で、無機成分と有機成分からなるクロメートフリー皮膜のうち無機成分は、主に亜鉛と鉄の化合物からなる。また、皮膜層の厚さは、

供試材を 70×150 mm に切り出し、端面部と裏面をポリエステル（ポリエチレン）で被覆し、亜鉛と鉄の化合物を

2.7 ポストコート塗装性

メラミンアルキッド系樹脂 (日本ペイント製オルガセレクト 120

厚膜タイプ) 塗膜厚 20 μm (100°C/15分) 塗料



Composition of the artificial sweat

1.0g/l NaCl, 0.5g/l CH₃COOH, 0.05g/l NaHCO₃, 1.0g/l KCl

	FCX (Chromate-free coating)	FX (Dry-in-place chromate coating)
Appear-		

Table 2 Properties of FC-X, FC-E and chromate coated sheets

	Corrosion resistance (h)*1	Anti-fingerprint*2	Surface electric resistance (m Ω)*3	Paint adhesion (%) *4	Lubricity*5
FC-X	≥ 120	0.5~0.7	<0.1	100	0.25~0.3
FC-E	≥ 120	0.5~0.7	<0.1	100	<0.15
Dry-in-place chromate coating (FX)	≥ 120	0.8~1.7	<0.1	95	0.3~0.4
Chromate + Organic fingerprint-resistant coating (F)	≥ 216	0.2~0.4	$\sim 10^5$	100	<0.2

*1 Time to 5% white rust occurrence at salt spray test (JIS-Z2371)

*2 Color difference ΔF between before and after immersion in the artificial sweat

*5 Frictional coefficient without lubricant oil

現在「リバーシブル® FC-X」を中心に 家電・事務機メーカー 向けにすべてに対応するクロメートフリー鋼板を開発中です。