

# स्टील अथॉरिटी ऑफ इण्डिया लि०

(भारत सरकार का संस्थान)

रिसर्च एण्ड डेवलपमेन्ट सेंटर  
फॉर आईरन एण्ड स्टील

आई. एस. ओ. 9001 प्रमाणित  
पोस्ट : डोरण्डा, राँची - 834 002



# STEEL AUTHORITY OF INDIA LTD.

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RESEARCH AND DEVELOPMENT CENTRE  
FOR IRON AND STEEL

"I.S.O. 9001 Certified"

P.O. DORANDA, RANCHI - 834 002

Ranchi  
May 31, 2006

M/s SRMB Udyog Limited  
46, B. B. Ganguly Street,  
Kolkata- 700012

**Sub: Comparative evaluation of corrosion performance of coated and uncoated steel reinforcement bars from M/s SRMB Udyog Limited, Kolkata (Ref : Our Final Study Report No. RD/CACE/SRMB-06)**

Dear Sir

This has the reference to your letter dated 20-07-2005 (Ref: SRMB/05-06/070168/SAIL) on the above subject. We have conducted tests for five types of rebars supplied by M/s SRMB Udyog Limited, Kolkata for comparative evaluation of their corrosion performance under controlled laboratory conditions. The results are summarized below:

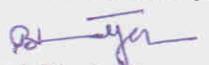
**Table 1 Corrosion rates for various types of rebars evaluated under different test conditions as per relevant ASTM standards (Test duration: 90 days, Temperature: 30°C)**

Type of Test	Type of rebars				
	Corrosion rate ( $\mu\text{m/y}$ )				
	Zinga-coated SRMB steel rebar	Galvanized SRMB steel rebar	Fusion bonded epoxy-coated SRMB steel rebar	Uncoated corrosion resistant low alloy steel rebar	Uncoated plain carbon SRMB steel rebar
<b>Static immersion</b> (3.5% NaCl solution)	6.35	25.52	10.90	87.98	140.62
<b>Salt spray</b> (5% NaCl solution)	15.76	274.43	41.23	506.35	549.38
<b>Galvanic Protection</b>	Present	Present	Absent	Absent	Absent

**Findings:** The above results demonstrate the superior corrosion performance of Zinga-coated rebars over other coated rebar varieties for short-term exposure of 3 months under controlled laboratory test conditions. The superior corrosion resistance may be attributable in part to: (i) greater degree of galvanic protection afforded by the Zn-based coating (ii) lower sacrificial consumption of Zn due to discrete dispersion of Zn dust within the binder material and (iii) barrier protection afforded by the organic binder material itself. However, it is imperative to add that the corrosion performance of coated steel rebars like Zinga-coated rebar cannot be compared with the corrosion performance of uncoated corrosion resistant low alloy steel rebars which rely on corrosion resistance derived from a protective rust layer formation under long-term exposures in corrosive environments.

Thanking you

Yours faithfully,

  
Dr A Bhattacharyya  
DGM & I/c  
CA & CE Group

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आप हमसे हिन्दी में भी पत्र व्यवहार कर सकते हैं।