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FACULTY OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING

16.06.2006

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

Sub : Comparative evaluation of corrosion performance of coated and uncoated TMT reinforcement bars from M/s SRMB Udyog Limited, Kolkata (Ref : Our Final Study Report No. PKM/MET/SRMB/Report/2005/1)

Dear Sir,

This has the reference to your letter dated 27-04-2005 (Ref: SRMB/05-06/393/JU) on the above subject. We have conducted tests for five types of rebars, viz, Zinga coated, Hot dip galvanized (HDG), Fusion boded epoxy coated (FBEC) TMT bars, Uncoated SRMB make MS TMT bar and Cu-Cr alloyed TMT bar (SAIL origin) supplied by M/s SRMB Udyog Limited, Kolkata for comparative evaluation of their corrosion performance under controlled laboratory conditions. The conclusive comments are summarized below:

Type of tests	Comments
1. Galvanic series in NACE solution	Zinga coated sample has been found to be the noblest
2. Polarization studies in NACE solution	Corrosion resistance of Zinga coated sample is better than rest of the samples (For both without holidays and artificially created holidays on coated samples)
<ul style="list-style-type: none"> <li>Coated materials, viz, Zinga coated, HDG and FBEC TMT bars</li> <li>Uncoated materials, viz, SRMB make MS TMT bar and Cu-Cr alloyed TMT bar (SAIL origin)</li> </ul>	Corrosion resistance of Cu-Cr alloyed TMT bar (SAIL origin) is better than SRMB make MS TMT bar
3. Salt Spray test in 5% NaCl solution (500 Hours)	Zinga coated materials has about 2 times higher corrosion resistance than HDG material.  FBEC material would require longer (>500 hours) period of exposure to assess the effect of salt spray.
4. Stress corrosion cracking in NACE solution [Material tested : Zinga coated, HDG samples, Uncoated materials, viz, SRMB make MS TMT bar and Cu-Cr alloyed TMT bar (SAIL origin)]	Lowest susceptibility for Zinga coated material (about 2.5 times lower than HDG and 1.75 times lower than uncoated MS Cu-Cr alloyed TMT bar (SAIL origin)] revealed lower susceptibility to SCC than MS (uncoated) in NACE environment highlights effects due to different material composition.

The team of faculty members engaged in the testing and production of the report : Prof. P. K. Mitra, Prof. M. K. Mitra, Dr. S. Paul, and Dr. P. Majumdar.

Thanking you and with regards,

Yours sincerely,

Dr. P. K. Mitra

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