CERAMIC COATING FOR 16 Mo 3
7-June 2023

Coating Process.

Conditioning : Sand blasting with white Corundum

Application : Manual (or automatic) Spray water-based coating

Vitrification : In gas burning open flame industrial furnace 800ºC during 5 minutes (to preserve the Steel properties unaltered)

Evaluation :

- Visual Surface inspection
- Adherence as per UNE-EN 10209

Corrosion resistance tests:

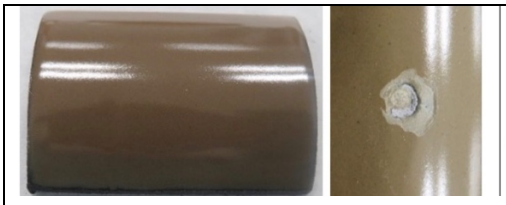
- Temperature resistance (without salts)
  - 6 rounds of 168 h /each = 1000hh inspection on every round at 450ºC
- Temperature + Condensed salts resistance:
  - 6 rounds of 168 h /each = 1000hh inspection on every round at 450ºC
  - We test it in two conditions:

    1- ZnCl2 Pure
    2- Mixed salts : NaCl – KCl – $ZnCl_2$ – CaCl / 25% - 25% - 25% - 25%, Pure salts are placed on top of the sample and replaced by new ones in every round of 168 hh

After more than 10 months of test son different formulations the most recommended.
One by KERA -COAT is the **EXE34Mo4**
(Mo stands for Modification)

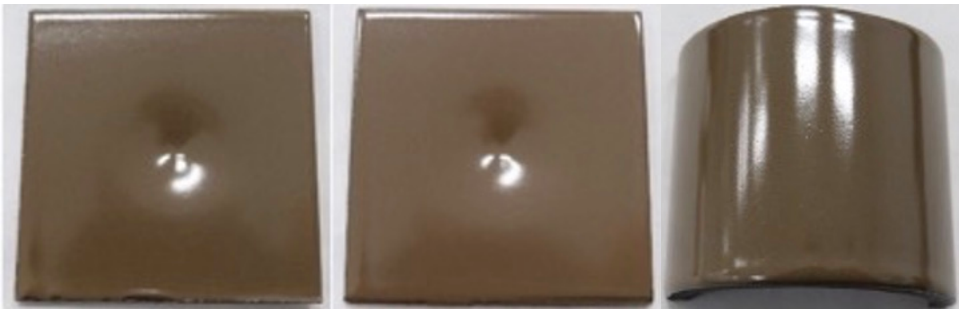
16Mo3 – EXE34Mo4 - KC
Report code: KC2022076.

SURFACE AND ADHERENCE

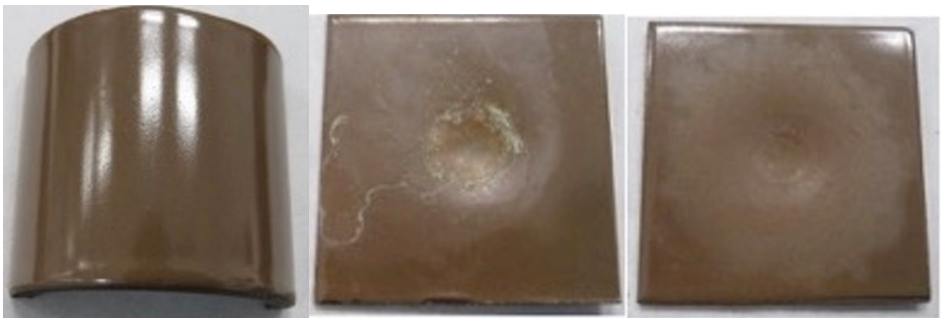


EXE34Mo4 –Adherence (Clase 3-4) normal

THERMAL AND SALTS RESISTANCE
Samples before test



SAMPLES AFTER 1000 hh Tests at 450ºC

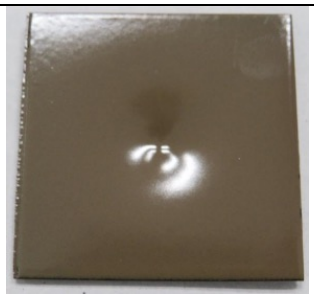
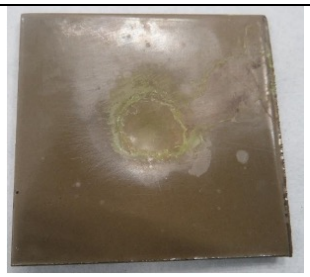


ThermalThermal
Resistance,no Salts ZnCl2 Four Salts mix

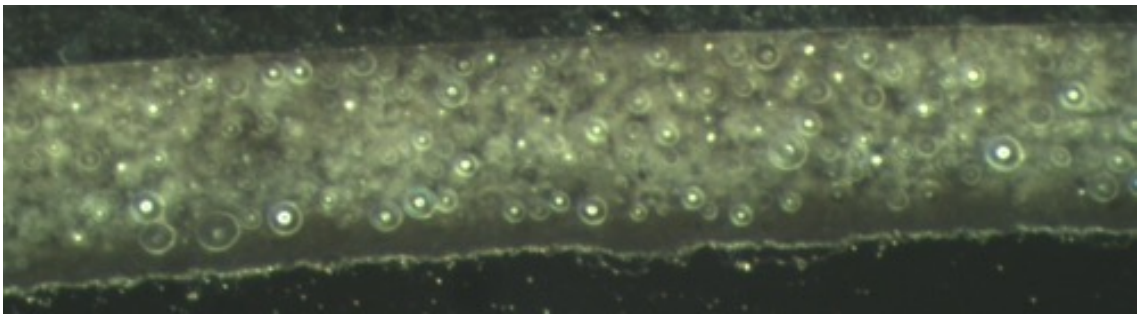
GOOD RESULT, NO CHANGES

SALTS RESISTANCE – CHANGE OF GLOSS, BUT NOT LOSS OF MATERIAL AT ALL
PURE Zn Cl2 also changes a bit the color but no loss of thickness.

We repeated test y a second round with similar results.

 Before	 4 Salts MIX 1000hh	 $ZnCl_2$ 1000 hh

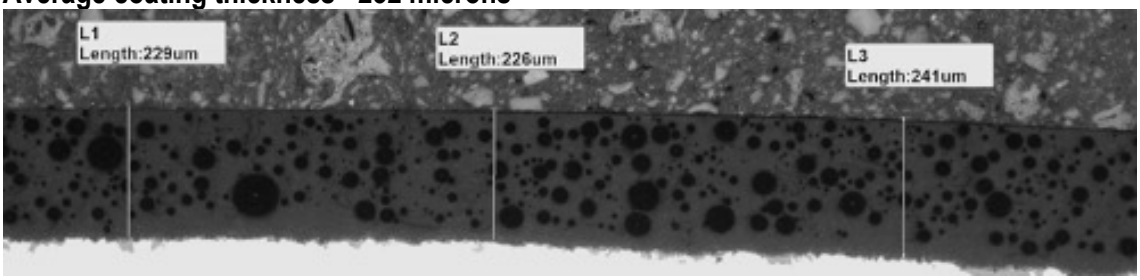
Ceramic coating bubbled structure



Dark green area above the lower black steel is the Adherence or transition zone on which ceramic y molten/mixed with steel and avoids delamination and cracking

In this case is quite good

Average coating thickness =232 microns



BUBBLE STRUCTURE : IMPORTANT TO AVOID CORROSIIN CHANNELS AND PROVIDE ELSTICITY ON THERMAL AND MECHANICHAL STRESSESS :
In our opinion is well balanced -small and withspread-and provides BOTH PROTECTIONS