

Corrosion Test Method Safepack

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International Comparative Corrosion Test for VCI Wrappers (Application for ferrous as well as nonferrous)

Following is international accelerated comparative corrosion test under sever conditions which can used to infer and / or compare corrosion protection ability of Safepack VCI wrappers versus blank piece / other VCI existing method of protection.

Equipments:

Two glass jars (with wide mouth) with tight lids. Nylon thread. Two M.S. plates of dimensions 5 cm x 4 cm x 0.2 cm (or any identical small piece of metal part) should be well ground and corrosion free. VCI paper. Beaker, funnel and temperature controlled electric oven range 40°C to 80°C

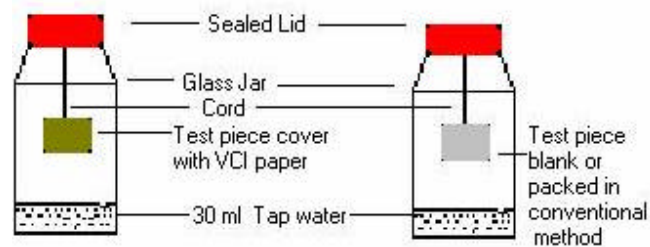


Fig A. Glass jar with VCI paper

Fig. B Glass jar without VCI paper

Procedure:

1. Take two jars.
2. Draw a fresh VCI paper sample just before the test from a roll (dispose top 1-2 layer fro the roll and draw a sample).
3. Cover the test piece (metal piece) with adequate layer of VCI paper.
4. Take 30 ml tap water in a clean beaker. Pour this water into a jar with the help of funnel in both the jar.
5. The VCI covered plate sample and blank plate sample are tied with the nylon thread and hung in both jars respectively (Do not use the cello tape to cover the paper). Care is taken that they are not in contact with water or the sides of the jar. Refer the fig.
6. Seal the jar with adhesive tape. This is very essential. **Otherwise test may fail** (as major active chemicals at elevated temperature may escape).
7. Keep the two jars an inside oven for 8 hrs at 60°C (Maximum)
8. After 8 hrs turn off the oven and allow the jars to cool down for 16 hrs to results in condensation of vapors.
9. This cycle is of 24 hrs repeated 3 times.

10. Check the seal of the jar is intact after every cycle otherwise cycle the test will have to repeat.
11. After three cycles remove the seal of jars and compare the corrosion on two plates subjected to SERVE the conditions in the two jars.

Note: This is a comparative test where one has to compare the corrosion on the bare plate or packed in the traditional way vis-à-vis VCI protected plate at extremely elevated conditions.

Preparation for corrosion free test plates:

The test plates are dipped in white spirit to remove the majority of oil and grease stains on the metal surface. The test plates are kept in boiling white spirit (analytical grade). The test plates are washed with hot methanol (analytical grade). The test plates polished with aluminum oxide cloth. The dust is removed with surgical gauze until the gauze does not get darkened. The plates are stored in desiccators not more than one day.

CHECK LIST

Sr. no.	Things to do	Yes	No
1.	Test pieces prepared as per instructions.		
2.	Test pieces are corrosion free.		
3.	VCI paper sample is fresh.		
4.	Test piece is covered COMPLETELY with VCI paper.		
5.	30 ml tap water taken.		
6.	Beaker is clean.		
7.	The 2 jars are clean.		
8.	Cello tape is not used for covering the VCI paper on the test pieces.		
9.	Test piece blank plates are not touching the side of the jar and not in contact with water.		
10.	Test piece plate cover with VCI paper is not touching the sides of the jar and is NOT in contact with water.		
11.	ENSURED THAT BOTH JARS ARE SEALED WITH ADHESIVE TAPE (VERY IMPORTANT)		
12.	BOTH JARS KEPT IN SEALED CONDITION FOR 8 -24 HRS BEFORE KEEPING INSIDE THE OVEN		
13.	Jars are kept inside the oven for 8 hrs at 60 ⁰ C		
14.	Temperature inside the oven NOT allowed to exceed 60 ⁰ C		
15.	After heating 8 hrs jars are allowed to cool down for 16 hrs.		
16.	This cycle is heating 8 hrs and cooling 16 hrs (Total 24 hrs) is repeated 3 times.		

OBSERVATIONS

Date						
	Day 1		Day 2		Day 3	
	Jar 1 (Test plate with VCI paper)		Jar 1 (Test plate with VCI paper)		Jar 1 (Test plate with VCI paper)	
Time	Temp ⁰ C	Seal Check	Temp ⁰ C	Seal Check	Temp ⁰ C	Seal Check
Hrs. 1						
2						
3						
4						
5						
6						
7						
8						

Date						
	Day 1		Day 2		Day 3	
	Jar 2 (Test plate without VCI paper)		Jar 2 (Test plate without VCI paper)		Jar 2 (Test plate without VCI paper)	
Time	Temp ⁰ C	Seal Check	Temp ⁰ C	Seal Check	Temp ⁰ C	Seal Check
Hrs. 1						
2						
3						
4						
5						
6						
7						
8						

Result:

Date:

Check	Jar 1 (Blank test plate)	Jar 1 (Test plate with VCI paper)	Remark
Finish Surface			
Corrosion if any			
Any other specific observation			

Conclusion:

Date:

Check	Jar 2 (Blank test plate)	Jar 2 (Test plate with VCI paper)	Remarks
Finish Surface			
Corrosion if any			
Any other specific observation			

Conclusion: