

For Restricted Circulation only

 SHAKAMBHARI GROUP #SteelWithin		SHAKAMBHARI ISPAT & POWER LTD. (Formerly known as Ess Dee Aluminium Ltd.)	
STANDARD TEST METHOD			
Title: Checking of Ink / VMCH Adhesion			Page No. 1 of 3
STM No.	Version No.	Effective Date	Next review date
SIPL/STM/003	00	06.07.2026	05.07.2028

1.0 PURPOSE

- 1.1 To define a test method for determination of good bond strength between Printing Ink / Coating and VMCH with the substrate.

2.0 SCOPE

- 2.1 This STM applies to the Quality Control department.

3.0 REFERENCE(S) & ATTACHMENTS**3.1 References**

- 3.1.1 In-house

3.2 Attachments

- 3.2.1 Nil

4.0 RESPONSIBILITY**4.1 QC Department Person**

- 4.1.1 To carry out the testing as per the STM.

4.2 QC Department Head:

- 4.2.1 To prepare and ensure the implementation of the STM.

4.3 QA Head:

- 4.3.1 To approve the new or revised STM, and to ensure the implementation of the defined system.

5.0 DISTRIBUTION

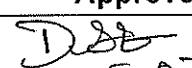
- 5.1 Quality Assurance

- 5.2 Quality Control

6.0 DEFINITION(S) & ABBREVIATION(S)**6.1 Definitions**

- 6.1.1 **Ink Adhesion:** The Ink / Toner should have strong bonding with the substrate to maintain the integrity of the printed substrate. Weak bonding may result in peeling off of the printed layer.

6.2 Abbreviations: Nil

Prepared By:	Checked By:	Approved By:
 05.07.2026	 05.07.2026	 05.07.2026

For Restricted Circulation only

 SHAKAMBHARI GROUP #SteelWithin	SHAKAMBHARI ISPAT & POWER LTD. (Formerly known as Ess Dee Aluminium Ltd.)		
STANDARD TEST METHOD			
Title: Checking of Ink / VMCH Adhesion			Page No. 2 of 3
STM No.	Version No.	Effective Date	Next review date
SIPL/STM/003	00	06.07.2026	05.07.2028

7.0 PROCEDURE

7.1 Shellac Washed Aluminium Foil

- 7.1.1 Cut an A-4 size of the washed aluminium foil.
- 7.1.2 Place the aluminium foil (facing washed side) on the bar-coater pad.
- 7.1.3 Apply the ink / toner on the foil-washed surface.
- 7.1.4 Take drawdown of the ink / toner on the pad.
- 7.1.5 Place the ink / toner coated aluminium foil in the electric oven, which has been preset at $80 \pm 10^{\circ}\text{C}$, for 10-12 seconds.
- 7.1.6 Remove the dried sample from the oven and place it on a flat sample-testing table.
- 7.1.7 Take a transparent cello tape (TACO make) of 18 mm width and stick it on the coated side across the width of the sample firmly.
- 7.1.8 Wait for at least 2 minutes and jerk off at approximately 45° angle, then observe the peel-off of ink from the foil.
- 7.1.9 The test passes if no ink is lifted from the foil onto the transparent TACO tape.
- 7.1.10 In case the test fails, initiate investigation into the process and report the findings to the QC Head for further action.

7.2 Printed Substrate

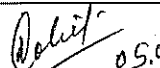
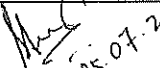
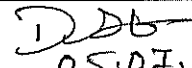
- 7.2.1 Place the printed sample on a flat table.
- 7.2.2 Take a transparent self-adhesive tape (TACO make) of 18 mm width and stick it on the ink side across the width of the sample firmly.
- 7.2.3 Wait for at least 2 minutes and jerk off at approximately 45° angle, then observe the peel-off of ink from the foil.
- 7.2.4 The test passes if no ink (about 98%) is lifted from the foil onto the transparent TACO tape.
- 7.2.5 In case the test fails, initiate investigation into the process and report the findings to the QC Head for further action.

7.3 Adhesion of VMCH

- 7.3.1 Place the coated sample on a flat table.
- 7.3.2 Take a transparent self-adhesive TACO tape of 18 mm width and stick it on the coated side across the width of the sample firmly.
- 7.3.3 Wait for at least 2 minutes and jerk off at approximately 45° angle, then observe the peel-off of VMCH from the foil.

7.4 Rate of Pulling: The rate of pulling of the transparent self-adhesive TACO tape may be classified as follows:

- 7.4.1 **Soft pull:** Slow rate of pulling (approx. 50 mm per second).
- 7.4.2 **Medium pull:** Moderate rate of pulling (approx. 100 mm per second).
- 7.4.3 **Hard pull:** Fast rate of pulling (faster than 150 mm per second).
- 7.4.4 The rate of pulling shall be agreed between Shakambhari Ispat & Power Ltd. and the Customer.
- 7.4.5 In case there is no agreement, soft pull shall be considered as standard.

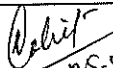
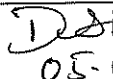
Prepared By:	Checked By:	Approved By:
 05.07.2026	 05.07.2026	 05.07.2026

For Restricted Circulation only**SHAKAMBHARI ISPAT & POWER LTD.**
(Formerly known as Ess Dee Aluminium Ltd.)**STANDARD TEST METHOD****Title:** Checking of Ink / VMCH Adhesion**Page No.** 3 of 3

STM No.	Version No.	Effective Date	Next review date
SIPL/STM/003	00	06.07.2026	05.07.2028

8.0 REVISION HISTORY

Revision No.	00	Effective Date	06.07.2026	CC No.	NA
Details of revision: New SOP					

Prepared By:	Checked By:	Approved By:
 05.07.2026	 05.07.2026	 05.07.2026