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 SHAKAMBHARI GROUP #SteelWithin	SHAKAMBHARI ISPAT & POWER LTD. (Formerly known as Ess Dee Aluminium Ltd.)		
STANDARD OPERATING PROCEDURE			
Title: Operation for VMCH Mixing Machine			Page No. 1 of 4
SOP No.	Version No.	Effective Date	Next review date
SIPL/PDS/006	00	06.07.2026	05.07.2028

1.0 PURPOSE

- 1.1 To define the standard procedure for preparation of the lacquer solution used in foil coating, to ensure consistent quality, proper viscosity and coating performance.

2.0 SCOPE

- 2.1 This SOP is applicable for lacquer preparation Machine used in 4-6 GSM coating And 6-8 GSM coating.

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

- 3.1.1 ISO 15378:2017

3.2 Attachments

- 3.2.1 Attachments: Reference SOP No. SIPL/PDI/006

4.0 RESPONSIBILITY**4.1 Production Head**

- 4.1.1 To ensure the training of the SOP to all concerned department personnel involved in implementation of the SOP.
4.1.2 To ensure the implementation of the SOP after training.

4.2 Quality Assurance Person

- 4.2.1 To check the SOP.
4.2.2 To maintain the original copy of the SOP.
4.2.3 To issue the controlled copy of the SOP.
4.2.4 To maintain the issuance record of the SOP.
4.2.5 To retrieve the controlled copy of the SOP when it is superseded/obsolete and maintain its record.

4.3 QA Head

- 4.3.1 To approve new or revised SOP.
4.3.2 To ensure the implementation of the defined system.

4.4 Plant Head

- 4.4.1 To approve new or revised SOP.
4.4.2 To ensure the implementation of the defined system.

5.0 DISTRIBUTION

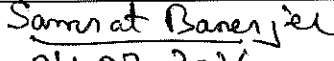
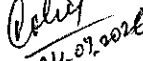
- 5.1 Quality Control
5.2 Production
5.3 Quality Assurance

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

- 6.1.1 Nil

6.2 Abbreviations

- 6.2.1 GSM: Grams per Square Meter

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 04.07.2026	 04.07.2026	 04.07.2026

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7.0 PROCEDURE

7.1 Responsibility

7.1.1 Operator

- 7.1.1.1 Applicable in the lacquer preparation and coating production area.
- 7.1.1.2 Operator to follow the complete SOP during lacquer preparation.
- 7.1.1.3 Ensure proper material addition and mixing time.
- 7.1.1.4 Maintain cleanliness of equipment and area.
- 7.1.1.5 Record batch details and viscosity readings.

7.1.2 Production Supervisor / HOD

- 7.1.2.1 Verify raw material quantity.
- 7.1.2.2 Monitor mixing process and viscosity.
- 7.1.2.3 Ensure SOP compliance. Approve the lacquer batch before production use.

7.2 Safety Precautions

- 7.2.1 Safety gloves
- 7.2.2 Mask
- 7.2.3 Safety shoes
- 7.2.4 Ensure proper ventilation in the lacquer preparation area.
- 7.2.5 No smoking or spark-generating activity near the solvent area.

7.3 Equipment Required

- 7.3.1 Lacquer Mixing Machine
- 7.3.2 Viscosity Cup (B6)
- 7.3.3 Clean Mixing Container
- 7.3.4 Filter Arrangement (if applicable)

7.4 Raw Materials

7.4.1 For 6-8 GSM Coating, material quantity:

Material	Quantity
CP 450	18 Kg
TP 400	150-162 Kg (1 bag 25 kg)
Ethyl	650 to 700 Kg

7.4.2 For 4-6 GSM Coating, material quantity:

Material	Quantity
CP 450	25 Kg
TP 400	150 Kg (1 bag 25kg)
Ethyl	650 to 700 Kg

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<i>Sannat Banerjee</i> 04.07.2026	<i>04.07.2026</i>	<i>04.07.2026</i>

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7.5 Method**7.5.1 Initial Mixing**

7.5.1.1 Add 210 Kg Ethyl into the mixer machine and 25 Kg CP 450 into the mixer.

7.5.1.2 Start the mixer machine and run continuously for up to 60 minutes. Ensure CP 450 is completely dissolved without lump formation.

7.6 Powder Addition

7.6.1 Add an additional 420 Kg Ethyl into the mixer. Add TP 400 powder (25kg) gradually at intervals of every 3-5 minutes.

7.6.2 Maintain continuous mixing during powder addition.

7.7 Mixing Time

7.7.1 4-6 GSM and 6-8 GSM continue mixing for a total of 2.30-3.00 hours for proper dispersion and a homogeneous solution.

7.7.2 Total mixing time: 3.00-3.30 hours.

7.8 Final Viscosity Adjustment

7.8.1 Add 30-50 Kg Ethyl slowly for viscosity adjustment (if then required)

7.8.2 Continue mixing for an additional 15 minutes.

7.8.3 Check viscosity using the viscosity cup (B6):

7.8.3.1 4-6 GSM: 8 to 10 sec.

7.8.3.2 6-8 GSM: 10 to 12 sec.

7.9 Quality Checks

7.9.1 Appearance: smooth and lump-free.

7.9.2 Mixing condition: homogeneous.

7.10 Documentation – the following records must be maintained

7.10.1 Raw material batch record

7.10.2 Mixing start and end time

7.10.3 Operator name

7.10.4 Viscosity record

7.10.5 Cleaning checklist

7.11 Area Line Clearance

7.11.1 Once the job is finished, stop the machine from run mode and switch to idling mode at the speed of 30 mpm.

7.11.2 Open the HSL container cover by rotating the screw.

7.11.3 Pour solvent on the container from the rotor blade side.

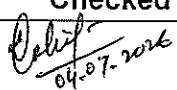
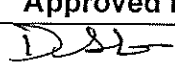
7.11.4 Check that the rotor blade is clean and clean all the container properly, ensuring no HSL remains in the container.

7.11.5 Stop the machine from idling mode.

7.11.6 Remove HSL from the HSL tank to the HSL can of the units.

7.11.7 Remove all the HSL / solvent from the machine.

7.11.8 Fill the line clearance record. Fill the details of quantity, time, etc. in the log book.

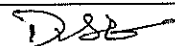
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Samrat Banerjee 04.07.2026	 04.07.2026	 04.07.2026

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8.0 REVISION HISTORY

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

Prepared By: Samrat Banerjee 04.07.2026	Checked By:  04.07.2026	Approved By:  04.07.2026
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