



**SHAKAMBHARI ISPAT & POWER LTD.**  
(Formerly known as Ess Dee Aluminium Ltd.)

**STANDARD TEST METHOD**

|                                                          |             |                |                  |
|----------------------------------------------------------|-------------|----------------|------------------|
| Title: Analysis of Additive (%) using FT-IR Spectrometer |             |                | Page No. 1 of 3  |
| STM No.                                                  | Version No. | Effective Date | Next review date |
| SIPL/STM/021                                             | 00          | 06.07.2026     | 05.07.2028       |

**1.0 PURPOSE**

- 1.1 To outline the standard procedure for determining the additive percentage in rolling oils using an FT-IR Spectrometer.

**2.0 SCOPE**

- 2.1 This procedure applies to laboratory personnel performing additive analysis on fresh and processed rolling oil samples.

**3.0 REFERENCE(S) & ATTACHMENTS**

**3.1 References**

- 3.1.1 ISO 15378:2017

**3.2 Attachments**

- 3.2.1 Nil

**4.0 RESPONSIBILITY**

**4.1 Quality Assurance Person:**

- 4.1.1 To check the STM.  
4.1.2 To maintain the original copy of the STM.  
4.1.3 To issue the controlled copy of the STM.  
4.1.4 To maintain the issuance record of the STM.  
4.1.5 To retrieve the controlled copy of the STM when it is superseded / obsolete, and maintain its record.

**4.2 QA Head:**

- 4.2.1 To approve the new or revised STM.  
4.2.2 To ensure the implementation of the defined system.

**4.3 Plant Head:**

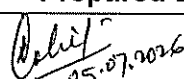
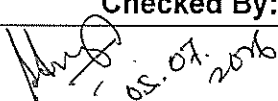
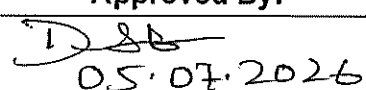
- 4.3.1 To approve the new or revised STM.  
4.3.2 To ensure the implementation of the defined system.

**5.0 DISTRIBUTION**

- 5.1 Quality Control  
5.2 Quality Assurance

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

- 6.1 Definitions: Nil  
6.2 Abbreviations: Nil

|                                                                                                   |                                                                                                   |                                                                                                    |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Prepared By:                                                                                      | Checked By:                                                                                       | Approved By:                                                                                       |
| <br>05.07.2026 | <br>05.07.2026 | <br>05.07.2026 |

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|                                                                 |                    |                       |                         |
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| <b>Title:</b> Analysis of Additive (%) using FT-IR Spectrometer |                    |                       | <b>Page No.</b> 2 of 3  |
| <b>STM No.</b>                                                  | <b>Version No.</b> | <b>Effective Date</b> | <b>Next review date</b> |
| SIPL/STM/021                                                    | 00                 | 06.07.2026            | 05.07.2028              |

**7.0 PROCEDURE****7.1 Equipment & Materials**

- 7.1.1 FT-IR Spectrometer
- 7.1.2 Desktop
- 7.1.3 KBr Cell
- 7.1.4 Disposable Syringes
- 7.1.5 Chloroform
- 7.1.6 Tissue paper
- 7.1.7 Fresh oil sample
- 7.1.8 Processed oil sample

**7.2 Safety Precautions**

- 7.2.1 Handle chloroform in a well-ventilated area.
- 7.2.2 Wear gloves & goggles.
- 7.2.3 Dispose of waste materials as per laboratory guidelines.

**7.3 Method****7.3.1 Instrument Start-Up**

- 7.3.1.1 Switch on the UPS.
- 7.3.1.2 Switch on the CPU.
- 7.3.1.3 Log in using the password.

**7.4 Background Scan**

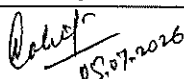
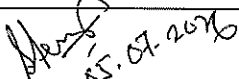
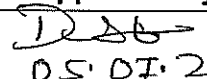
- 7.4.1 Clean the KBr cell using chloroform and tissue paper.
- 7.4.2 Draw the fresh oil sample into a syringe and inject it into the KBr cell. Ensure the sample is free from air bubbles.
- 7.4.3 Place the filled cell in the FT-IR Spectrometer.
- 7.4.4 Click Background to run the background scan.
- 7.4.5 After the background scan is completed, remove the cell from the spectrometer.

**7.5 Sample Preparation (Processed Oil)**

- 7.5.1 Clean the KBr cell thoroughly with chloroform and tissue paper.
- 7.5.2 Clean the syringe 3-4 times using processed oil.
- 7.5.3 Draw the processed oil sample into the syringe and inject it into the KBr cell. Ensure the sample is bubble-free.
- 7.5.4 Place the cell in the FT-IR Spectrometer.

**7.6 Sample Scanning & Analysis**

- 7.6.1 Enter the sample name in the software.
- 7.6.2 Click Scan to start scanning the sample.
- 7.6.3 After completion of scanning, click Quant Analysis to obtain the additive percentage along with the graph.

|                                                                                                   |                                                                                                   |                                                                                                     |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Prepared By:</b>                                                                               | <b>Checked By:</b>                                                                                | <b>Approved By:</b>                                                                                 |
| <br>05.07.2026 | <br>05.07.2026 | <br>05.07.2026 |

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|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------|-------------------------|
| <br>SHAKAMBHARI<br>GROUP<br>#SteelWithin | <b>SHAKAMBHARI ISPAT &amp; POWER LTD.</b><br>(Formerly known as Ess Dee Aluminium Ltd.) |                       |                         |
| <b>STANDARD TEST METHOD</b>                                                                                               |                                                                                         |                       |                         |
| <b>Title:</b> Analysis of Additive (%) using FT-IR Spectrometer                                                           |                                                                                         |                       | <b>Page No.</b> 3 of 3  |
| <b>STM No.</b>                                                                                                            | <b>Version No.</b>                                                                      | <b>Effective Date</b> | <b>Next review date</b> |
| SIPL/STM/021                                                                                                              | 00                                                                                      | 06.07.2026            | 05.07.2028              |

**7.7 Shutdown & Cleaning**

7.7.1 Remove the cell from the spectrometer.

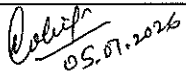
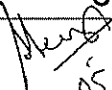
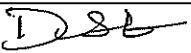
7.7.2 Clean the KBr cell thoroughly with chloroform and tissue paper.

**7.8 Documentation**

7.8.1 Record test results &amp; scan graphs.

**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:                                                                                        |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <br>05.07.2026 | <br>05.07.2026 | <br>05.07.2026 |