



AARTI STEEL INTERNATIONAL LTD.

QUALITY ASSURANCE DEPARTMENT

Doc No: ASL/QCD/2025-26

Dated: 03/04/2025

METALLURGICAL INVESTIGATION OF STEEL SAMPLE RECEIVED FROM M/s SSB Engineers

1.0 COMPLAINT DETAILS: -

One cut sample is received from M/s **SSB Engineers** on dated- 29/03/2025 through DTDC courier. Pertaining to Heat No.- 7980 Grade: SAE 8620H, Size: Dia 80 mm Dia as conveyed.

2.0 BACKGROUND: -

Observed crack in cut piece of forged component. As conveyed by Customer quantity of such defective part is one only.

3.0 TRACEABILITY: - Chemistry of the collected sample was checked & results are tabulated as follow-

	%C	% Mn	%S	%P	%Si	%Ni	%Cr	%Mo	%V	%Al	%Cu
Heat no.-	0.21	0.855	0.023	0.015	0.19	0.473	0.565	0.222	0.0048	0.023	0.195
Received Sample	0.21	0.845	0.022	0.0148	0.187	0.474	0.563	0.218	0.0049	0.0223	0.196

Chemistry is matching with the supplied heat number 7980.

4.0 AS RECEIVED SAMPLE: -

Pics of as received sample is as follows :



Fig.-As received sample
Thickness 29.4 second
step 21.3



Fig.-2



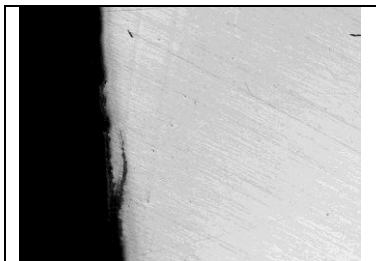
Fig.-3



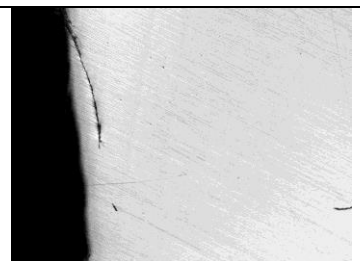
Fig.-4

5.0 OBSERVATION & INVESTIGATION: -

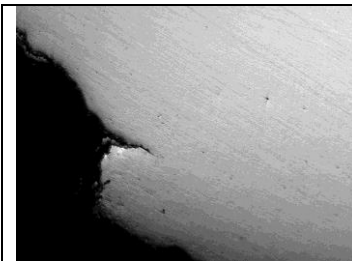
From the defective portion sample was cut and metallurgical investigations were carried out.



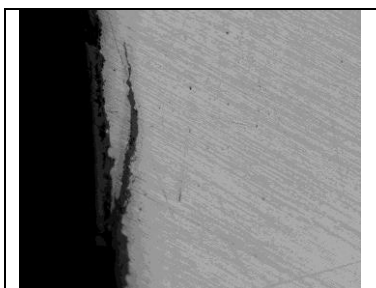
Mag : 50 x Location 1



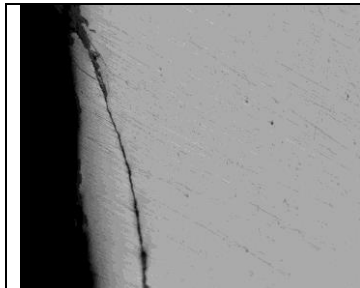
Mag : 50 x Location 2



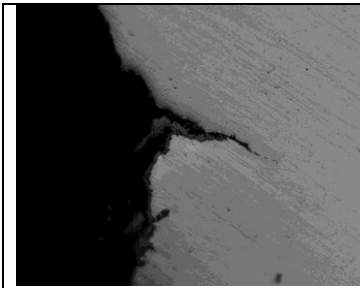
Mag : 50 x Location 3



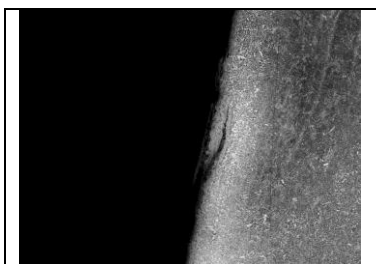
Mag : 100 x Location 1



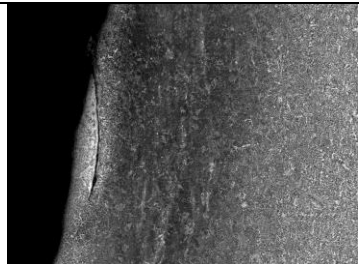
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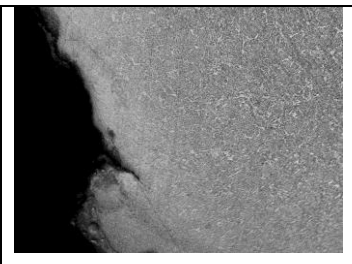
Mag : 100 x Location 3



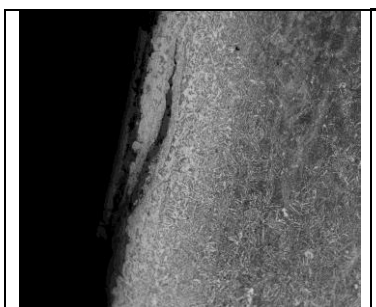
Mag 50x Micro
Location 1



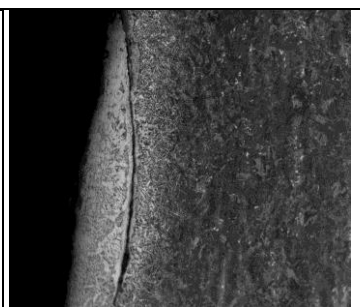
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Location 2



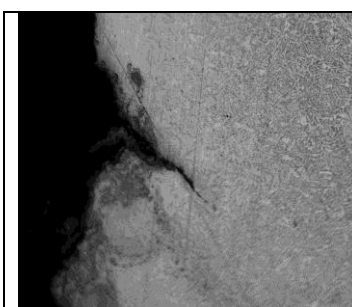
Mag 50x Micro
Location 3



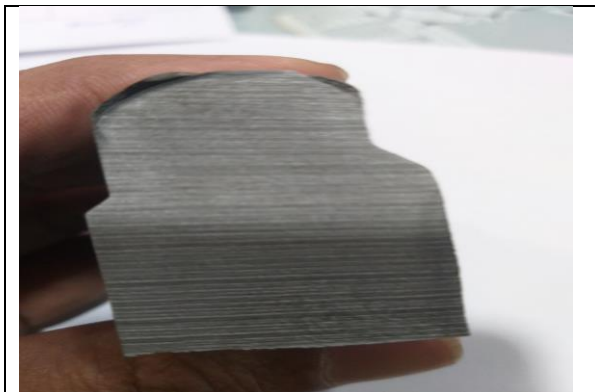
Mag 100x Micro
Location 1



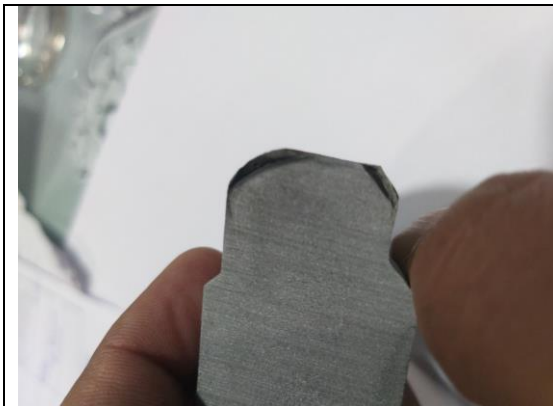
Mag 100x Micro
Location 2



Mag 100x Micro
Location 3



Macro Etch Sample Pic 1



Macro Etch Sample Pic 2

- **Chemistry is matching with the supplied heat number 7980.**
- **Defect is not associated with raw material.**
- **Defect is associated with Forging. Laps and Crack are clearly visible from macro sample and Micro Sample.**

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