DEEP METALLURGICAL SERVICES
(Approved Metallurgical Testing & Consultancy Services by Govt. & Inspection Agencies)
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ISO 17025 - 05, TC - 7333
NABL ACCREDITED LABORATORY
MSME REGD.
IBR APPROVED

TECHNICAL STANDARD INSTRUCTION FOR MEASUREMENT OF VOLUME FRCATION OF TEMPERED MARTENSITE IN STEEL BY QUANTITATIVE MICROSCOPIC METHOD

A Proficiency Testing Program

A.1 Program Name: Proficiency Testing for determination of volume fraction of tempered martensite in steel
A.2 Program code No Met.5
A.3 Material Hardened and tempered alloy steel
A.4 Test Method ASTM E562 or ASM or ISO or any validated method
A.5 Lab Code
A.6 Sample code
A.7 Program starting date A.8 Program closing date
A.9 Last date of result submission A.10 Final result reporting date

B Sample Description

B.1 Test Specimen: A metallurgically polished and unetched disc sample of 35mm diameter with 15mm thick specimen is provided for measuring quantitative percentage of tempered martensite by microscopic method . The microstructure of the steel may be revealed after etching with 2% Nital reagent .

B.2 The estimation of tempered martensite percentage must be performed by quantitative measurement employing any standard technique. At least twenty fields must be considered for measurement of percentage of tempered martensite. All measurement may be performed at 100 or higher magnification as appropriate for determination.

PT program	Test method	Expected result	Magnification
Met. 5	IS/ISO/ASTM/ASM	Martensite > 80%	Magnification as appropriate

C Test Requirement

C.1 Test is to be performed by one operator and one microscope only
C.2 Test must be performed in sequence
C.3 Grid selection 25 or more point grid
C4 Image analysis technique
C.5 All measurement must be performed 100magnfication or higher magnification.

D Test method, Volume fraction of tempered martensite

$P_V = P_{p/f} / P_T \times 100$

Where $P_{p/f}$ = total count in tempered martensite and P_T total number of point in the test grid

D.1 Image analysis technique

E Competency

E.1 Competent person should carry out the test and evaluate the result as routine test.
E.2 All results will be analyzed based on Robust Algorithm A and Z score according to ISO13528-15.
E.3 Final report includes all clauses of 4.8.2 of ISO17043-2010
E.4 In case of loss or deterioration of PTP Specimen, please feel free to contact PT provider for replacement.
E.5 In case of exclusion of a PT schemes by the participant side, the participant must return sample

PT Co-coordinator,

Mr. K.K. Karmakar
Deep Metallurgical Services
Mobile; 9892216539, Email: deep.ptp2018@gmail.com

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TEST RESULT REPORTING FORMAT

A Proficiency Testing Program

A.1 Program Name: Proficiency Testing Scheme for quantitative determination of tempered martensite
A.2 Program code No Met.5
A.3 Material Hardened and tempered alloy steel
A.4 Test Method ASTM E562, E112, ASM 9, ISO or any validated method
A.5 Lab Code
A.6 Sample code
A.7 Program starting date A.8 Program closing date
A.9 Last date of result submission A.10 Final result reporting date

Last date of Result Submission: **Date of Result submission:**

Sr. No	Parameter	Result (Up to 1 decimal)	Unit	Results
1	% Tempered martensite	Average	Percentage	

Method &Magnification: Equipment used

NAB L/ISO Certificate No.

Tested by organization

Name:

Designation

Please send the complete Test Result Form (Soft & hard copy) to PTP Coordinator, Deep Metallurgical Services, 20, New Modella Industrial Estate, Padwal Nagar, Wagle Estate, Thane, Maharashtra, India, Pin-400604, Mobile- 9892216539, Email: mech@deep-ptp.in, deep.ptp2018@gmail.com