DEEP METALLURGICAL SERVICES
Approved Proficiency Testing Provider (Chemical & Mechanical) by NABL
20, New Modella Indl. Estate, Padwal Nagar, Wagle Indl. Estate, Thane - 400 604. Maharashtra, India. Tel.: (022) 2583 1530, 2081 6664 2580 6688. Mob.: 9892216539 | 8928368028 | 9920044840 E-mail : deep.ptp2018@gmail.com / mech@deep-ptp.in Web : www.deepmetlab.com
ISO 17043 - 10, PC - 1045

TECHNICAL STANDARD INSTRUCTION FOR MEASUREMENT OF VOLUME FRACTION OF DELTA FERRITE AND AUSTENITE IN DUPLEX STAINLESS STEEL BY MAGNETIC AND MICROSCOPIC METHOD

A Proficiency Testing Program

A.1 Program Name: Measurement of volume fraction of delta ferrite & austenite in duplex stainless steel

A.2 Program Code No: Met 6

A.3 Material: Duplex stainless steel

A.4 Test Method: ASTM E562, ASTM A800, ASTM E112 or ISO or any validated method

A.5 Program starting date A.6 Program closing date

A.7 Last date of result submission A.8 Final result reporting date

B Sample Description : Transverse section

B.1 **Test Specimen**: One metallurgical polished round specimen with 1um surface finish is provided. The nominal dimension of the specimen is 35Φ mm and thickness 12 mm. It is a dual phase structure of ferrite and austenite. At least twenty fields must be considered for measurement of volume fraction of delta ferrite and austenite.

C Test Requirement

C.1 Test may be performed by one operator and one microscope only

C.2 Test must be performed in sequence

C.3 Manual point grid, magnetic or Image analysis technique may be used

C.4 All measurement must be performed at 100magnfication or higher magnification.

D Test method, Volume fraction of ferrite

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

Where $P_{p/f}$ = total count on the ferrite phase and P_T total number of point in the test grid by manual or by image analysis technique

E Test method, Volume fraction of austenite

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

Where $P_{p/f}$ = total count on the austenite phase and P_T total number of point in the test grid by manual or by image analysis technique

F Test method, Volume fraction of ferrite

Any validated magnetic method

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TECHNICAL STANDARD INSTRUCTION FOR MEASUREMENT OF VOLUME FRACTION OF DELTA FERRITE IN DUPLEX STAINLESS STEEL BY MAGNETIC AND MICROSCOPIC METHOD

G Expected range

PT program	Test method	Expected Parameters	Expected range
Met 6	ASTM A800 or any magnetic method	Volume fraction of delta ferrite	40% to 70%
	ASTM E562 or any validated microscopic method	Volume fraction of delta ferrite	40% to 70%
	ASTM E562 or any validated microscopic method	Volume fraction of austenite	30% to 60%

H Competency

H.1 Competent person should carry out the test and evaluate the result as routine test
H.2 The participant is required to report result with three decimals accuracy
H.3 PT results will be analyzed based on Robust Algorithm A and Z score according to ISO13528-15.
H.4 Final report includes all clauses of 4.8.2 of ISO17043-2010
H.5 In case of loss or deterioration of PTP Specimen, please feel free to contact PT provider
H.6 In case of exclusion of a PT schemes, the participant must return sample
H.7 Collusion and falsification of your PTP result are totally forbidden. In case of suspicion of collusion or falsification, the PT Provider reserves the right to exclude the participants.

PT Coordinator,

K.K. Karmakar
Deep Metallurgical Services, Email: deep.ptp2018@gmail.com

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TEST RESULT REPORTING FORMAT

A Proficiency Testing Program

A.1 Program Name: Measurement of volume fraction of delta ferrite and austenite
A.2 Program Code No: Met 6
A.3 Material: Duplex stainless steel
A.4 Test Method: ASTM E562, ASTM A800, ASTM E112 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

Sr. No	Parameter	Unit	Result, one decimal accuracy
1	Volume fraction of delta ferrite by magnetic method	%	
2	Volume fraction of delta ferrite by microscopic method	%	
3	Volume fraction of austenite by microscopic method	%	

Method &Magnification: Equipment used:

NABL/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