



NZ Non Destructive Testing Association
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Please note – The information contained within this document is published for the sole reason to assist with the preparation for sitting NDT examinations. It is subjective and based on the experience of the author.

PT Level 1 Written Instruction Example

1 Scope

This written instruction is applicable to the penetrant inspection of the aluminium welded plate, part number 1234, when required by Company XYZ.

Inspection is for surface welding defects in the weld and Heat Affected Zones (HAZ) on both sides of the plate

This technique may also be used for other similar welded items provided approval is given by a Level 2 or 3.

2 References

This instruction satisfies the requirements of AS 2062 (latest revision). Reference should be made to AS 2062 for all areas not specifically covered by this instruction

3 Authorisation

Document number – 222

Date 12 Nov 2010

Approved by Company XYZ Level 3 (name/approval no.)

4 Personnel

Only personnel holding a current XYZ Level 1 or 2 approval in Penetrant Testing can carry out and sign for this inspection

5a Penetrant Materials

The following materials shall be used for this inspection

- Pre cleaner/Remover SKC-S Solvent cleaner
- Penetrant ZL60D Type 1 sensitivity level 2
- Developer 9D1B Non aqueous developer

Ensure all materials have current manufactures batch certificates and are within shelf life dates.

5b Penetrant Equipment

The following equipment is required

- Spectroline UV light with Kopp 41 filter – Min intensity of 1000 $\mu\text{W}/\text{cm}^2$ at 15"
- White light for evaluation min 1000 Lux at part surface
- 10 X magnifier
- Clean 10mm paint brush and tissues

6 Part Description

10mm thick butt welded "V" preparation plate. 120mm long.

Inspection is to be performed on the welded area and HAZ of both sides of the plate after wire brushing.

Special attention should be given to the toe of the weld due to previous history of cracking



7 Test Conditions

Ensure test area is clean and free from contamination. Ambient temperature shall be between 5 and 50 degrees C

Ambient white light shall be able to be reduced to below 20Lux during penetrant removal and inspection

8 Preparation

- Ensure all dirt, scale and surface contaminants have been removed from weld and HAZ.
- Pre clean area using solvent cleaner and tissues
- Allow at least 3 minutes for part to dry after solvent clean
- Drying time may be reduced by blowing with hot air.

9 *Inspection*

Refer to AS 2062

Apply Penetrant	Spray or brush penetrant. Cover entire inspection area Min dwell = 10 minutes Max dwell = 1 hour
Remove penetrant	1 Wipe surface with dry tissue 2 Remove excess surface penetrant with solvent damped tissue 3 Carry out removal using UV light
Apply developer	Spray an even thin coat Min dwell = 10 min Max dwell = 2 hours
Inspect	Inspect entire area Min UV intensity = 1000 $\mu\text{W}/\text{cm}^2$ Max ambient light = 20 Lux
Post clean	Solvent clean area to remove penetrant and developer

10 *Evaluation*

True indications can be confirmed by Level 1 personnel using the “wipe” method. This should only be performed once for a specific indication.

If indication re appears after wipe and re developing, final evaluation shall only be performed by a Level 2 or 3

11 *Test Record and Test Report*

A record of all test parameters and conditions shall be produced and filed by company XYZ.

A test report shall also be produced which includes all true indications found. The test report shall include physical dimensions of all the indications along with their datum.

The items included within the test record and test report shall be in accordance with AS 2062