

DYE PENETRANT INSPECTION PROCEDURE

Reference: PROC/GEN/PT/ASMEV_W Issue:01 | Date of Issue: **SAMPLE**



Procedure For The Dye Penetrant Testing Of Welds To ASME BPVC Section V

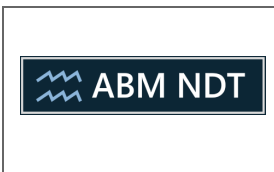
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1. Scope

This procedure describes the method of dye penetrant inspection of welded joints in steel plate and pipe sections and must be adhered to as applicable to ensure customer requirements are met and that compliance with orders received is achieved.

This specification is only applicable to water or solvent removable colour contrast dye penetrant used with non-aqueous wet developer method.

2. Applicable Documents

ASME BPVC V - 2019

ISO 9712:2012 Non-destructive Testing – Qualification and certification of NDT personnel.

BS EN ISO 3452-1:2013 Non-destructive testing. Penetrant testing. General principles

BS EN ISO 3452-2:2013 Non-destructive testing. Penetrant testing. Testing of penetrant materials

Controlling document highlighted in bold.

3 .Safety

Personnel working to this procedure shall work in such a manner as to comply with the Health and Safety at Work act (1974)

All consumables used shall have accompanying COSHH data sheets and shall be disposed of in a way that is non-injurious to site personnel or to the environment.

Personnel working to this procedure shall at all times wear mandatory PPE; overalls, safety boots, hard hat, high visibility clothing, etc.

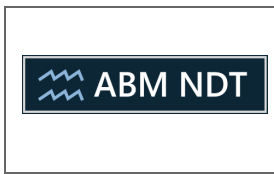
4. Personnel qualification

Operators trained and qualified in dye penetrant inspection to PCN (ISO 9712) Level 2 will be employed to carry out penetrant inspection in accordance with this procedure.

Non-destructive testing operations shall be authorised by a supervisory individual qualified to ISO 9712 Level 3. E.g. PCN Level 3.

All personnel shall meet the eyesight requirements of ISO 9712 Part 7.4 and shall be certified annually to ensure this.

Documentation relating to operators shall be kept on file at the administration offices for review purposes



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5. Description of method

Liquid penetrant inspection is a method of non-destructive testing which provides for the detection of flaws which are open to the surface in non-porous metals. Typical flaws which are detectable are cracks, seams, laps, cold shuts, laminations, lack of fusion, porosity etc. A liquid penetrant is applied to the surface to be examined and allowed to enter flaws, excess penetrant is removed using a suitable solvent, then the part is dried and a developer applied. The developer when dry, will indicate escaping penetrant trapped in discontinuities so that defects may be more readily located.

Precautions:- Liquid penetrant inspection should be carried out in a well ventilated area. The materials used are inflammable and must be kept away from naked flames.

6. Testing Materials

The following testing penetrant materials will be used, supplied by Johnson & Allen Ltd.

Penetrant – JAP Penetrant (Solvent or Water Washable)

Developer – JAD Developer

Remover – JAC Cleaner

Note: Penetrant materials produced by other manufacturers may be used as long as they conform to the requirements of ISO 3452-1 and ISO 3452-2.

Note: Testing will only be carried out using one manufacturers testing materials (penetrant family) and non compatible products shall not be mixed.

The penetrant materials used shall have been analysed for sulphur and halogen content and meet the general requirements of ASME V & ISO 3452.

7. Method of application

7.1 Surface preparation

All accessible surfaces of each finished part shall be inspected after final heat treatment/stress relieving.

The surface subject to be inspected, will be free from scale, grease, oil, dirt or any other substance which may interfere with the effectiveness of the testing materials.

Acetone, cleaning solvent or water based degreasing product shall be used for cleaning and degreasing as necessary. Cleaning agents shall be thoroughly removed prior to the application of penetrant.