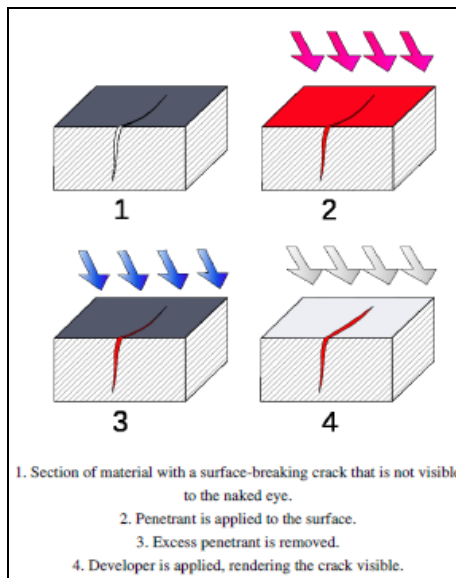


FS 2: Dye Penetrant Inspection (DPI)

This is a widely used technique for identifying surface breaking flaws in all non-porous materials, either ferrous or non-ferrous, although mainly used on austenitic stainless steel assemblies or parts.



As the name suggests, DPI involves applying a dye to the cleaned surface of a material (2) which is able to penetrate into surface breaking discontinuities (1). After a period of time to allow penetration (dwell time), the excess surface dye is removed (3) and a developer is applied to the surface (4) – this draws the dye back out of any discontinuities (due to capillary action), where it can be seen by the inspector and subjected to interpretation.

The advantages of DPI are that it can be used on all clean and non-ferromagnetic materials. It is a simple, effective and inexpensive technique, although systems have been developed in the aerospace industry which are sensitive to fine defects in the various austenitic alloys under test. It is a good aid to visual inspection.

The primary disadvantage of DPI is that it only detects surface flaws, is labour intensive in the pre cleaning, performs poorly on rough surfaces and the various dyes/developers used can be harmful.

Typical uses are detection of fine defects in aircraft components and clad welded parts for the oil and gas industry.

Note: Aerosol products are considered 'dangerous goods' for shipping purposes and are supplied by Axiom complete with dangerous goods paperwork, certificates of conformity and COSHH data sheets.

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