

LIQUID PENETRANT TESTING



TOMTEC NDT MARINE SERVICES PTE LTD

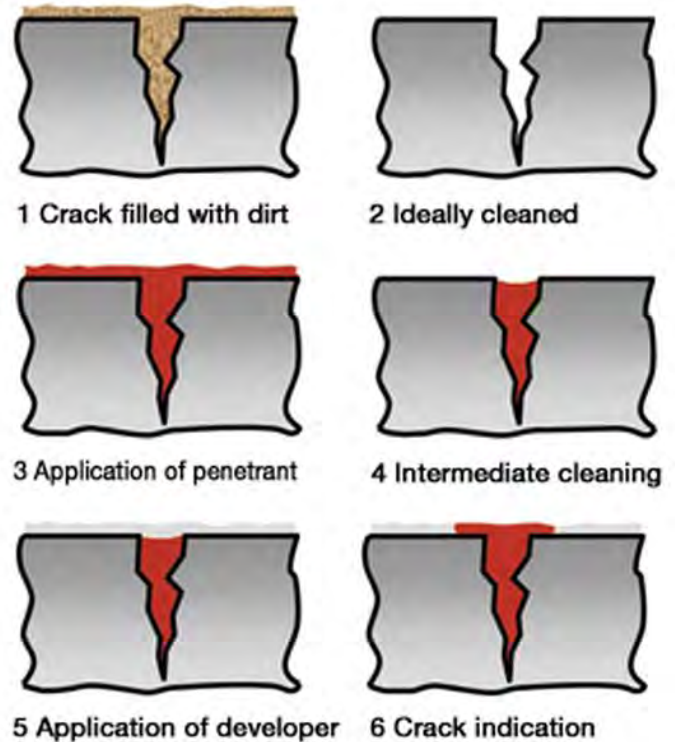
LIQUID PENETRANT TESTING is a simple, inexpensive and reliable non-destructive inspection method for detecting discontinuities which are open to the surface of the item to be inspected. It can be used on metals and other nonporous materials that are not attacked by penetrant materials. With the proper technique, it will detect a wide variety of discontinuities ranging in size from those readily visible down to the microscopic level, as long as the discontinuities are open to the surface and are sufficiently free of foreign material.

Penetrant test is based upon the principles of capillary action where liquid penetrates into a cavity. Penetrant test is performed by cleaning the test surface thoroughly, applying colored or fluorescent penetrant, allowing penetration time, removal of excess penetrant followed by application of developer (dry or liquid form). The developer assists to draw penetrant out from the surface breaking discontinuities. After developer dwelling the test surface is examined for bleed out under natural light or black (UV) light (depending on the type of penetrant).

Some of the common parts tested are carbon steel/stainless steel welded joints, aluminium alloys joints, turbine blades, stainless steel fittings, castings and forgings, weld overlays (satellite), etc.

Advantages

- ✓ Sensitive to small surface discontinuities
- ✓ Few material limitations – works on metallic, non-metallic, magnetic, non-magnetic, conductive, and non-conductive materials
- ✓ Liquid penetrant testing materials are very portable
- ✓ Liquid penetrant testing materials are individually very affordable
- ✓ Small objects, with awkward shapes, can be inspected
- ✓ Lots of small articles, in batches, can be examined using automated systems
- ✓ Large areas and large volumes of parts/materials can be inspected rapidly and at low cost.
- ✓ A power supply is not needed for some methods of penetrant testing
- ✓ The method requires no great skill and easy to understand



TOMTEC performs both visible and fluorescent liquid penetrant testing in accordance with **ASTM E1417, ASTM E165, ASTM E1418, ASTM E433, ASTM E1209, ASTM E1219, ASTM E1220, ASME BPVC Section V – Article 6, EN 571-1** and similar national and international standards.

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