Nadcap Accredited Liquid Penetrant Testing

Liquid penetrant testing (LPT), which is also known as dye-penetrant inspection, liquid penetrant inspection or penetrant testing, can be carried out using either visible or fluorescent dye penetrant. It is one of the oldest methods of non-destructive testing still in use today because of its simplicity and remarkable sensitivity to locating very fine surface discontinuities. LPT involves applying a coloured penetrating liquid to the surface of the material being tested. The liquid is drawn into defective areas in the material’s surface through capillary action and then drawn out to reveal itself to detection using UV lights or other methods, depending upon the type of penetrant and dye colouring used. Fluorescent dye penetrant is typically green and uses a white developer to draw the dye back to the surface from inside the discontinuities by 'wicking' or capillary action. The fluorescent penetrant is characterised by its ability to emit visible radiation when excited by UV-A light and may be used on a variety of materials. Fluorescent penetrant is typically more sensitive than visible dye and is ranked into 4 levels of sensitivity. It does, however, require special lighting conditions: crews must have UV-A lamps, blackout shades and power generators in the field. Fluorescent-dye testing is easily performed under laboratory conditions.

THE Applus+ SOLUTION

Applus+ provides a full range of liquid-penetrant NDT services. Whether it’s a case of high-volume production or of testing individual, large, complex objects, we offer a quick turnaround and a high degree of reliability.

Applus+ only uses penetrant supplies from reputable manufacturers who ensure their products meet code requirements. Our technicians are trained in accordance with a written practice that complies with NAS410/EN4179. Applus+ has qualified technicians and staff available to meet its clients’ needs as challenges arise.

Target customers

Fluorescent dye penetrant is heavily utilised in the aerospace industry and other industries that require a higher level of sensitivity than can be achieved using visible dye. It may be used on a variety of non-porous materials including forgings, castings,
ferrous and non-ferrous metals including aluminum and magnesium, ceramics, glass and some plastics. Many formulations comply with low sulphur and low halogen requirements and some have high flash points, high stability, nonvolatile states and low toxicity.

Nadcap accreditation is required to perform liquid penetrant testing on aerospace components.

Key customer benefits

Partnering with Applus+, a Nadcap-approved provider, assures our clients that they are complying with industry requirements.

Liquid penetrant testing, when applied properly, can also provide:

- Increased product reliability
- Improved production processes by identifying problems in a timely fashion so that they can be corrected
- Reduced costs in terms of fewer returned items and less rework
- Overall improved quality