

# Liquid Penetrant Testing (LPT)

Liquid penetrant testing (LPT) is one of the most widely used non-destructive testing methods. LPT is based on capillarity or capillary attraction, where a liquid is able to flow into narrow spaces without the assistance of – or even in opposition to – external forces such as gravity. The materials processes and procedures used in liquid penetrant testing are designed to make the results of this capillary action visible and capable of interpretation. Liquid penetrant testing is an effective means of locating and determining the severity of surface discontinuities in materials, including those that are not visible to the naked eye.



## THE Applus+ SOLUTION

Applus+ uses only quality products from the industry's top suppliers, such as Sherwin and Magnaflux. Our mobile units can provide services anywhere in North America. We also have laboratories available that can provide testing on products shipped to these locations. Our procedures comply with ASNT and ASTM requirements. We have certified Level III technicians on staff to provide support and guidance as well as developing new procedures when required.

## Target customers

LPT can be used to locate and evaluate defects throughout an items life-cycle, such as:

- Manufacturing defects open to the surface (such as cracks)
- Lack of fusion
- Porosity (gas pockets)
- Cold shuts, inclusions
- Hot tears
- Gas holes

LPT can also detect in-service discontinuities such as:

- Fatigue cracks
- HIC
- SOHIC
- SCC

Early identification of in-service discontinuities means that outages can be planned and executed properly rather than as an emergency. This testing method is used in a variety of industries such as aerospace, food processing, power generation, oil/mining production and refining, maritime and more.

## Key customer benefits

The complexity of modern industry and the demand for safer and more reliable products and equipment dictate the use of fabrication and testing procedures that will ensure maximum reliability. Liquid penetrant testing, when applied properly, can 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