

# ACOUSTIC EMISSION TESTING



## What is Acoustic Emission?

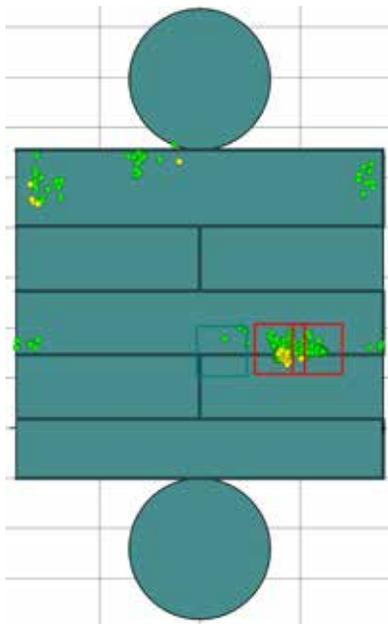
Acoustic emissions (AE) are the sounds generated from acoustic (elastic) waves in solids that are released when materials under mechanical or thermal stresses undergo irreversible changes, leading to crack formation, crack propagation and plastic deformation. AE events generate local sources of high-frequency elastic waves that travel along the surface of a material.

## Acoustic Emission Testing



AE testing is a nondestructive inspection technique that can be used either as a stand-alone inspection method or to complement other types of inspections. AE testing takes advantage of high-frequency sound waves emitted by active flaws in materials under stress. Using special sensors and data acquisition instruments, these sounds, traveling along the surface of a material, can be detected and their source location triangulated accurately.

Data-analysis software specifically designed for AE testing helps to graphically identify active flaws and plot their locations on 2D and 3D diagrams.



## What about noise?

Data acquisition filtering records only those AE events that can be located within the source location array. Noises outside the tested structure, such as nearby pumps or other mechanical equipment, are not detected. As with any inspection method, the interpretation of data relies heavily on operator's experience.

## Is it recognized by any codes or standards?

ASME Sec. VIII Div. 1, API 579/ ASME FFS, API 510, CARP and many other domestic and international codes and standards.



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## Why American?

- American engineers have decades of field experience in refineries and chemical plants and have performed numerous AE tests on various types of equipment.
- American engineers are seasoned travelers who are able and willing to navigate test challenges around the world
- American uses state-of-the-art equipment to perform testing which leads to accurate results with the least down time and expense.



## Acoustic Emission Testing advantages:

- Detects active flaws in equipment caused by known damage mechanisms
- Does not require equipment shutdown for inspection
- Does not require insulation removal
- Entire structures can be inspected in a short period
- 3D location algorithms are displayed in real-time, allowing for safe testing during hydrostatic/pneumatic testing
- AE data can pinpoint problem areas for follow-up inspections
- Significant cost savings for inspection efforts
- Long-term monitoring can give information about equipment health over time
- Complements other NDE methods
- Widely used in refineries/chemical plants and supported by several standards in various industries
- Remote monitoring can be achieved with a web/cell phone connection

**For more information, call Steven Garcia at +1-281-973-5802**