Radiation

When assessing the potential risk to a materials integrity, a particular issue for certain industries is radiation. As part of EASL's expertise in providing trustworthy structural integrity services, our highly qualified team has a wealth of experience in assessing radiation.

With years of providing clients with clear, reliable analysis, we can deliver cost-effective and solution focussed advice as regards the effects of radiation on the materials of interest to you. Whether its civil nuclear power generation, naval nuclear, or even expert peer reviews, we build a strong working relationship with our clients to give specific and realistic advice.

What is Radiation?

Whilst the description of radiation can be academic, it is essentially the transmittance of energy through waves and particles. Radiation travels through either space or a material medium. In real world terms, this can pose a health risk to people in contact with radiation, alongside environmental concerns and damage to materials used in structures where radiation occurs.

It is well known that radiation can have an effect on the mechanical properties of common engineering materials, changing the possible effects of regular operating loads and cycles and potentially reducing the lifetime expectancy of respective materials.

Long term exposure to neutron irradiation can significantly increase the yield stresses, ultimate tensile strengths and ductile-brittle transition temperature of carbon, carbon-manganese steels and their weldments. Austenitic steels can experience swelling and creep under the effects of irradiation.

When undertaking a structural assessment where the risk of radiation is present, irradiation is a significant aspect to be taken into account. The effects on materials can lead to changes in components and structures, having an effect on their life expectancy and ability to function. Taking into account historic irradiation, and predicted future irradiation, EASL can provide a reliable and trustworthy assessment.

EASL's Radiation Services

EASL can provide an insight to radiation to provide clients a clear view of the lifetime and risk to materials, offering a cost-effective and efficient solution at both the design and operation stage.
Through our extensive work in the nuclear Industry, EASL have experience of the civil nuclear, naval nuclear, power generation and academic assessment of radiation. Our services ensure that clients receive results and findings based on the real-world conditions their materials undergo.

Examples of our work include analysing neutron irradiation-induced hardening and embrittlement based on data from components which have been subject to real radiation exposure in service.

The applicable relationships describe the change in a material parameter subjected to irradiation. A best estimate of the resulting change derived from the relationships and may then be used in an assessment of the consequences for structural integrity.

EASL take ownership of our client's needs, approaching the problem from all aspects in order to assess and provide the very best structural integrity analysis. As a factor that can significantly contribute to material lifetime, our experts can provide an efficient and trustworthy response to your radiation concerns.

If you'd like to find out more about our previous work, take a look below at our case studies. If you'd like to find out more about our related services, take a look below at our solutions and other services. To see how EASL can help to understand the effects of radiation on the structural integrity of your components, systems and structures, get in

touch on enquiries@easl-stress.co.uk.

Related Services

- Stress Analysis
- Safety Case Production
- Stress Analysis