



JET FIRE & HYDROCARBON FIRE TESTS

OIL AND GAS QUALIFICATION FOR EFACTIS

For many years, fireproofing requirements for petroleum, petrochemical and gas plants for onshore and offshore installations have been carried out without technical specifications. Faced with this situation, the Oil and Gas industry finally adopted the ISO 22899-1 standard, and also the UL 1709 standard.

WHO IS CONCERNED

- The manufacturers of thermal passive fire protection products (cable trays, structural members, pipes, penetration seals, actuators...)
- Oil and Gas industry

WHY WORKING WITH EFACTIS

- At Efectis, customers can perform both hydrocarbon and jet fire tests
- Comprehensive product and testing knowledge with over 70 years of experience
- A well established brand name and service portfolio
- An excellent customer track record in many countries
- Dedicated highly qualified and multilingual project managers

METHODOLOGY JET FIRE AND HYDROCARBON FIRE

Jet fire standard ISO 22899-1 and -3

The jet fire standard ISO 22899-1:2021 consists in simulating the thermal and mechanical loads resulting from high-pressure releases of flammable gas, pressurized liquefied gas or flashing liquid fuels.

Regarding the standard ISO 22899-3, it describes an extended test method determining the resistance to jet fires of passive fire protection materials and systems or critical process control equipment. It gives an indication of how PFP materials or equipment behaves in a severe jet fire which can generate sustained heat fluxes of 350 kW/m².

Efectively Jet fires give rise to high convective and radiative heat fluxes as well as high erosive forces. This ISO standard was formulated on the basis of experience obtained by performing tests according to the Health & Safety Executive, Offshore Technology Report OTI 95 634: 1995.

All new requirements are stated in ISO 13702:2024 recently published.

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According to the jet fire standard, in order to produce thermal and kinetic impact on a protected pipe, a 0.3 kg/s release of gas is injected into a shallow chamber, producing a fireball with an extended tail. Other conditions and fuels can be proposed on demand.

UL 1709 STANDARD

The UL 1709 standard "Rapid Rise Fire Test of Protection Materials for Structural Steel" is one of the oldest and most frequently used furnace test standards for the Oil and Gas industry. The temperature rise of the UL 1709 is more severe than the European Hydrocarbon Fire (HC).

ADDITIONAL EXPLOSION RESISTANCE TESTS

Passive fire protection (PFP) products can be sensitive to explosion and several guidelines have been developed, such as ISO 23693 series. Joint vulnerability of protection materials to both fire and explosion threats can be proposed on demand.

ACCREDITATIONS

The tests are carried out under ISO 17025 accreditation, with optionally witnessing from third party organisations (Lloyd's, Register, DNV...).

