

Title	Large Scale & Medium Scale Jet Fire Tests	
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Executive Summary	<p>Jet fire test results have been examined from four testing establishments, namely: British Gas - Spadeadam, Southwest Research Institute (SwRI), Health & Safety Laboratories (HSL), and the Norwegian Testing Facility (SINTEF). The results have been compared for uniformity between the different laboratory facilities, and correlation between large and medium scale jet fire testing. Large scale tests were carried out at Spadeadam and medium scale testing was carried out at SwRI, HSL and SINTEF.</p> <p>Epoxy intumescent type passive fire protection materials were used to protect the steel substrates of the test specimens in all cases. However, it should be noted that jet fire protection materials are not limited to epoxy intumescent type systems. In practice, epoxy intumescent materials are difficult to apply with any degree of accuracy.</p> <p>This resulted in thickness variations over the tested specimens and in some cases the thicknesses were at variance to the manufacturers' specified thicknesses. While this may be acceptable in practical applications, for scientific purposes it can make the analysis of the results at best difficult and at worst invalid. Additionally, performance of the material protection system is dependent on the reinforcement system and the properties of the materials. Any variation in one or more of these parameters, e.g. the positioning of the reinforcement or the hardness of the material over a test specimen or between similar test specimens may account for performance variations experienced between test specimens, particularly the tubular sections tested at Spadeadam and SwRI.</p> <p>I-section beams and tubular sections were tested at Spadeadam.</p> <p>Boxes with a central web were tested at SwRI, HSL and SINTEF. Additionally, tubular sections were tested at SwRI. This report examines, among other things, the uniformity of jet fire testing at medium scale, but for a more detailed analysis of the results refer to British Gas PIC report "Assessment of the Uniformity of the Interim Jet Fire Test Procedure", May 1995 – OTH 95 477.</p> <p>An analysis of the jet fire test results has been conducted to compare the integrity (i.e. the ability of passive fire protection materials to withstand the erosive forces of jet fire) and the insulation performance of the passive fire protection materials, when subjected to the large and medium scale jet fires and when protecting different configurations of structures, such as I-sections and tubular sections.</p> <p>It should be noted the comparison is not between the different passive fire protection materials, but between different test facilities and jet fire scales.</p> <p>The analysis leads to the conclusions, discussed in Section 6, when taking into account reasonable limits of experimental error and the variants of the passive fire protection materials used in the testing, for structural sections such as I-sections and planar specimens, the results between the different laboratory facilities and the different scale arrangements are comparable.</p> <p>However, the results for the tubular sections between the medium and large scale are not conclusive</p>	
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