



FURNACE TEST METHODOLOGY TO CHARACTERISE PASSIVE FIRE PROTECTION PRODUCTS FOR LIQUEFIED PRESSURIED FLAMMABLE GASES TANKS

RAPPORT N°93/12

SUMMARY

1 PURPOSE OF THE METHOD

2 EXPERIMENTAL CONDITIONS

3 TEST PLATES REALISATION

3.1 Steel plates

3.1.1 *Fire simulating an hydrocarbon pool fire*

3.1.2 *Torch fire simulating the impact of an hydrocarbon jet fire and torch fire alternating with water hose effect*

3.1.3 *Control of fireproofing properties after ageing tests*

3.2 Surface preparation of the plates

3.2.1 *Control of the fireproofing properties after ageing*

3.2.2 *For the other tests*

3.3 Product thickness to be applied

3.3.1 *Fire simulating an hydrocarbon pool fire*

3.3.2 *Torch fire simulating the impact of an hydrocarbon jet fire and torch fire alternating with water hose effect*

3.3.3 *Control of the fireproofing properties after ageing tests*

3.4 Thermal insulation of the non exposed side of the plates

3.4.1 *Fire simulating an hydrocarbon pool fire*

3.4.2 *For the other tests*

3.5 Plates instrumentation

3.5.1 *Fire simulating an hydrocarbon pool fire*

3.5.2 *For the other tests*

3.6 Passive fire protection product application follow up

3.6.1 *Fire simulating an hydrocarbon pool fire*

3.6.2 *For the other tests*

3.7 Test plates conservation conditions

- 3.7.1 *Control of the fireproofing properties after ageing*
- 3.7.2 *For the other tests*
- 3.8 Determination of the natural curing before test
- 3.9 Determination of the physical characteristics of the passive protection product
 - 3.9.1 *Fire simulating an hydrocarbon pool fire*
 - 3.9.2 *For the other tests*

4 TESTS PROCEDURE

- 4.1 Fire simulating an hydrocarbon pool fire
 - 4.1.1 *Fire of reference*
 - 4.1.2 *Tests realisation*
 - 4.1.3 *Experimental results analysis and processing*
 - 4.1.3.1 *Experimental results numeric simulation*
 - 4.1.3.2 *Thermal characteristics validity criteria*
 - 4.1.3.3 *Graphs plotting*
- 4.2 Torch fire simulating the impact of an hydrocarbon jet fire
 - 4.2.1 *Thermal stress*
 - 4.2.2 *Test realisation*
- 4.3 Torch fire simulating the impact of an hydrocarbon jet fire and alternating with a water hose effect
 - 4.3.1 *Thermal stress*
 - 4.3.2 *Water hose jet characteristics*
 - 4.3.3 *Test realisation*
- 4.4 Control of the fireproofing properties after ageing tests
 - 4.4.1 *Fire of reference*
 - 4.4.2 *Test realisation*
 - 4.4.3 *Experimental results*

5 TESTS REPORT CONTENT

APPENDIX