

Fire Test of HJ3 Composite Wrap System coated with Chartek 8/1709

Introduction

3 Samples of the HJ3 Composite Wrap System coated on steel plate size ¼” x 12” x 12” were submitted for testing at the request of Sherm Spear, IP Houston. The object of the testing was to demonstrate that Chartek applied over the HJ3 composite system would enable the HJ3 system to maintain its integrity for a minimum of 120 minutes to a failure temperature of 1000 degree F. The HJ3 Composite Wrap System is manufactured by HJ3 Composite Technologies LLC, 4100 S.Fremont Ave. Tucson, Arizona 85714.

Samples and Test Method

1. Chartek 8/1709 at 14mm over bidirectional Blastek™ Carbon Wrap (CW)
2. Chartek 8/1709 at 12mm over bidirectional Fiberglass Bidirectional (GW)
3. Chartek 8/1709 at 8mm over unidirectional Carbon Fiber Laminate (CL)

The 3-samples were fire tested to a UL 1709 heating regime at our Felling UK fire test laboratory using our in-house screening plate test set-up. 5-copper plate thermocouples were attached to the non-fire side of the plate.

The plates are inserted into the test frame then insulated on the reverse face with 24mm ceramic fiber blanket and 25mm vermiculite board. The thermocouple tails are passed through both layers and connected to a computerized data logger. The average temperature of all five thermocouples is then recorded every minute. The failure criterion for our in-house screening plate test is time taken to rise 250 degrees F from ambient temperature together with time taken to reach 752 degrees F on the back face.

Conclusion of Results

All 3-samples performed very well in the test and it is concluded that any one of the 3-samples tested will maintain its integrity in a hydrocarbon fire for 120 minutes coated with Chartek 8/1709 at a thickness of 14mm.