CAMFIL APC iSMF TECHNICAL REPORT AND CERTIFICATION

JANUARY 20, 2012

THEORY

Camfil APC contracted a third party testing company to examine the flame arresting capability of a dust filter. The tests were conducted to prove Camfil APC's theory that a flame front from a dust deflagration will not pass through a filter media if the media prevents particulate from passing through it. Ten explosions tests were conducted in a Farr Gold Series® 16 cartridge collector. Pressures developed in the dust collector varied up to 4.21 psi simulating dust Kst values up to 300 or ST2 class dusts.

RESULTS

Flame detectors were mounted on the clean side of the filter cartridges. Flame was not detected on the clean side of the filters in all ten tests.

CONCLUSIONS

The tests proved that the Farr Gold Series® Standard Polytech filter media with fire retardant treatment and an efficiency equivalent to a MERV 11 rating prevented the progression of the deflagration flame front to the clean side of the dust collector. However, it would not be prudent or safe to rely on a dust collectors primary filters to protect property and life from the progression of a flame front back through the collector's ducting. A secondary safety filter bank can be used as a backup to act as a flame arrestor. This filter bank and its individual filters must meet the following criteria to act as a flame front arrester:

1. Filter media should have a minimum efficiency MERV 14. The Camfil APC Rigaflo 200 meets this.
2. The filter media should be flame proof.
3. The filter media frame should be made from metal.
4. The filter media should be reinforced on the downstream side to prevent blow through.
5. The filters should be compression sealed in its frame on the upstream side of the frame sealing structure.

Based on extensive third party testing Camfil APC certifies that the integrated Safety Monitoring Filter, mounted on a Farr Gold Series® collector and equipped with Camfil Riga-Flo or HEPA filters, is an effective flame-front arrestor for ST1 and ST2 dusts per the Performance Based Design Options of NFPA 69, Chapter 5, and NFPA 654, Chapter 5. This system is a passive isolation device which meets all of the aforementioned criteria. To sustain this certification the owner is required to maintain this equipment per the manufacturer's recommendations and document periodic inspections as required in chapter 15 of NFPA 69 Standard on Explosion Prevention Systems.

Camfil APC | 3505 S. Airport Road, Jonesboro, AR 72401
870-933-8048 | e-mail: filterman@camfil.com | 800-479-6801