Talentum Flame Test Procedure

Health and Safety

Testing with live flames should only be conducted where it is safe to do so and by personnel with appropriate training and equipment.

Pan Fire Testing

The recommended test for a flame detector is to recreate that used in the relevant standard, such as the "pan fire" test in EN54 Part 10 (section 5). As a rough overview, a pan fire test typically consists of igniting a 0.1m^2 pan of n-heptane fuel, placed 25m away from the detector. Once the fire is established, the detector should be exposed to the yellow flames and is expected to alarm within 30 seconds. Precise details can be found in the relevant standard.

In some installations, pan fire tests may not be possible. Below, we suggest some alternatives which may be used as a substitute. Be aware these are just approximations of the standard test; we also give an indication of some of the limitations of these approaches. The decision on what sort of testing is appropriate for a given installation must be made by a trained individual on a case-by-case basis.

Camping Stove Flame

As small gas camping stove may be a more convenient and portable alternative to pan fire testing. A typical camping stove can generate a flame of approximately: height 15cm (6"), width 1.5cm (5/8").

With this configuration, a test conducted at approximately 2.4m (~ 8 ft) from the detector, close to the centre of its line of sight, will be broadly equivalent to a pan fire in perceived intensity, giving a good approximation of a pan fire test. The flame detector should be expected to alarm within 30 seconds.

Care should be taken to ensure that the flame dimensions are in line with those stated above. For example, as the fuel runs low, it may adversely affect the flame size. Inadequate flame intensity will mean that the alarm will not sound and the test should be repeated to recreate the conditions in the relevant standard.

"Zippo"® Cigarette Lighter

The most convenient, but least accurate, test method is to wave a Zippo-style cigarette lighter with a flame of approximately: height 4cm (1.5"), width 1cm (0.5").

With this configuration, a test conducted at 70cm (2¼ ft), close to the centre of its line of sight, will be approximately equivalent to a pan fire in perceived intensity, giving a crude approximation of a pan fire test.

The Zippo should be waved back and forth to encourage flicker in the flame, which otherwise might tend not to flicker much. The flame detector should be expected to alarm within 30 seconds. Care should be taken to ensure that the flame dimensions are in line with those stated above. For example, as the fuel runs low, it may adversely affect the flame size resulting in test failures due to inadequate flame intensity. In these circumstances, the test should be repeated to recreate the conditions in the standard. The lighter fluid used for this test is petroleum distillate.

Summary

Test description	Flame dimensions	Distance to detector
Pan fire	0.1m^2 pan of n-heptane	25m
Camping stove	15cm (6") x 1.5cm (5/8")	2.4m (~ 8 ft)
Zippo	4cm (1.5") x 1cm (0.5")	70cm (2¼ ft)

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