

related test method	EN ISO 1182: 2002 Reaction to fire tests for building products – Non-combustibility test
subject	Methods of preparation of test specimens from liquid applied adhesives and products and protocol for choice of preparation method to be used during testing to EN ISO 1182: 2002
reference of original query	TC1 N206rev1 Helpdesk 2002-03

Problem

When liquid based adhesives (or other liquid applied products, e.g. sealing materials) are used to bond products to be tested in the SBI test, for certain classifications the adhesive or product itself has to be tested to EN ISO 1182 (and/or EN ISO 1716) test.

When the adhesive (or product) contains less than 1% organic material it does not need to be tested because it is classified A1 by Commission decision. When the adhesive (or product) contains more than 1% organic material it has to be tested to EN ISO 1182 (and/or EN ISO 1716) test.

The problem is how to prepare a suitable test specimen for use in EN ISO 1182 (and/or EN ISO 1716) from liquid based adhesives or other liquid applied products.

EN ISO 1182 § 5.2.1 describes a method of making test specimens from thin product ($< (50 \pm 3)$ mm) by building up layers of material to the correct thickness.

For liquid based adhesives [or other liquid applied products], two options exist for preparation of the test specimen, which still meet the requirements of § 5.2.1 of EN ISO 1182, namely:

- casting the test specimen directly in the form of a solid cylinder with the correct specimen dimensions
- casting flat sheets, from which the cylindrical test specimen is built-up, as described in § 5.2.1 and §5.2.2.

The choice of which method to use depends upon:

- the consistency of the adhesive and whether it can be cast successfully (or even formed into flat sheets)
- whether the cast specimen shrinks excessively to below the required specimen size [this may be overcome by use of a mould of dimensions greater than the required specimen size].



Recommendation

The following procedure shall be used to prepare and test liquid based adhesives (or other liquid applied products) according to EN ISO 1182: 2000, when such adhesives (or products) are used in practice as layers of greater than 1 mm thickness (layers of thickness < 1 mm do not need to be tested):

1. An initial single solid test specimen shall be cast in a plastic tube of the correct or appropriate diameter (note some corrections for shrinkage may be required to give the required test specimen diameter (trial and error will determine this)). This initial specimen shall be tested.

If this initial test specimen behaves normally in the test, then the remaining test specimens may be made by this method and tested.

If the initial test specimen shows abnormal* behaviour, this method of specimen preparation shall be rejected.

* the experienced technician will identify and determine abnormal behaviour.

2. If the method of casting solid test specimens is rejected (§1 above), then all 5 test specimens required for the test shall be built up from discs cut from sheets of the liquid based adhesive [or other liquid applied product] cast at the maximum expected in-use thickness.

Note 1: When the test specimens of this type are prepared with a hole on the central axis for measuring the temperature inside the test specimen (which is optional according to the standard EN ISO 1182), flammable gas may develop inside the hole and result in flaming. When testing liquid based adhesives [or other liquid applied products], for the purpose of classification according to EN 13501-1, the tests according to EN ISO 1182 shall be performed without any additional optional temperature measurement.

Note 2: For the SBI test, the gypsum based adhesive (this is a general problem for all jointing materials) shall be tested in its end use condition, i.e. test gypsum blocks using the required adhesive. The test result shall be valid only for that system tested.