

Australian/New Zealand Standard™

Methods of test for plastics pipes and fittings

Method 16: Method for high temperature testing of pipe

1 SCOPE

This Standard sets out the procedure for testing the matrix of PVC and ABS pipes by using high temperatures.

2 PRINCIPLE

A pipe section is heated in an oven, sliced open and laid flat, then sliced into segments which are examined for splits, delamination, porosity and inclusions.

3 RELEVANCE OF TEST

This test indicates the presence of volatiles and gas bubbles resulting from incorrect processing conditions or thermal decomposition. The test also provides a qualitative indication of gelation levels in extruded PVC pipes.

4 APPARATUS

The following apparatus is required:

- (a) *Forced or circulating hot air oven*—capable of maintaining and controlling an air temperature, as defined in the product Standard, $\pm 4^{\circ}\text{C}$.
- (b) *Thermometer*—capable of indicating the required temperature to an accuracy of $\pm 2^{\circ}\text{C}$.
- (c) *Heat-resistant gloves*
- (d) *Stainless steel knife blade*
- (e) *Insulating cutting board*—cork is a suitable material.

5 TEST SPECIMEN

The test specimen shall consist of a complete section of pipe of 200 mm minimum length. The ends shall be cut approximately square.

6 PROCEDURE

The procedure shall be as follows:

- (a) Preheat the oven to the specified test temperature ($\pm 4^{\circ}\text{C}$), see Clause 4(a). Allow to stabilize for approximately 15 min before inserting the test specimen.
- (b) Place the test specimen in the oven, standing it vertically on one end.
NOTE: The door of the oven should remain open for the minimum time possible.
- (c) Allow the specimen to remain in the oven, maintained at the specified temperature ($\pm 4^{\circ}\text{C}$), for a period as specified in Table 1, timed from the closing of the oven door. The temperature in the oven shall recover to within specified temperature ($\pm 4^{\circ}\text{C}$) for not less than 75% of the test period.

- (d) Remove the test specimen from the oven using heat-resistant gloves and place it on the cutting board.

Slice the test specimen axially at one point only, open out and spread flat on the insulated cutting board.

Then slice the test specimen in the axial direction into pieces not larger than 50 mm in width. Where it is difficult to slice the specimen it may be re-heated for up to 15 min to soften the specimen and to allow easier slicing. When this is done it shall be noted in the report.

- (e) Examine the test specimen visually under well-lit conditions for the existence of any splits, inclusions, delamination or porosity at the cut surfaces.

TABLE 1
TEST PERIOD

Wall thickness (mm)	Time (min)
≤3	30
>3	60

7 REPORT

The following information shall be reported:

- (a) The complete identification of the pipe tested.
- (b) Any splits, delaminations or porosity.
- (c) Any splits associated with spider line defects.
- (d) If the specimen was re-heated to allow slicing, see Clause 6(d).
- (e) Reference to this test method, i.e. AS/NZS 1462.16.