Unplasticized Polyvinyl Chloride (PVC-U) Pipes and Fittings for Drainage Systems Inside Buildings Part 10: Fire Behaviour, Quality Control and Installation DIN 19531-10

Description

3 Fire behaviour
3.1 Requirements and testing
The material used for pipes and fittings shall fulfil the requirements for class B1 building materials, as specified in DIN 4102-1. Fire behaviour shall be tested as in DIN 4102-1, with the exception of pipes and fittings with wall thicknesses as in DIN 4102-4.

4 Conformity assessment (quality control)
4.1 General

Pipes and fittings shall be checked at each production site for conformity with DIN EN 1329-1 and with clause 3 of this standard.

4.3 Type testing
Type testing shall be carried out to determine whether the requirements for the characteristics presented in tables 4 to 6 are met. Additional testing shall be carried out if changes to design, material or the manufacturing process result in any deviation from the substance of these tables.

Table 4: Type testing of pipes

Characteristic	Requirements and testing as in DIN EN 1329-1, subclause	Sampling frequency	Number of samples
PVC content	4.1	To be calculated once per material type using table 3	–
Appearance	5.1	Once per size group	1
Colour	5.2	Once per size group	1
Dimensions	6.2	Once per size	1
Impact resistance (round-the-clock method)	7.1	Once per size group	1
Vicat softening temperature	8.1	Once per material type	2
Longitudinal reversion	8.1	Once per size group	3
Resistance to dichloromethane	8.1	Once per material type	1
Marking	13.2	Once per size group	1

Table 5: Type testing of fittings

Characteristic	Requirements and testing as in DIN EN 1329-1, subclause	Sampling frequency	Number of samples
PVC content	4.1	To be calculated once per material type using table 3	–
Appearance	5.1	Once per size group and fitting	1
Colour	5.2	Once per size group and fitting	1
Dimensions	6.3	Once per size and fitting	1
Vicat softening temperature	8.2	Once per material type	2
Heat reversion	8.2	Once per fitting	3
Marking	13.3	Once per size group	2

Table 6: Type testing of joints and piping system

Characteristic	Requirements and testing as in DIN EN 1329-1, clause	Sampling frequency	Number of samples
Watertightness	9	Once per size and socket type[1)3)], including sealing ring	1
Airtightness		Once per size and socket type[1)3)], including sealing ring	1
Application area B: thermal cycling		Once per joint type[2)] with the smallest wall thickness and per socket type[1)3)], including sealing ring	1

[1)] Only relevant if fitting socket is different from that of pipes.
[2)] One item from fitting group 1 or 2 shall be tested.
[3)] A socket type is determined by the following: sealing ring design, groove design and dimensions, and the hardness of sealing ring material (± 5 IRHD), in accordance with ISO 48.

4.4 Factory production control

The scope and frequency of testing to be carried out as part of factory production control procedures shall be as specified in tables 7 and 8.

Table 7: Scope and frequency of batch testing

Component	Characteristic	Requirements and testing as in DIN EN 1392-1, subclause	Minimum sampling frequency
Pipe			At every start-up and subsequently
	Appearance	5.1	once every 8 hours per machine
	Colour	5.2	once every 8 hours per machine
	Dimensions – Outside diameter – Effective length – Chamfer[1]) – Wall thickness – Socket dimensions[2])	 6.2.1 6.2.3 6.2.4 6.2.5 6.4	once every 8 hours per machine
	Impact resistance (round-the clock method)	7.1.1	every 24 hours
	Longitudinal reversion	8.1	
	Resistance to dichloromethane	8.1	
	Marking	13.2	once every 8 hours per machine
Fitting			once per nest
	Appearance	5.1	every 8 hours
	Colour	5.2	once every 8 hours
	Dimensions – Outside diameter – Wall thickness – Socket dimensions – Spigot dimensions	 6.3.1 6.3.3 6.4 6.4	
	Marking	13.3	once per production run and nest

[1]) If applicable.
[2]) Only where dimensions are affected by the production process, otherwise at every start-up of production.

4.4.1 Batch release

The manufacturer shall be responsible for specifying the size of a batch in a quality control plan. A batch shall only be released if a full cycle of tests and inspections has been carried out with the specified sampling
frequency, and all requirements have been met.

If a product does not fulfil the requirements for a characteristic given in table 7, the batch shall be rejected or the product shall be retested regarding the characteristic, as follows. The last product to fulfil the requirements of this standard shall be identified, and all previous products shall be accepted, while all subsequent products shall be rejected. The procedure for dealing with rejected products shall be set out in the manufacturerâ€™s quality control plan.

4.4.2 Production control

The characteristics set out in DIN EN 1392-1 and in table 8 shall be tested as specified in table 8 to check for consistency of production conditions.

Table 8: Scope and frequency of production control

Component	Characteristic	Requirements and testing as in DIN 1329-1, clause	Minimum sampling frequency
Pipes and fittings	Vicat softening temperature	8	Once a year per material[1)]
	Watertightness	9	Once every two years per size group and joint type
	Airtightness		
	Resistance to thermal cycling		Once every two years per size group, joint type and material

[1)] Retesting of fitting material is not required if the material is the same as that already tested for pipes.

If a product fails to conform to a specification in table 8, a repeat test shall be carried out as specified in the quality control plan, and the certification body shall be informed.
If the product fails the repeat test, the manufacturing process shall be checked as specified in the quality control plan and modified as necessary, after which testing shall be carried out again.

Main Test Equipment to Cover This Norm

- Vicat Softening Pint VST
- Water Tightness Tester
- Air Tightness Tester
- Thermal Cycling Tester
- Falling Weight Impact Tester
- Oven for Lingitudinal Reversion Testing
- Resistance to Dichloromethane Tester
- Dimensional Measurement Equipment for Pipes and Fittings

Category

1. Equipment for Standards
2. Standards