

# Unplasticized polyvinyl chloride sheet

## Technical delivery conditions

**DIN**  
**16927**

Tafeln aus weichmacherfreiem Polyvinylchlorid; technische Lieferbedingungen

Supersedes  
DIN 16927 Parts 1 and 2,  
April 1977 editions.

*In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.*

Dimensions in mm

### 1 Field of application

This standard specifies requirements and the relevant methods of test for normal impact polyvinylchloride (PVC-U) and raised impact polyvinylchloride (PVC-R1)<sup>1)</sup> sheet.

### 2 Designation

#### 2.1 Standard designation

An 8 mm PVC-U sheet shall be designated as follows (example):

Sheet DIN 16927 – PVC-U 8

#### 2.2 Order designation

Example: 5 sheets DIN 16927 – PVC-U 8 × 2000 × 1000 –

Number of units \_\_\_\_\_

Standard designation as in subclause 2.1 \_\_\_\_\_

Length \_\_\_\_\_

Width \_\_\_\_\_

Colour \_\_\_\_\_

### 3 Material (moulding material)

PVC-U or PVC-R1, made from unplasticized PVC-U moulding compounds conforming to DIN 7748 Part 1, shall be used as the moulding material. If required, the moulding compounds may contain additions such as processing aids, stabilizers and colorants. Moulding compounds of unknown origin or composition shall not be used.

### 4 Requirements

#### 4.1 As delivered condition

Sheets shall be free of blisters, voids, cracks, inclusions and other defects and shall have smooth edges. The colour shall be uniform throughout, slight variations in hue originating in the moulding compound or resulting from the production process being, however, permitted. The colour and any permitted variations in hue shall be the subject of agreement.

#### 4.2 Surface finish

Sheets shall have smooth surfaces, slight irregularities being permitted provided that these are shallow. On no account shall there be sharp-edged grooves or sink marks.

Testing shall be as described in subclause 5.3.

#### 4.3 Dimensions and limit deviations

The thickness of extruded sheets,  $s$ , shall not exceed 40 mm, with limit deviations of  $\pm (0,08 + 0,03) s$  and that of compression-moulded sheets, 100 mm, with limit deviations of  $\pm (0,1 + 0,05) s$ .

Sheet length and width shall be the subject of agreement between supplier and purchaser, the limit deviations corresponding to those given in table 1.

<sup>1)</sup> PVC-R1 is now specified in place of PVC-HI, in keeping with the latest edition of DIN 7728 Part 1. PVC-HI may continue to be used for a transition period.

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Table 1. Limit deviations for sheet length and width

Nominal size	Limit deviations			
	Length		Width	
	Extruded sheets	Compression-moulded sheets	Extruded sheets	Compression-moulded sheets
Up to 500	+2 -1	+2 0	+1,5 -1	+2 0
Over 500 up to 1000	+3 -1		+2 -1	
Over 1000 up to 1500	+4 -1		+2,5 -1	
Over 1500 up to 2000	+5 -1		+3 -1	
Over 2000 up to 3000	+6 -1		+4 -1	

The perpendicularity tolerance shall be 2 mm per 1000 mm side length for extruded sheets and 1,5 mm per 1000 mm side length for compression-moulded sheets.

Testing shall be as described in subclause 5.4.

#### 4.4 Properties

##### 4.4.1 Mechanical and thermal properties

Table 2. Mechanical and thermal properties

Properties	Unit	Requirements (mean values)				Testing as in subclause
		Extruded sheets		Compression-moulded sheets		
		PVC-U	PVC-RI	PVC-U	PVC-RI	
Yield stress, $\sigma_S$	N/mm <sup>2</sup>	≥ 55	≥ 45	≥ 60	≥ 50	5.5
Strain at rupture, $\varepsilon_R$	%	≥ 15	≥ 20	≥ 15	≥ 20	5.5
Modulus of elasticity, $E$	N/mm <sup>2</sup>	≥ 3000	≥ 2500	≥ 3000	≥ 2500	5.6
Impact strength of reversed notched specimens, $a_n$ , at	0°C	No fracture.	—	No fracture.	—	5.7
	-20°C	—	No fracture.	—	No fracture.	
Impact strength of notched specimens, $a_k$	kJ/m <sup>2</sup>	≥ 2	≥ 5	≥ 2	≥ 5	5.8
Flexural creep modulus, $E_{bc}(t)$ , at 40°C, after	10 h	≥ 2200	≥ 2000	≥ 2700	≥ 2100	5.9
	100 h	≥ 1800	≥ 1500	≥ 2300	≥ 1700	
	1000 h	≥ 1200	≥ 900	≥ 1800	≥ 1200	
Vicat softening temperature VST/B/50	°C	≥ 75	≥ 72	≥ 78	≥ 75	5.10

##### 4.4.2 Heat reversion

When testing as described in subclause 5.11, the maximum relative dimensional change in length and width shall be as given in table 3, and there shall be no signs of blistering, cracking or flaking.

##### 4.4.3 Behaviour on exposure to methylene chloride

When testing as described in subclause 5.12, there shall be no occurrence of decay in the specimens taken from extruded sheet or decay or delamination in those from compression-moulded sheet.