Israeli Standard SI 4476 Part 1

Shvat 5766 – February 2006

ICS code: 63.140.30

Polyethylene pipes and fittings: waste discharge systems (cold and hot) in buildings – requirements

The Standards Institution of Israel

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This Standard was prepared by an expert committee with the following composition:

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This Standard was approved by Technical Committee 707 – polymer pipes, hoses and their fittings, with the following composition:

Kibbutz Industries Association	- Yossi Bar
Society of Israel Plastics & Rubber Industries	- Aryeh Gilead
Federation of Israeli Chambers of Commerce	- Ran Aziza
Israel Water Works Association	- Zeev Yehieli
Bezeq	- Surin Halpern
Israeli Polymers and Plastics Association	- Raffi Levy
Israeli Consumer Council	- Israel Silberstein
Association of Contractors and Builders in Israel	- Adiv Yaacov
Manufacturers' Association of Israel	- Nuro Zelik, Motti Conforti
Israel Electric Corporation	- Noldi Greenberg
Standards Institution of Israel	- Menahem Robbins
Israel Plastics and Rubber Centre	- Rami Margalit (chairman)
Histatrut [≈TUC] Consumer Authority	- Oded Brill

Havi Sarel coordinated the Standard's preparation.

Notice of the Israeli standard's conformity to foreign standards or documents	**Notice of revision**
This Standard, other than the amendments and supplements stated in it,	This Standard replaces
is identical with the int'l Std. ISO 8770 – second edition: 2003-11-15	Israeli Std SI 4476 pt. 1 of Sept. 1999

Descriptors:

Buildings, pipes, pipe fittings, high-density polyethylene, drain pipes, plastic pipes, sewer pipes, waste disposal.

The Standard's updating status

Israeli Standards undergo reviewing from time to time, at least once every five years, to adapt them to scientific and technological developments.

Those using the Standards should make sure that they have the up-to-date edition of the Standard, including its amendment sheets.

A document published in Reshumot [Official Gazette] as an amendment sheet, may be a separate amendment sheet or an amendment combined with a Standard.

The Standard's official status

Check whether the Standard is official, or whether parts of it are official. An official Standard/an official amendment sheet (in whole or in part) come into force 60 days from publication of the notice in Reshumot, unless the notice specifies a later date for coming into force.

Labelling with a Standard mark

Anyone manufacturing a product that conforms to the requirements of the Israeli Standards applicable to it, may, under a permit from the Standards Institution of Israel, label it with a Standard mark:

Introduction to the Israeli Standard

This Israeli Standard is the international Standard ISO 8770 (second edition) of November 2003, approved as an Israeli Standard with modifications and additions.

The Hebrew text lists the following:
- The Standards' applicability with modifications and additions
- Details of the modifications and additions to the international Standards' sections

The Hebrew part is followed by the International Standard verbatim

This Standard is part of a series of Standards dealing with polyethylene pipes and fittings.
The parts of the series are:

SI 4476 part 1 - Polyethylene pipes and fittings: waste discharge systems (cold and hot) in buildings– requirements

SI 4476 part 2 - Polyethylene pipes and fittings: high-density polyethylene pipes in drain and drainspout systems – installation instructions

The Standard's applicability (section 1 of the international Standard with modifications and additions)

Note:

The modifications and additions in this section are shown in a different font.

This Standard specifies requirements for pipes, fittings and systems of pipes and fittings made of polyethylene possessing [1] a solid wall that serve for the discharge of waste (cold and hot) within buildings.

This Standard does not apply to underground piping, except for the section connecting to the building's sewer, to which this Standard applies.

This Standard also specifies the parameters for the testing methods mentioned in this Standard.

This Standard applies to PE pipes and to fittings and to their connectors, designed for the following uses:

a. Waste discharge piping for carrying domestic waste (cold and hot);

b. Venting piping connected to a;

c. Rainwater draining piping within the building.

This Standard applies to pipes and fittings designed to be connected by means of elastomeric sealing rings, tangent welding or electric welding.

[1] *Translator's note: the Hebrew is in the singular, implying that it's the PE that has a solid wall, not the pipes etc.*

Details of the modifications and additions to the international Standard's sections

2. Normative references

The section applies with these additions:

Israeli Standards

SI 4476 part 2	-	Polyethylene pipes and fittings: high-density polyethylene pipes in drain and drainspout systems – installation instructions

International Standards

ISO 6964: 1986	Polyolefin pipes and fittings – Determination of carbon black content by calcination pyrolysis – Test method and basic specification
ISO 11922-1: 1997	Thermoplastic pipes for the conveyance of fluids – Dimensions and tolerances – Part 1: Metric series
ISO 18553: 2002	Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds

5. General characteristics

The section applies with this modification:

5.2 Colour

The second sentence does not apply, and shall be replaced by:

The colour of the pipes and fittings in the internal surface, the external surface and the cross-section shall be a uniform black.

No other colours may be used, other in the identification stripes along the pipe. The identification stripes may be in a brown colour only.

6. Geometrical characteristics

The section applies with these modifications:

6.2.1 Outside diameter

Table 1

Mean outside diameters (metric series)

The nominal outside diameters: 56, 80, 100 do not apply.

Table 2

Mean outside diameters (series based on inch dimensions)

The table does not apply.

6.2.4 Wall thicknesses

Table 3

Wall thicknesses

The table does not apply, and shall be replaced by:

Wall thickness				Nominal external diameter	Nominal external diameter
Pipe series					
S12.5		S16			
e_m Max.	e Min.	e_m Max.	e Min.	dn	DN/OD
3.5	3.0	-	-	32	32
3.5	3.0	-	-	40	40
3.5	3.0	-	-	50	50
3.5	3.0	-	-	63	63
3.5	3.0	-	-	75	75
4.1	3.5	-	-	90	90
4.9	4.2	-	-	110	110
5.5	4.8	-	-	125	125
7.1	6.2	-	-	160	160
8.7	7.7	7.1	6.2	200	200
10.8	9.6	8.7	7.7	250	250
13.6	12.1	10.9	9.7	315	315

Table 4

Wall thicknesses

The table does not apply.

10. Marking

The section applies with these modifications and additions:

10.2 Minimum required marking of pipes

- Table 14 **Minimum required marking of pipes** notwithstanding, these details do not have to be marked:
  - Number of this International Standard
  - Type of socket
- In addition to the details in the section, these details shall be marked also:
- In an imported product – also the country of origin and the importer's particulars;
- The words: "For hot domestic waste", in Hebrew or English.
- The series: "S16" or "S12.5", respectively.

10.3 Minimum required marking of fittings

- Table 15 **Minimum required marking of fittings** notwithstanding, these details do not have to be marked:
  - Number of this International Standard
  - Type of socket
- In addition to the details in the section, these details shall be marked also:
- On a fittings that does not carry a marking of the international Standard number "ISO 8770" or a marking of the European Standard "EN 1519", the words: "For hot domestic waste" shall be marked in Hebrew or English.
- "S16" or "S12.5" may be marked respectively instead of the minimum wall thickness.

At the end of the Standard and after section 11, sections 12, 13, 14 shall be added as detailed below:

Section 12. Deviation from a round cross-section

The maximum external diameter and the minimum external diameter are measured in one cross-section. The measurement accuracy is at least 0.05 mm. The deviation from a round cross-section is defined as the difference between the maximum diameter and the minimum diameter.
The deviation from a round cross-section shall not exceed the values quoted in Table 16.

Table 16 - The deviation from a round cross-section

Nominal diameter (mm)	**Deviation from a round cross-section[(a)]** (mm)
32	1.3
40, 50	1.4
63	1.5
75	1.6
90	1.8
110	2.2
125	2.5
160	3.2
200	4.0
250	5.0
315	11.1
Note to the table: (a) The values are quoted from the international Standard ISO 11922-1 of 1997, Table 2 for GRADE N.	

Section 13. Straightness

The pipe is placed on an even surface and the tested pipe's maximum deviation compared to a straight line is measured with an accuracy of at least 0.1 mm.
The maximum deviation shall not exceed 2 mm per metre of length.

Section 14. Soot

14.1 Soot content

The soot content is checked as described in the international Standard ISO 6964 of 1986.

The soot content shall be in the range 2% to 2.5%.

14.2 Soot distribution

The soot distribution is checked according to the international Standard ISO 18553 of 2002.

Test specimens from the tested pipe are examined.

The degree of soot distribution shall be 3 or less and shall agree with Fig. A1, A2, A3 or B in the international Standard ISO 18553 of 2002.