



EGYPTIAN GERMAN CO. (EGIC)

■ ■ ■ Part of the SMART HOME - Complete Solutions



## Smart Home

PVC Pipes & Fitting for Drainage

SUPERIOR GERMAN QUALITY





[www.egic.com.eg](http://www.egic.com.eg)



Dear Customers,

The Egyptian German Industrial Corporate was founded in 1991 to market all types of sanitary products and related accessories. Joining Kessel AG, our German partner, we built our factories supported by extensive MIS distribution network and warehouse facilities to ensure quality service.

By constantly adapting our products to the needs of the market, and developing the relevant know-how, EGIC has achieved success in Egypt and EMEA region with motivation to continue making constant improvements to our systems and solutions.

Becoming a leading developer of benchmark quality in Polymers/Plastic products, we manufacture an economically innovative product range of PP-R Pipes & Fittings for drinkable cold & hot water as well as PP & UPVC Pipes and Fittings for drainage.

Applied raw material technologies optimizes the material characteristics for the protection of the environment. The use of polypropylene raw material for manufacturing ensures social compatibility, hygiene, health and well-being packing for the most precious commodity, goods: "Clean drinking water."

Our promise is to not only satisfy but also exceed our customers expectations by offering them the highest quality products & a wide range of supported services. Our outstanding customer relations skills ensures efficient delivery, where in turn reflects in customer loyalty.

As an Egyptian and the Chairman of EGIC, I strive to support and invest in our fellow citizens employees, the roots that flourish the success of any productive country. At EGIC we believe, in team work, in progress in a better tomorrow and in honest open communication. Career opportunities are constantly open for those dedicated to build a strong infrastructure, while contributing to the economic growth and future stability of our country and the next generation.

Sincere Regards,  
CEO & Chairman

*Omar Safey El Dine*

### Company Description

**EGIC** a family-owned joint stock company – was established early 1991 to market all types of sanitary products and related accessories. In 2001, EGIC became a pioneer & market leader in manufacturing pipes and fittings for water supply and drainage, in several plastic materials (Polypropylene, PVC, Polyethylene); which positions the company in the construction value chain as a construction material supplier and manufacturer.

### Company History

- **EGIC** was established in **1991**.
- In 1995, it became the first importer of **PP-R** water pipes.
- In 1997, it expanded its importing activities to reach the drainage pipes.
- In 2001, production started: EGIC started producing a small range of fittings, and grew to the extent that it currently produces the full range of fittings.

### Company's Physical Assets

- Cairo Head Office (Manial Street)
- Beni Suef Factory for producing Polypropylene pipes and fittings.
- October Factory for producing PP, PVC and Polyethylene pipes.
- Warehouses:
  - Cairo Central Warehouse
  - Others, all over Egypt.



# Smart Home- Complete Solutions

**EGIC** company was established early 1991 to market all types of plumbing related products. In 2001, EGIC became a pioneer & market leader in manufacturing pipes and fittings for water supply and drainage in several plastic materials (Polypropylene, PVC, Polyethylene); which positioned the company in the construction value chain as a main sanitary solution supplier.

**Our** promise is not to only satisfy our customers', but also to exceed their expectations by offering them the highest quality products and a wide range of supporting service. Most of our production lines and molds are made in Europe, mainly by the biggest German names in their fields. Also our raw materials are imported from well-known and accredited international materials suppliers.

**QUALITY ASSURANCE;** various highly accredited and independent institutions confirm our superior German quality standards.



Our Superior German Quality Systems aims for a complete plumbing solution.

- ✓ Zero Leakage
- ✓ Zero Contamination

- ✓ Zero Corrosion
- ✓ Zero Blockage



# Smart Home- Complete Solutions

**Home** is a dwelling place where we spend most of our life. Installing superior piping systems that work properly in our home is really crucial to make it a peaceful place to live in.



- ① PP-R Pipes & Fittings for Drinkable Hot & Cold Water
- ② PP Pipes & Fittings with Rubber Ring for Drainage
- ③ PVC Pipes & Fittings for Drainage
- ④ Floor Drains
- ⑤ Gully Trap / Inspection Chambers
- ⑥ Drainage Channels
- ⑦ PE Pipes for water supply / Drainage
- ⑧ PE Gas Pipes



**Products**



**SMART HOME**

## **CHAPTER 1**

### **Products**

**SUPERIOR GERMAN QUALITY**



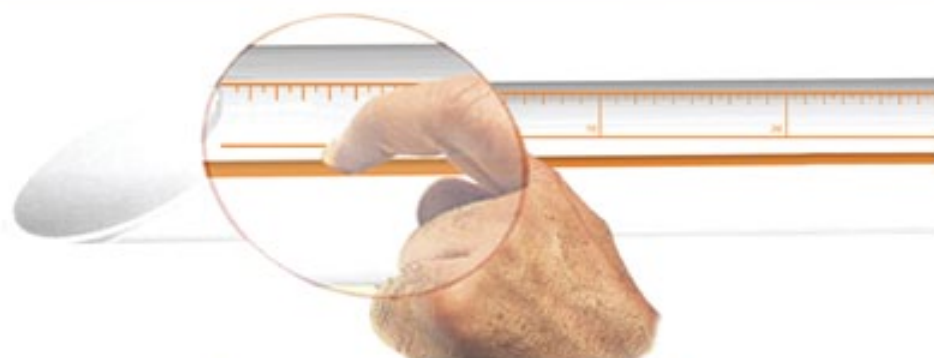


# Notes

A series of horizontal dashed lines for taking notes.



**The Perfect Design & Performance**



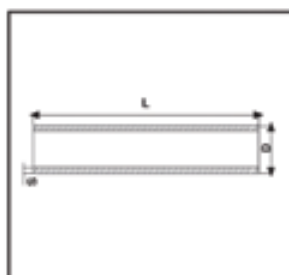
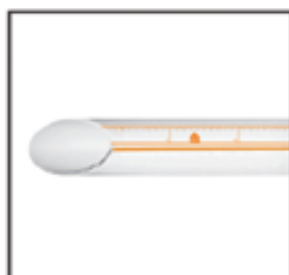
## Touch & Feel The Difference







## Pipes

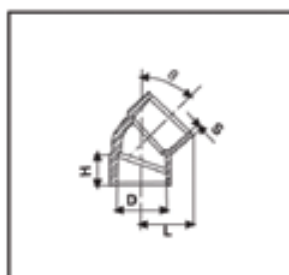


330

Measurements in mm.				
Dn	L(m)	S(mm)	D(mm)	kg
32	6	1.8	32	0.264
32	6	2.4	32	0.342
48	6	2.5	48	0.530
48	6	3.7	48	0.823
50	6	2.5	50	0.952
60	6	2.7	60	0.751
60	6	3.9	60	1.084
75	6	3	75	1.043
75	6	4	75	1.390
75	6	5	75	1.738
110	6	2.8	110	1.427
110	6	3	110	1.530
110	6	4	110	2.039
110	6	5	110	2.550
160	6	4	160	2.965
160	6	5	160	3.707



## Elbow 45°



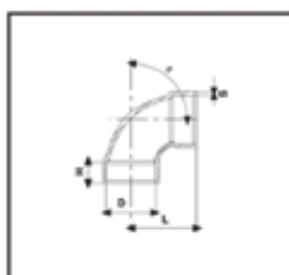
530

$\beta=45$  degree

Measurements in mm.				
Dn	L(mm)	H(mm)	S(mm)	kg
32	49	22	4	0.030
48	50	30	4	0.075
50	52	33	4	0.093
60	61	35	4	0.115
75	70	40	4	0.175
110	93	45	5.5	0.390
160	140	70	6	0.910



## Elbow 87.5°



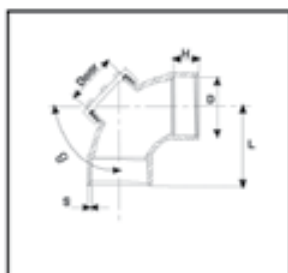
53020

$\beta=87.5$  degree

Measurements in mm.				
Dn	L(mm)	H(mm)	S(mm)	kg
32	70	22	4	0.040
48	72	30	4	0.110
50	83	32	4	0.140
60	92	35	4	0.170
75	109	40	4	0.285
110	147	45	6	0.675
160	208	70	6	1.490



## Elbow 87.5° with access door



53030

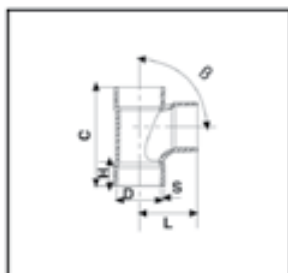
$\beta=87.5$  degree

Measurements in mm.

D	L	H	S	Door	kg
60	91	35	4	75	0.230
75	109	40	4.5	75	0.335
110	145	45	6	110	0.800
160	209	70	6	110	1.605



## Tee 87.5°



53060

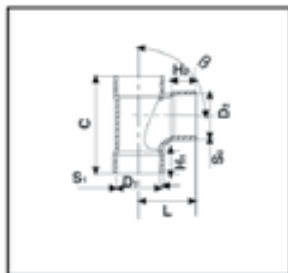
$\beta=87.5$  degree

Measurements in mm.

D	L	H	S	C	kg
32	58	22	3	95	0.066
48	71	30	4	127	0.150
50	78	32	4	140	0.190
60	86	35	4	153	0.230
75	100	40	4.5	189	0.365
110	142	45	6	243	0.940
160	346	70	6	345	1.855



## Tee 87.5° / Reducer



53080

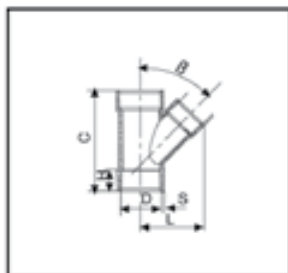
$\beta=87.5$  degree

Measurements in mm.

D1	D2	H1	H2	C	L	S1	S2	kg
75	60	40	34	167	96	4.5	4	0.300
110	60	45	36	180	105	6	4.5	0.555
110	75	45	40	196	121	6	4	0.630
160	110	71	45	288	169	6	6	1.375



## Tee 45°



53050

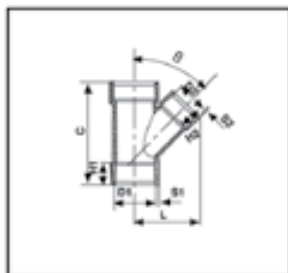
$\beta=45$  degree

Measurements in mm.

D	L	H	S	C	kg
32	77	23	3.35	95	0.155
48	86	30	4	142	0.165
50	95	32	4	153	0.235
60	103	35	4	165	0.280
75	128	40	4.5	202	0.420
110	182	45	6	281	1.085



## Tee 45° / Reducer



53070

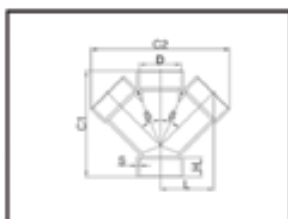
$\beta=45$  degree

Measurements in mm.

D1	D2	H1	H2	C	L	S1	S2	kg
110	60	45	37	222	140	6	4	0.720
110	75	46	40	260	155	6	5	0.870



## Cross 110 / 45 degree

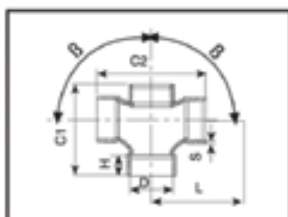


Measurements in mm.						
D	L	H	S	C 1	C2	kg
110	145	51.3	6.5	281	367.8	1.33

53094



## Cross 87.5 degree



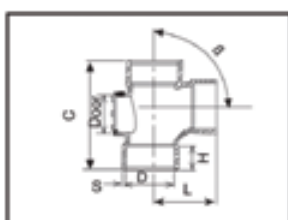
$\beta=87.5$  degree

Measurements in mm.						
D	L	H	S	C1	C2	kg
75	104	46	4.5	189	207	1.1
110	145	45	6.5	293	245	1.330

53091



## Tee 87.5 with Access Door



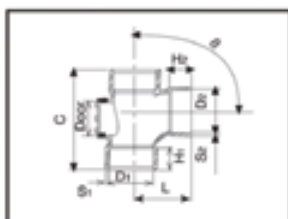
$\beta=87.5$  degree

Measurements in mm.					
D	L	H	C	S	kg/Piece
60	86	36	145	4	0.295
75	100	40	189	4.5	0.420
110	141	45	234	6	1.115
160	203	71	345	6	2.000

53090



## Tee 87.5° / Reducer with Access Door



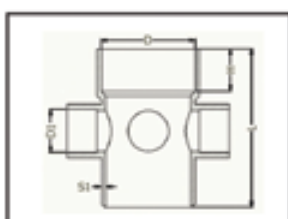
$\beta=87.5$  degree

Measurements in mm.								
D1	D2	H1	H2	C	L	S1	S2	kg/Piece
75	60	40	35	65	96	4.5	4	0.355
110	60	45	35	185	107	6	5	0.685
110	75	45	36	199	122	6	6	0.750
160	110	71	45	288	214	6	6	1.500

53093



## Drainage collector

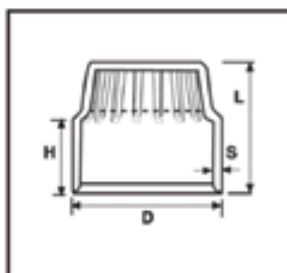


Measurements in mm.						
D	D1	L	H	S	C	kg
110	50	95.5	55	5	186.18	1.56
110	48	94.5	55	5	186.18	1.56

730100



## Air Vent

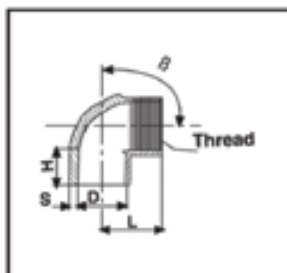


73040

Measurements in mm.				
D	L	H	S	
60	88	35	3	0.075
75	102	46	3	0.090
110	102	52	4	0.175



## with Inner Thread



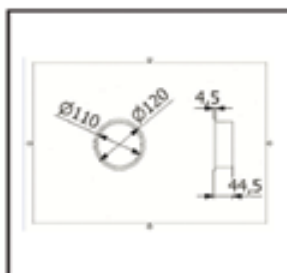
53040

$\beta=87.5$  degree

Measurements in mm.					
D	Thread	H	S	C	kg/Piece
48	1.25"	30	4	59	0.120
48	1.5"	30	4	58	0.115
50	1.5"	30	4	58	0.107



## Drainage plug

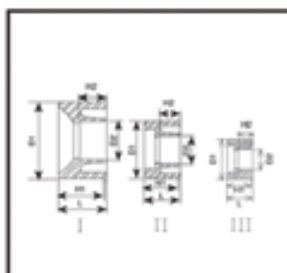


53095

Measurements in mm.				
D	L	H	S	Kg/Piece
110	111	40	40.5	0.08



## Reducing Brush

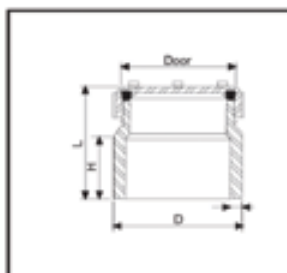


7305

Measurements in mm.						
Type	D1	D2	H1	H2	L	kg/piece
III	50	48	33	28	43	0.051
III	60	48	36	30	45	0.060
III	75	48	38	33	48	0.078
II	75	50	40	36	50	0.089
II	75	60	42	38	52	0.110
II	110	60	50	38	61	0.260
I	110	75	50	38	61	0.245
I	160	110	65	56	77	0.555



## Cleaning Insert with Access Door



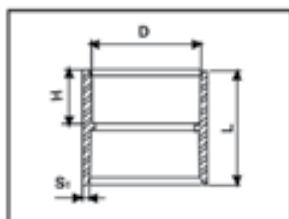
53095

Measurements in mm.					
D	L	H	S	Door	kg/Piece
50	72	38	3.6	65	0.098
60	86	43	4	75	0.115
75	100	50	4.5	75	0.145
110	141	50	5	110	0.320
160	203	78	6	110	0.600





## Socket

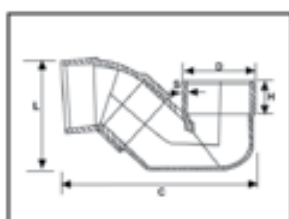


53093

Measurements in mm.				
D	L	H	S	Kg/Piece
32	48	22	3	0.025
48	65	31	4	0.060
50	72	36	4	0.075
60	80	40	4	0.090
75	94	45	4.5	0.150
110	109	52	5.5	0.315
160	145.5	70	6	0.655



## Siphon

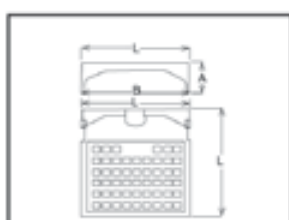


53099

Measurements in mm.					
D	L	H	S	C	Kg/Piece
110	45	45	6	305	1.165



## Floor Drain Cover Closed Cover

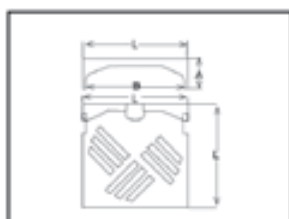


73030

Measurements in mm.			
L	A	B	Kg/Piece
192	56	182	0.285
192	56	182	0.275



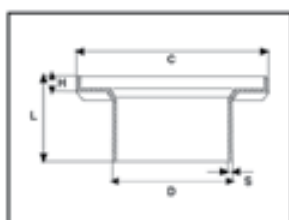
## Open Cover



73030



## Floor Drain Extension

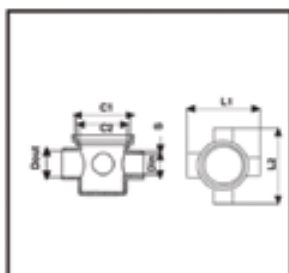


73020

Measurements in mm.					
D	H	L	C	S	kg/Piece
110	17	93	150	4	0.265
125	17	99	200	4	0.385



## Floor Drain

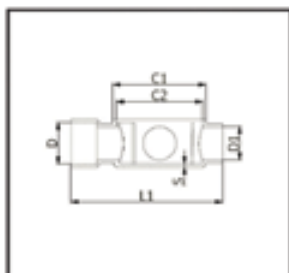


73010

Measurements in mm.							
Din	Dout	C1	C2	L1	L2	S2	kg/Piece
48	75	125	110	193	170	4	0.535
48	60	125	110	180	170	4	0.500
60	75	125	110	193	180	4	0.560
60	60	125	110	193	180	4	1.535



## Drain 7 cm

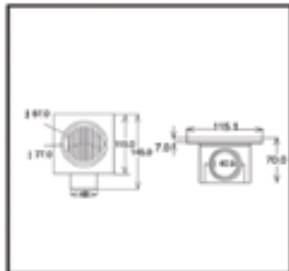


73070

Measurements in mm.							
D-in	D-out	C1	C2	L1	L2	S	KG
48	60	125	110	220.3	183.3	5	0.5



## Small Drain

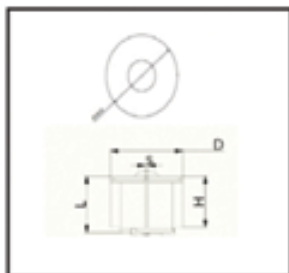


73099

Measurements in mm.									
L1	L2	L3	D	D1	D2	D3	X	S	kg/Piece
70	145	115	48	87	77	40	115	7	0.230



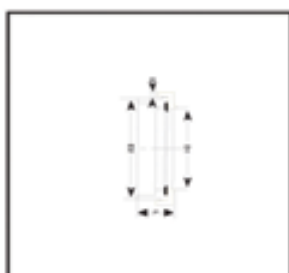
## water prevent



73010



## Expansion Joint

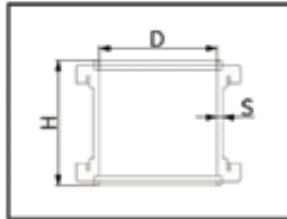


73099

Measurements in mm.				
L	D1	D2	S	Kg/Piece
30	75	85	4	0.900
30	110	122.5	4	0.180



## fixing socket



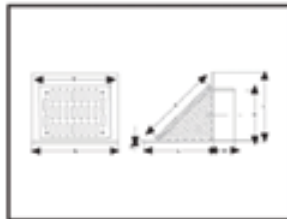
73099914

Measurements in mm.

D	H	S	kg
110	118	5	0.65
75	82	4	0.59



## Rain Drain with Cover



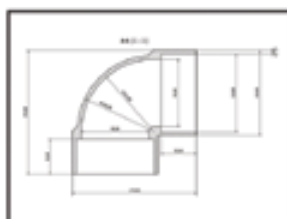
73099907

Measurements in mm.

L	D	X	Y	M	N	S	Kg/Piece
154	75	164	157	45	194	4	0.630
154	110	164	157	45	194	4	0.527



## Short Elbow 87.5°



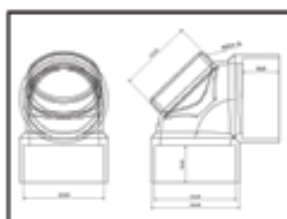
353020013

Measurements in mm.

D	L	H	S	Kg/Piece
110	114	50	5.5	0.692



## Short Elbow 87.5° with Access Door



353030007

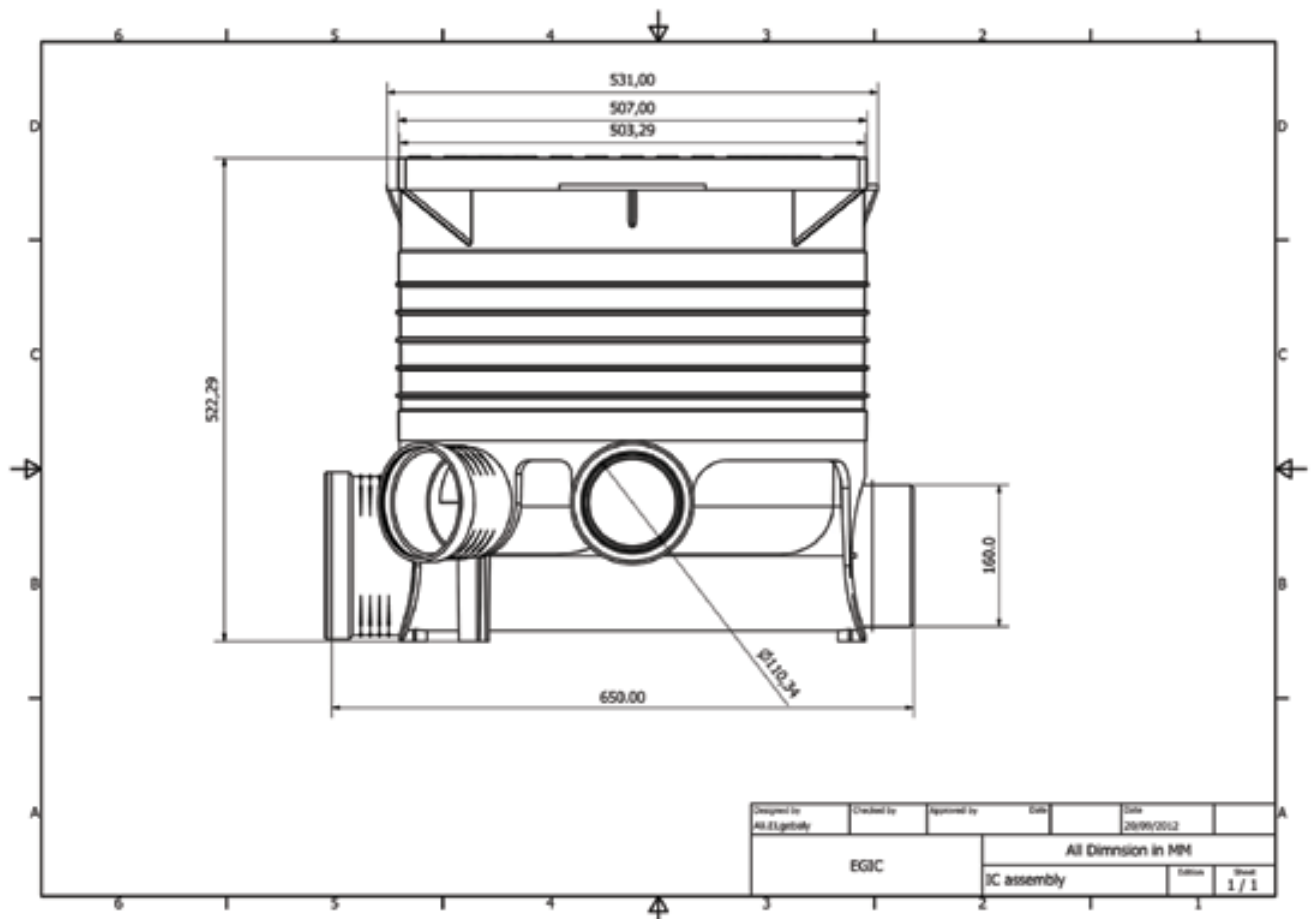
Measurements in mm.

D	L	H	Door	S	Kg/Piece
110	114	50	100	5.5	0.795

### Advantages

1. Highest drainage rate 300 liters/minute.
2. Body made of PPR for more flexibility and non-breakage.
3. ABS cover bottom-reinforced for more solidity.
4. 1x160 mm input, 4x110 mm inputs, 1x160 mm output.
5. Maximum load 1500 KG.
6. Chamber height control through 20 cm extensions.
7. Composed of 3 pieces assembled as males and females, silicon is preferred for assembling for a tight close.

### Dimensions







## Floor / Cellar Drains



### Cellar drain "Universal", made from PP Ø 110 outlet

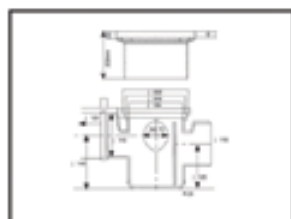
With vertically adjustable upper section ( 18 mm )

27 611 : 250 x 250 mm. Slotted or closed plastic grill

1 Ø 110 inlet and 2 Ø 75 inlets

Lateral Ø 110 outlet at 2.5° slope, discharge 1.8 liter / s  
300 kg load class grill .

Integral odour trap, sludge basket and triple inlet flow plugs.



53093

### Advantages

- Upper section rotatable, tiltable and vertically adjustable up to 18 mm.
- Available with vertical extension and optional components.
- Easy access for cleaning and maintenance.



53093



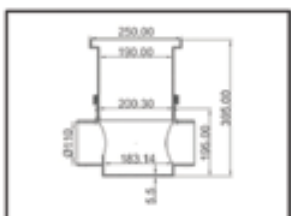
### Area drain Ø 110 outlet,

With vertically adjustable upper section ( 18 mm )

27 611 : 250 x 250 mm. Slotted or closed plastic grill

1 Ø 110 inlet

Lateral Ø 110 outlet at 2.5° slope, discharge 1.8 liter / s  
Integral odour trap.



53096

### Advantages

- Upper section rotatable, tiltable and vertically adjustable up to 18 mm and made from PP
- Available with vertical extension and optional components.
- Easy access for cleaning and maintenance.

## Self locking covers

The self-locking covers  
With shearing protection



## Installation instructions

Pour in the concrete bed and press in the channel with covers fitted. Ensuring that the channel is level and set between 3 and 5 mm.

Below the finished surface, continue to pour concrete until it covers the horizontal side strip. Lay the first course of the surface over this concrete.

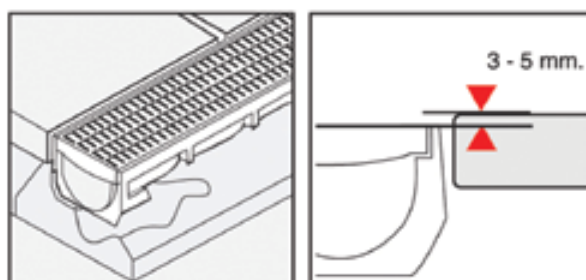
Fill joints with sand as required.

	Length mm.	Width mm.	Height mm.	Weight kg
With PP Mesh grating	1000	134	95	1.3

## Static load test

Tests And Requirements according to EN 1253-2, cl. 4 class K 3

Maximum Load 3 kN





**Basic Information**

SMART HOME

## CHAPTER 2

Basic Information

SUPERIOR GERMAN QUALITY





## Basic Information

### Trade Mark



#### Material

Poly Vinyl Chloride (PVC) is made from a plastic and vinyl combination material. The pipes are durable, hard to damage, and long lasting. A PVC pipe does not rust, rot or wear over time.

#### Test Marks

Un-plasticized Poly Vinyl Chloride

K - Value 67 for Pipe

K - Value 57 for Fitting

Impact / Block Copolymer Granules

Extrusion Grade, for Drainage Type : Moplen EP 440 G.

#### Quality Requirements

1717 (2008), DIN 8061, DIN 8062, DIN 19531, EN 1329 and Dimensions according to ISO 160 Part 1 & 2

#### Technical recommendation of installation

ISO 7073

#### Color

White Pipe by two orange stripes.

#### Chemical Resistance

Environmental resistance to most organic and inorganic chemicals that are used in the industrial field and also private homes. (For a full list of chemicals check the chemical resistance table)

### Marking




Pipes bear the following marks:



UPVC DWV 110 X 3 mm M/C (1)  
Q.C.(1) S. (1) 12:55 22/11/2008 ES1717



Made in Egypt with superior german quality by EGIC (Egyptian German Co.)

- 1 - The brand 
- 2 - Material type.
- 3 - Drain, waste and vent (DWV) systems.
- 4 - The nominal size.
- 5 - The extrusion lines no.
- 6 - The Quality control shift no.
- 7 - The production shift no.
- 8 - The date and the time of production.
- 9 - The number of the standard specification ES 1717.



Fittings show the degree of the angle, the number of cavities, the month and the year of production.

#### Outer Diameter (OD)

32 - 48 - 60 - 75 - 110 - 160 mm

#### Laying length (mm.)

6000mm

#### Jointing

PVC CEMENT

#### Applications

Various municipal and industrial applications. Its light weight, high strength and low reactivity which make it particularly well-suited for sanitary sewer pipe applications.

### 1 - Cutting

Pipe cut must be upright for proper jointing with fitting socket .



### 2 - De-burring

Use a file to remove burrs from pipe.



### 3 - Cleaning

Wipe end of Pipe and inside of fitting with clean cloth to remove dirt, grease and/or moisture. Do NOT apply adhesive until pipe is clean and dry.



### 4 - Check and mark

Be sure the pipe and/or fitting are evenly cut. Measure the length of the fitting's socket depth and then mark the length on the pipe.



### 5 - Assembling

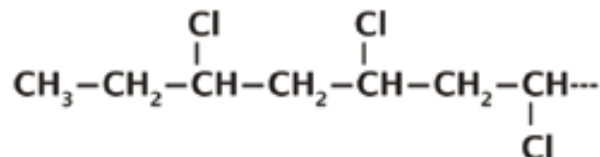
Apply a thin coat of the adhesive to outside of pipe and also inside the fitting. While the adhesive is still soft, insert pipe swiftly into the fitting with a 1/4 circle twist. Hold them firmly together 15 to 30 seconds (Hold longer for larger pipes).



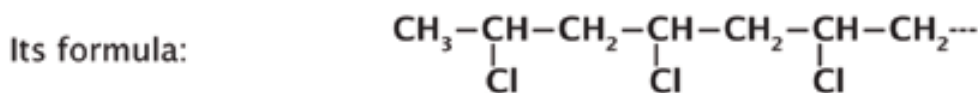
Poly Vinyl Chloride is related to polyethylene, and is also produced by the polymerization of ethylene.

The structural formula of Poly Vinyl Chloride differs from that of polyethylene in that on every second carbon atom of the chain molecule a hydrogen atom is replaced by a chlorine atom.

These chlorine atom may either be arranged on both sides of the carbon atom (atactic).



or all the groups can be on only one side (isotactic). Commercial polypropylenes are exclusively isotactic.



Poly Vinyl Chloride is polymerized by different methods; the most famous are suspension and emulsion

Suspension poly Vinyl Chloride is used in Pipes and Fittings but must be mixed with some additives (heat stabilizer , lubricants , color , etc ...).

## Laboratory tests done in our factory.

### Test For P.V.C. Pipes

#### General Characteristic

1-Appearance	2-Color	3-Marking
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#### Geometrical Characteristic :-

1-Outside diameter	2-Ovality	3-Effective length
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#### Physical Characteristic :-

1-Heat reversion	2-Methylen Chloride
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#### Mechanical Characteristic :-

1-Impact Resistance.	2-Pressure Resistance.
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### Test For P.V.C. Fittings

1-Dimension	2-Pipe In Fitting	3-Surface Finish
4-Heat reversion		



## INTRODUCTION

The Five tables in this document summarize the data given in a number of unplasticized polyvinyl chloride chemical resistance tables at present in use in various, derived from both practical experience and test results.

Table 1 contains an evaluation of the chemical resistance to a number of fluids judged to be either aggressive or not towards unplasticized polyvinyl chloride. This evaluation is based on values obtained by immersion of unplasticized polyvinyl chloride test specimens in the fluid concerned at 20 °C and 60 °C and atmospheric pressure, followed in certain cases by the determination of tensile characteristics.

Table 2 , 3 , 4 and 5 list these fluids as to whether or not unplasticized polyvinyl chloride pipe is suitable for use in contact with them at the stated temperature of tensile characteristics.

A subsequent classification will be established with respect to a restricted number of fluids deemed to be technically or commercially more important, using equipment which permits testing under pressure and the determination of the "coefficient of chemical resistance" for each fluid. These tests will thus furnish more complete indication on the use of unplasticized polyvinyl chloride pipes for the transport of stated fluids, including their use under pressure.

## 1 SCOPE AND FIELD OF APPLICATION

This document establishes a provisional classification of the chemical resistance of unplasticized polyvinyl chloride with respect to about 160 fluids. It is intended to provide general guidelines on the possible utilization of unplasticized polyvinyl chloride piping for the conveyance of fluids.

- At temperature up to 20 °C and 60 °C,
- In the absence of internal and external mechanical stress (for example, flexural stresses due to thrust, rolling loads).

## ISO / TR 7473-1981 ( E )

### 2- DEFINITIONS, SYMBOLS AND ABBREVIATIONS

The criteria of classification, definitions, symbols, and abbreviations adopted in this document are as follows :

#### **S = Satisfactory**

The chemical resistance of unpasteurized polyvinyl chloride exposed to the action of a fluid is classified as "satisfactory" when the results of tests are acknowledged to be "satisfactory" by the majority of the countries participating in the evaluation.

#### **L = Limited**

The chemical resistance of unpasteurized polyvinyl chloride exposed to the action of a fluid is classified as "limited" when the results of tests are acknowledged to be "limited" by the majority of the countries participating in the evaluation.

Also classified as "limited" are the resistances to the action of chemical fluids for which judgments "S" and "NS" or "S" and "L" are pronounced to an equal extent.

#### **NS = Not Satisfactory**

The chemical resistance of unpasteurized polyvinyl chloride exposed to the action of a fluid is classified as "not satisfactory" when the results of tests are acknowledged to be "not satisfactory" by the majority of the countries participating in the evaluation.

Also classified as "not satisfactory" are the resistances to the action of chemical fluids for which judgments "L" and "NS" are pronounced to an equal extent.

**Sat. sol.**= Saturated aqueous solution, prepared at 20 °C.

**Sol.** = Aqueous solution at a concentration higher than 10%, but not saturated.

**Dil. sol.**= Dilute aqueous solution, at a concentration equal to or lower than 10 %.

**Work. sol.**= Aqueous solution having the usual concentration for industrial use.

Solution concentrations reported in the text are expressed as a percentage by mass.

The aqueous solutions of sparingly soluble chemicals are considered, as far as chemical action towards unpasteurized polyvinyl chloride is concerned, as saturated solutions.

In table1 , the resistance properties (S, L, NS) are reported on the right side of each fluid, but the same properties are to be in general in this document, common chemical names are used.

For the definition of unpasteurized polyvinyl chloride, see ISO 472, Plastics - Vocabulary.

The symbol for polyvinyl chloride, PVC, gin = ven in ISO 1043, Plastics - Symbols, is used in the table headings.



## Keys:

+	= resistant
o	= practically resistant
o	= partially resistant
o	= not very resistant
---	= not resistant

## No:

details	= not tested
any	= any concentration
conc.	= concentrated solution
low	= low concentration
serv	= service concentration
stand.	= standard, customary
disc.	= discoloured
aq.	= aqueous solution
sat.	= cold saturated
b.p.	= boiling point

## ISO / TR 7473 -1981 ( E )

TABLE 1 - Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20 °C and 60 °C.

Chemical or product	Conc. %	20°C	60°C
Acetaldehyde	40 %	NS	-
Acetaldehyde	100 %	NS	-
Acetic acid	Glacial	NS	NS
Acetic acid	25 %	S	L
Acetic acid	60 %	S	L
Acetic anhydride	100 %	NS	NS
Acetone	100 %	NS	NS
Adipic acid	Sat. sol.	S	L
Allyl alcohol	96 %	L	NS
Aluminium chloride	Sat. sol.	S	S
Aluminium potassium sulphate	Sat. sol.	S	S
Aluminium sulphate	Sat. sol.	S	S
Ammonia, dry gas	100 %	S	S
Ammonia, liquid	100 %	L	NS
Ammonia, aqueous	Dil. sol.	S	L
Ammonium chloride	Sat. sol.	S	S
Ammonium fluoride	20 %	S	L
Ammonium nitrate	Sat. sol.	S	S
Ammonium sulphate	Sat. sol.	S	S
Amyl acetate [ 1-Pentanol acetate]	100 %	NS	NS
Amyl alcohol [ 1-Pentanol]	100 %	S	L
Aniline	100 %	NS	NS
Aniline	Sat. sol.	NS	NS
Aniline hydrochloride	Sat. sol.	NS	NS
Antimony { 111 } chloride	90 %	S	S
Anthraquinone sulphonic acid	sol.	S	L
Arsenic acid	Dil. sol.	S	-
Arsenic acid	Sat. sol.	S	L
Beer	-	S	S
Benzaldehyde	0.1 %	NS	NS
Benzene	100 %	NS	NS
Benzoic acid	Sat. sol.	L	NS
Borax	Sat. sol.	S	L
Boric acid	Dil. sol.	S	L
Bromic acid	10 %	S	-

## ISO / TR 7473-1981 ( E )

TABLE 2 - Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20 °C and 60 °C.

Chemical or product	Conc. %	20°C	60°C
Bromine, liquid	100 %	NS	NS
Butadiene	100 %	S	S
Butane, gas	100 %	S	-
Butanols	Up to 100 %	S	L
Butyl acetate	100 %	NS	NS
Butyl phenol	100 %	NS	NS
Butyric acid	20 %	S	L
Butyric acid	98 %	NS	NS
Calcium chloride	Sat. sol.	S	S
Calcium nitrate	50 %	S	S
Carbon dioxide [ aqueous solution ]	Sat. sol.	S	L
Carbon dioxide, dry gas	100 %	S	S
Carbon dioxide, wet gas	-	S	S
Carbon disulphide	100 %	NS	NS
Carbon tetrachloride	100 %	NS	NS
Chlorine, dry gas	100 %	L	NS
Chlorine, aqueous	Sat. sol.	L	NS
Chloroacetic acid	Sol.	S	L
Chlorosulphonic acid	100 %	L	NS
Chromic acid	From 1% to 50 %	S	L
Citric acid	Sat. sol.	S	S
Copper [11] chloride	Sat. sol.	S	S
Copper [11] fluoride	2 %	S	S
Copper [11] sulphate	Sat. sol.	S	S
Cresols	Sat. sol.	-	NS
Cresylic acid [mthyl bonzoic acid]	Sat. sol.	-	NS
Crotonaldehyde	100 %	NS	NS
Cyclohexanol	100 %	NS	NS
Cyclohexanone	100 %	NS	NS
Developers [photographic]	Work, sol.	S	S
Dextrin	Sat. sol.	S	L
Dichloroethane	100 %	NS	NS
Dichloromethane	100 %	NS	NS
Diethyl ether	100 %	NS	-
Diglycolic acid	18 %	S	L

## ISO / TR 7473-1981 ( E )

TABLE 3 - Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20 °C and 60 °C.

Chemical or product	Conc. %	20°C	60°C
Dimethylamine	30 %	S	-
Ethenediol [Ethylene-glycol]	Work, SOL.	S	S
Ethanol	95 %	S	L
Ethyl acetate	100 %	NS	NS
Ethyl acrylate	100 %	NS	NS
Fluosilicic acid	32 %	S	S
Formaldehyde	dIL. SOL.	S	L
Formaldehyde	40 %	S	S
Formic acid	From 1% to 50%	S	L
Furfuryl alcohol	100 %	NS	NS
Gasoline [Aliphatic hydrocarbons]	-	S	S
Glucose	Sat. sol.	S	L
Glycerol	100 %	S	S
Glycolic acid	30 %	S	S
Hexadecanol	100 %	S	S
Hydrobromic acid	10 %	S	L
Hydrobromic acid	50 %	S	L
Hydrochloric acid	20 %	S	L
Hydrochloric acid	Reather than 30 %	S	S
Hydrofluoric acid	40 %	L	NS
Hydrofluoric acid	60 %	L	NS
Hydrofluoric acid, gas	100 %	L	NS
Hydrogen	100 %	S	S
Hydrogen peroxide	30 %	S	S
Hydrogen sulphide, gas	100 %	S	S
Iron { 111 } chloride	Sat. sol.	S	S
Lactic acid	10 %	S	L
Lactic acid	From 10% to	L	NS
Lead acetate	90%	S	S
Lead acetate	Dil, sol.	S	S
Lead tetraethyl	Sat, sol.	S	-
Magnesium chloride	100%	S	S
Magnesium sulphate	Sat, sol.	S	S
Maleic acid	Sat, sol.	S	L
Methanol	Sat, sol.	S	L
	100 %		



## ISO / TR 7473-1981 ( E )

TABLE 4 - Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20 °C and 60 °C.

Chemical or product	Conc. %	20°C	60°C
Methyl methacrylate	100 %	NS	NS
Milk	-	S	S
Molasses	Work, sol	S	-
Nickel sulphate	Sat. sol	S	L
Nicotinic acid	Work, sol.	S	NS
Nitric acid	Up to 45 %	S	NS
Nitric acid	From 50 % to 98 %	NS	L
Oils and fats	-	S	NS
Oleic acid	100 %	S	S
Oleum	10 % of SO <sub>3</sub>	NS	S
Orthophosphosphoric acid, aqueous	30 %	S	L
Orthophosphosphoric acid, aqueous	Greater than 30 %	S	S
Oxalic acid	Dil, sol.	S	S
Oxalic acid	Sat, sol.	S	NS
Oxygen	100 %	S	NS
Ozone	100 %	S	NS
Perchloric acid	10 %	S	NS
Perchloric acid	70 %	L	L
Petrol [ Aliphatic hydrocarbons/benzene]	80 / 20	NS	NS
Phenol	90 %	NS	L
Phenylhydrazine	100 %	NS	S
Phenylhydrazine hydrochloride	97 %	NS	S
Phosphine	100 %	S	S
Phosphorus {111} chloride	100 %	NS	S
Picric acid	Sat, sol.	S	NS
Potassium bromide	Sat, sol.	S	NS
Potassium chloride	Sat, sol.	S	NS
Potassium chromate	40 %	S	NS
Potassium cyanide	sol.	S	NS
Potassium dichromate	40 %	S	S
Potassium hexacyanoferrate [111]	Sat, sol.	S	L
Potassium hexacyanoferrate [111]	Sat, sol.	S	NS
Potassium hydroxide	sol.	S	NS
Potassium nitrate	Sat, sol.	S	-
Potassium permanganate	20 %	S	L



## ISO / TR 7473-1981 ( E )

TABLE 5 - Chemical resistance of unplasticized PVC, not subjected to mechanical stress to various fluids at 20 °C and 60 °C.

Chemical or product	Conc. %	20°C	60°C
Potassium persulphate	Sat. sol.	S	L
Propane, liquefied gas	100 %	S	-
Pyridine	Up to 100 %	NS	-
Seawater	-	S	L
Silver nitrate	Sat. sol.	S	L
Soap	sol.	S	L
Sodium benzoate	35 %	S	L
Sodium chlorate	Sat. sol.	S	S
Sodium chloride	Sat. sol.	S	S
Sodium hexacyanoferrate [ 11 ]	Sat. sol.	S	S
Sodium hexacyanoferrate [ 11 ]	Sat. sol.	S	S
Sodium hydrogen sulphite	Sat. sol.	S	S
Sodium hydroxide	sol.	S	S
Sodium hypochlorite [13% of chlorine]	100 %	S	L
Sodium sulphite	Sat. sol.	S	L
Sugar { aqueous solution }	Sat. sol.	S	S
Sulphur dioxide, dry	100 %	S	S
Sulphur dioxide, liquid	100 %	L	NS
Sulphuric acid	From 40% to 90%	S	L
Sulphuric acid	96 %	L	NS
Sulphurous acid	sol.	S	S
Tannic acid	sol.	S	S
Tartaric acid	sol.	S	S
Tin [ 11 ] chloride	Sat. sol.	S	S
Toluene	100 %	NS	NS
Trichloroethylene	100 %	NS	NS
Trimethylolpropane	Up to 10 %	S	L
Urea	10 %	S	L
Urine	-	S	L
Vinegar	Up to 80% g/l of acetic acid	S	S
Vinyl acetate	100 %	NS	NS
Wine	-	S	S
Xylol	100 %	NS	NS
Yeast	sol.	S	L
Zinc chloride	Sat, sol.	S	S



# Smart Home

