Roka Plast
For Plastic Industries

roka PLAST

white roka

Catalogue
Drainage Solutions

ROKA PLAST

مركز تكنولوجيا البلاستيك

ضمان خمسون عاماً

GUARNTEE

50 YEARS GUARNTEE

Introduction

ROKAPLAST for Plastic Industries Corporate was established at 2015 to produce all types of Supply water, sanitary products and related accessories.
By constantly Improving our products to the needs of the market, and developing the relevant know-how, **ROKAPLAST** has covered Egypt region by distributing our products in 19 governances.
Becoming a leading developer of benchmark quality in PP-R and UPVC products, we manufacture an economically innovative product range of PP-R and UPVC Pipes and Fittings for Supply water and drainage.
Applied raw material technologies optimizes the material characteristics for the protection of the environment, hygiene, health and well-being packing for the most precious commodity.
Our promise is to over estimation for all customers and Distributors by offering them the highest quality products & a wide range of supported services with lowest price in the same category.
Our outstanding customer relations skills ensures efficient delivery, where in turn reflects in customer loyalty.
As an **Egyptian Corporate** **ROKAPLAST** strive to support and invest in our fellow citizens employees, the roots that flourish the success of any productive country.
At **ROKAPLAST** we believe, in team work, in progress in a better future 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,
ROKAPLAST Team

Vision:
Pioneering the plastics, metals industry and modern systems.

Mission:
our mission is providing the best customer service and technical support for technicians and develop products to meet international standards in the field of plastic, metal industries and modern systems using the latest technologies in all fields.
Innovation through young professional, distinct and harmonious team to build a bright future and contribute to uphold Made in Egypt in the local and regional market.

Values:
- Commitment.
- Innovation.
- Integration.
- Harmony.

UPVC Pipes & Fittings

white roka

Discharge Pipes & Fittings (UPVC)

Basic Information
Trade Mark white roka

Material
Poly Vinyl Chloride (PVC)
Test Marks
Un Plasticized Poly Vinyl Chloride
K – Value 67 for Pipe
K – Value 57 for Fitting
Quality Requirements
ES 1717 (2008) , DIN 8061 , DIN 8062 , DIN 19531 , EN 1329 and Dimension according to ISO 160 Part 1 & 2 Technical recommendation of installation

Color
White Pipe by one black longitudinally line.

Chemical Resistance
resistant to inorganic salts, concentrated bases and mineral as found in laboratory discharges organic solvent, will not dissolve PVC.

Marking
Pipe bear the following permanent marks in line of color.
white roka UPVC DWV 110 ? 3 mm m/c (1) S. (1) 11:45 72017/7/ ES 1717
white roka Made in EGYPT by Roka Plast CO. For Plastic Industries.

1- The brand white roka
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 manufacture.
9- The number of the standard specification ES 1717.

Fittings show the angles degree of the branches, the number of cavity, the month and the year of production.

Out side Diameter (OD)
25- 32 – 48 – 60 – 75 – **90** –110 – **114** – 160 – **168** – 200mm

Laying Length
6000mm

Jointing PVC VEMENT

Application Drainage inside building and factories drainage of aggressive fluids.

The Advantages Of UPVC Pipe System

The group of materials known as un plasticized PVC is one of the most important developments of the last few decades the cost and improves the reliability of pipeline installations. The properties can vary by addition of small modifying agents which have definite and controlled mechanical properties. They can be fabricated to close dimensional tolerances, light without being weak. Rigid without being brittle.
Furthermore, these materials can be converted into pipes and fittings by variable direct processes of extrusion or injection molding even though these processes demand heavy elaborate machinery and very precise processes.
The principal reason for the great handling of ROKAPLAST pipes is not. only their cost per meter as delivered to the site but also the dramatic reduction in installation costs which can be achieved by intelligent exploitation of their light weight. Higher availability in longer lengths. Their easy jointing and their resistance to corrosion. These characteristics are of even greater importance to engineers now that the need to carry out water supply and sewerage schemes. Industrial plant installation.etc.at minimum cost and maximum reliability.

NON – Corrosive

UPVC pipes resist corrosion caused by acid, alkalis, salts, oils, moisture and the media inside and outside the pipe.

NON – ToXIC

UPVC pipes are entirely non-toxic. It will not affect the taste, Smell of water or liquid it doesn't react with any liquid to cause precipitation.

LOW FLOW LOSSES

UPVC pipes have a mirror – smooth surface which minimize resistance and impede the build – up of deposits and corrosive scales.

MECHANICAL STRENGTH

UPVC pipes have great tensile strength yet they are flexible enough to with stand displacements in the pipe line. They will not dent or flatten under pressure.

LIGHT WEIGHT

UPVC pipes are incredibly light. Their specific weight is one fifth that of steel pipe this cuts down trans-potation costs and facilitates the installation of pipe and reduces its cost.

EASE OF INSTALLATION

UPVC pipes are quick and easy to install, with a complete range of fittings using solvent cement or rubber joints are leak proof UPVC pipes can be cut easily for installation.

EASY OF MAINTENANCE

UPVC pipes can be quickly repaired with minimum complication and cost.

FIRE PROOF

UPVC pipes will not support combustion. In the event of fire, flames are unable to travel along the pipe. It is self-extinguishing.

INSULATOR

UPVC pipes are ideal for electric conduits. Because UPVC itself is an integral insulator, it eliminates the possibility of electrolytic corrosion which so often destroys underground piping.

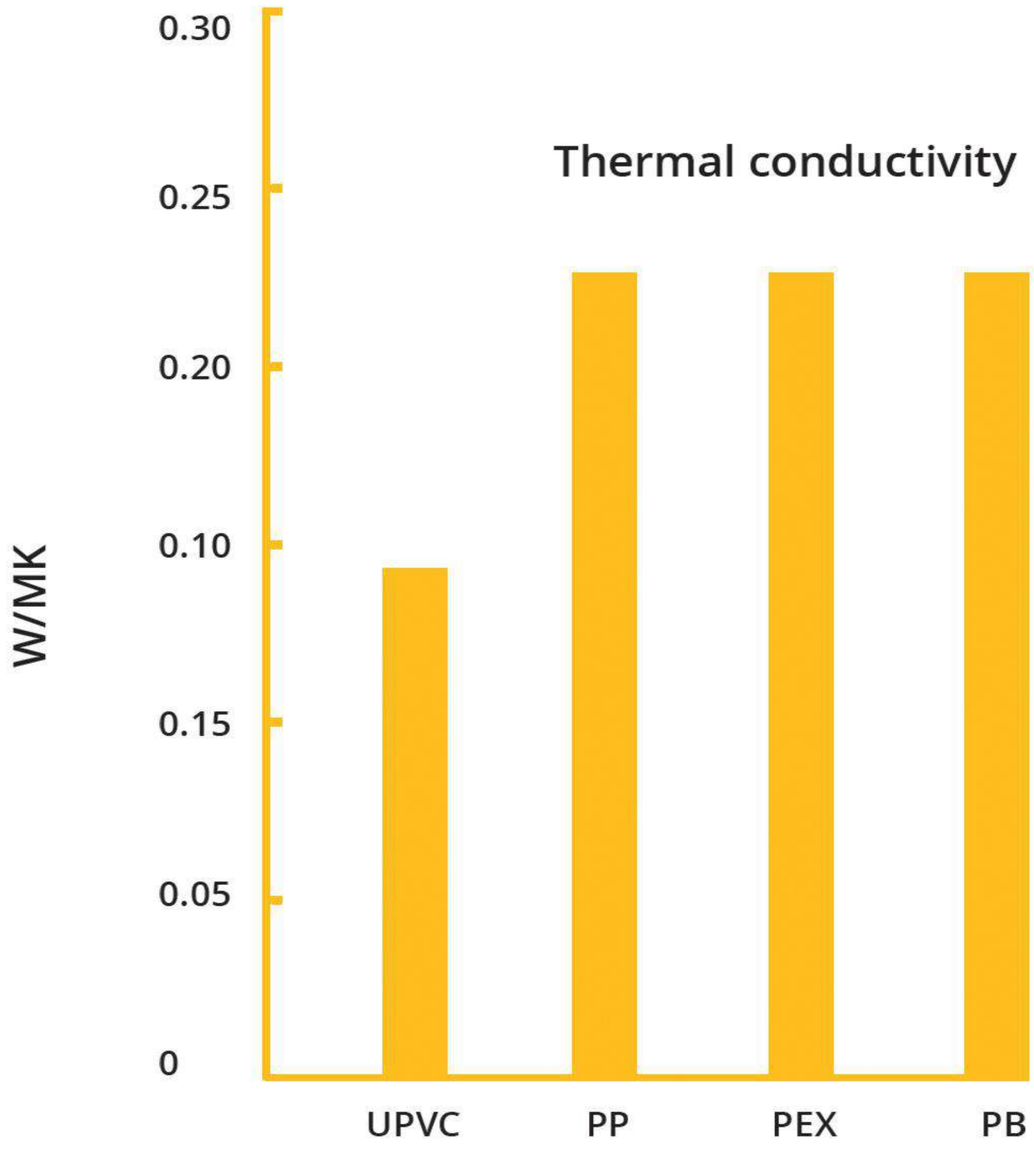
PROVEN EXPERIENCE

UPVC pipes have been used worldwide for 45 years in all climates. The experience that many of its users have proved is its supreme quality, economy, ease of installation, and its non – corrosive qualities.

Lower Thermal Conductivity

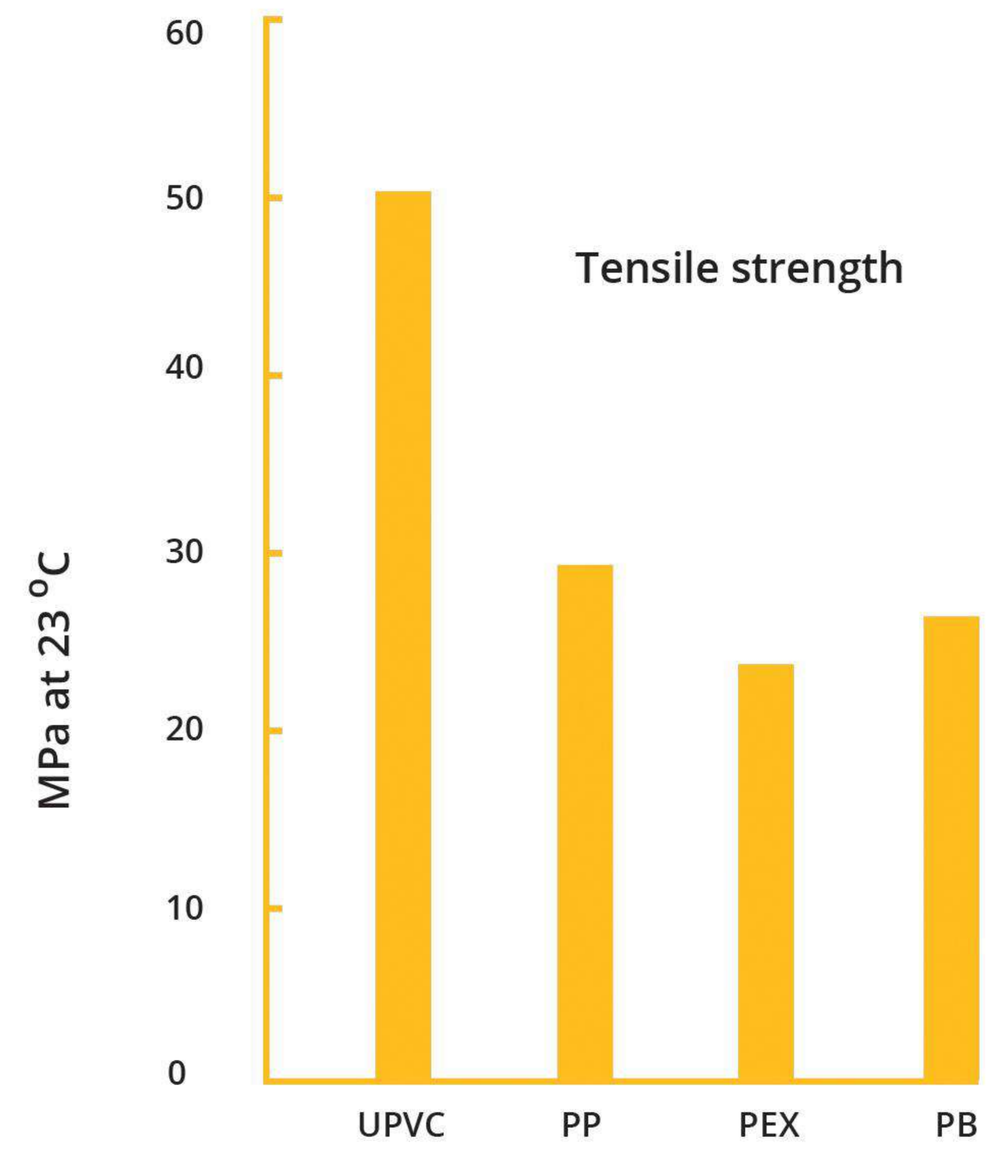
LOWER THERMAL CONDUCTIVITY

Reduced heat losses

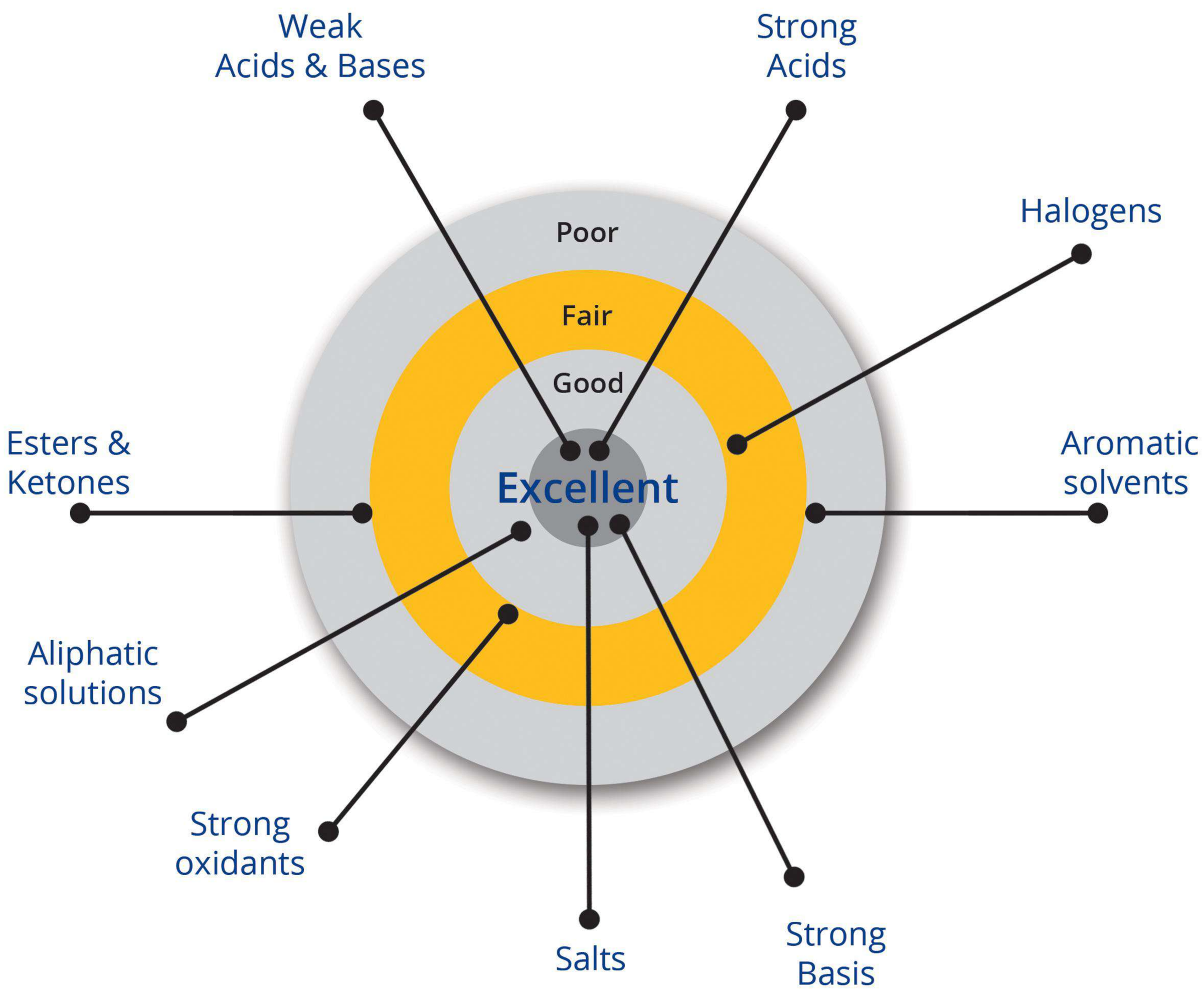


TOUGH, RIGID MATERIAL

UPVC has a much higher strength/modulus than other thermoplastics used in plumbing applications



PVC Excellent Chemical Resistance



Material Properties

MATERIAL

Unplasticized Polyvinyl Chloride (UPVC)

General prperties	upvc value	UNITS
Density	>	g/cm^3
Water absorption	<4	mg/cm^2
Flammability	self extinguishing	

Mechanical Properties

Ultimate Tensile Strength	492	kg/cm^2
Compressive Strength	668	kg/cm^2
Flexural strength	950	kg/cm^2
Modulus of Elasticity	2.7×10^4	kg/cm^2
Impact Strength (Sharpy)	No Break > 10 %	
Shore Hardness (Rockwell)	115	R

Thermal Properties

Softening Point		
v.s.t 5 kg	pipes $\geqslant 79^\circ$ fittings $\geqslant 76^\circ$	°c
Max. Operating temperature	60	°c
Coefficient of Thermal Expansion	3×10^{-5}	In/In/°f
Specific Heart	0.25	Cal/g.°c
Thermal Conductivity	0.13	Kcal/m.h.°c

Electrical Properties

Volume Resistivetly	$> 10^{14}$	Ohm.cm
Surface Resistance	$> 10^{12}$	Ohm
Dielctric Strength	> 40	Kv/mm
Power Factor (at 10 cycle)	3.3	

UPVC are non -conductor of electricity and are not subjected to galvanic or electrolytic attack .

UPVC Pipes Dimensions

Dimensions of uPVC Pipes (Based on Astm D 1785 Schedule 40 & 80)

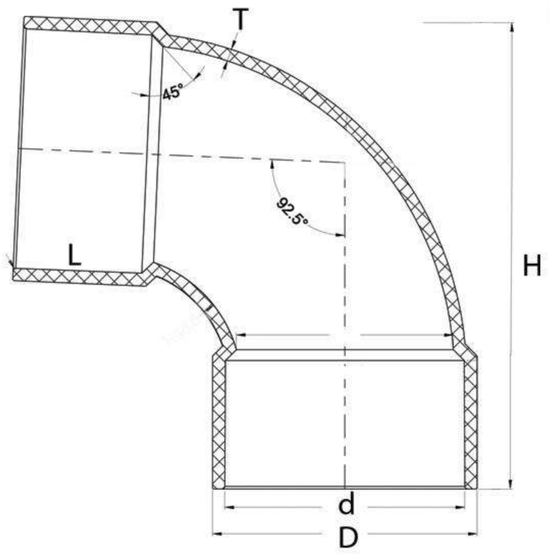
Nominal Size In Inch	O.D.MM		Schedule 40			Schedule 80		Weight kg/m
			Thickness mm		weight kg/m	Thickness mm		
	Min.	Max.	Min.	Max.		Min.	Max.	
1/2	21.20	21.44	2.80	3.30	0.24	3.70	4.20	0.31
3/4	26.60	26.77	2.90	3.40	0.33	3.90	4.40	0.41
1	33.27	33.53	3.40	3.90	0.48	4.60	5.10	0.60
1 1/4	42.10	42.29	3.60	4.10	0.65	4.90	5.40	0.84
1 1/2	48.10	48.40	3.70	4.20	0.77	5.10	5.70	1.03
2	60.20	60.50	3.90	4.40	1.04	5.50	6.20	1.41
3	88.70	89.10	5.50	6.20	2.14	7.60	8.50	2.88
4	114.10	114.50	6.00	6.70	3.05	8.60	9.60	4.22
6	168.00	168.60	7.10	8.00	5.37	11.00	12.30	8.05
8	218.70	219.40	8.20	9.20	8.11	12.70	12.90	-

Out side diameter mm , Wall thickness , classes and masses according to Din 8062/2009 -10

Working Pressure	Class 2 - 4 Bar		Class 3 - 6 Bar		Class 4 - 10 Bar		Class 5 - 16 Bar	
Nominal Outside Buameter mm	Nominal Thickness mm	weight kg/m	Nominal Thickness mm	weight kg/m	Nominal Thickness mm	weight kg/m	Nominal Thickness mm	weight kg/m
16	-	-	-	-	-	-	1.2	0.090
20		-	-	-	-	-	1.5	0.137
25	-	-	-	-	1.5	0.174	1.9	0.212
32	-	-	-	-	1.8	0.264	2.4	0.342
40	-	-	1.8	0.334	1.9	0.350	3.0	0.525
50	-	-	1.8	0.442	2.4	0.552	3.7	0.809
63	-	-	1.9	0.562	3.0	0.854	4.7	1.289
75	1.8	0.642	2.2	0.782	3.6	1.220	5.6	1.820
90	1.8	0.774	2.7	1.130	4.3	1.750	6.7	2.610
110	2.2	1.160	3.2	1.640	5.3	2.610	8.2	3.900
125	2.5	1.480	3.7	2.130	-	-	-	-
160	3.2	2.410	4.7	3.440	7.7	5.470	11.9	8.170
200	4.0	3.700	5.9	5.370	9.6	8.510	14.9	12.800
225	4.5	4.700	6.6	6.760	10.8	10.80	16.7	16.10
250	4.9	5.650	7.3	8.310	11.9	13.20	18.6	19.90
280	-	-	8.2	10.40	13.4	16.60	20.8	24.90
315	6.2	9.020	9.2	13.10	15.0	20.90	23.8	31.50
400	7.9	14.50	11.7	21.10	19.1	33.70	29.7	50.80
500	9.8	22.40	14.6	32.90	23.9	52.60	0	0
630	12.4	35.70	18.4	52.20	30.0	83.20	0	0
710	14.0	45.30	20.7	66.10	-		-	-
800	15.7	57.20	23.3	83.90	-		-	-

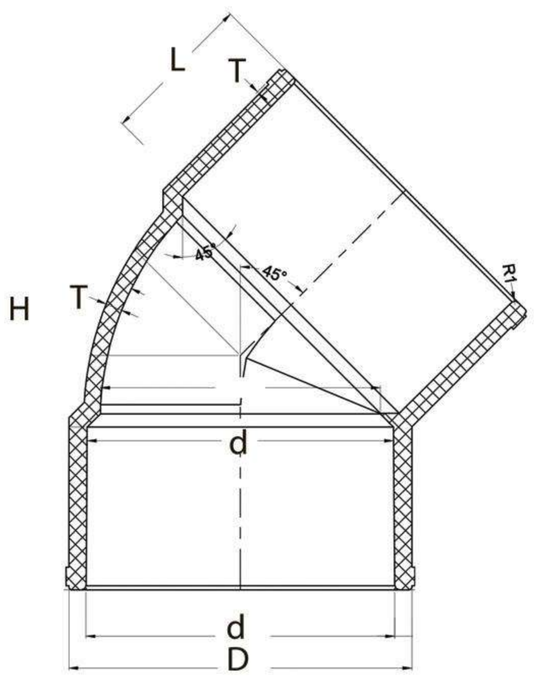
UPVC Fitting Dimensions

Elbow87.5



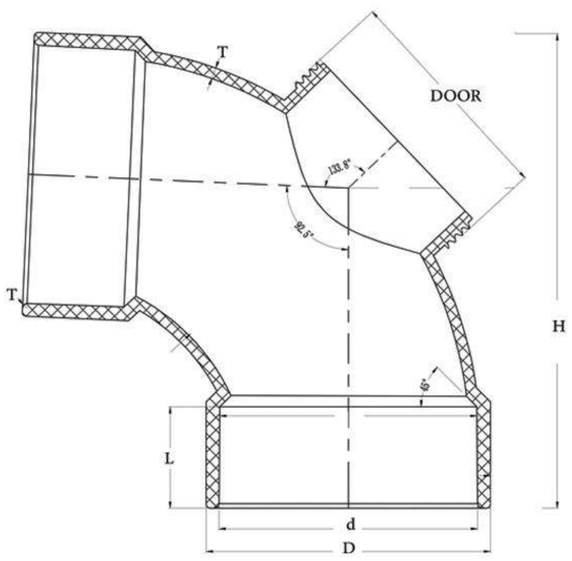
Size	d	D	H	L	T
25	26.9	33.0	51.8	20.5	3.0
32	33.5	41.0	60.0	21.0	3.5
48	48.5	56.4	100.0	31.0	3.9
60	60.5	68.5	125.0	37.0	4.0
75	75.4	84.6	150.0	41.5	4.6
110	111.0	121.5	192.0	50.0	5.3
160	159.9	172.5	303.0	70.4	6.0

Elbow45



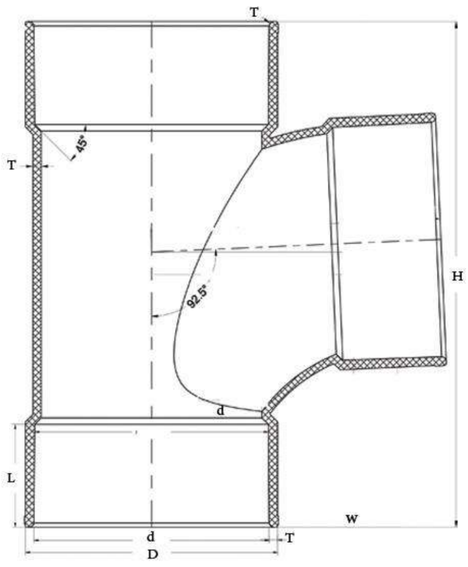
Size	d	D	H	L	T
25	26.9	33.1	59.7	19.0	3.0
32	33.0	41.5	71.0	21.0	3.2
48	48.0	56.2	94.1	31.4	4.0
60	60.8	70.6	120.4	39.0	5.0
75	75.5	83.8	150.0	41.2	40.1
110	110.7	121.3	197.0	50.0	5.3
160	161.4	172.8	282.5	67.8	5.8

Elbow87.5 With Access Door



Size	d	D	H	L	T	door
60	60.5	68.5	125.0	37.0	4.0	75
75	75.4	84.6	150.0	41.5	4.6	75
110	111.0	121.5	192.0	50.0	5.3	110
160	159.9	172.5	303.0	70.4	6.0	110

Tee87.5

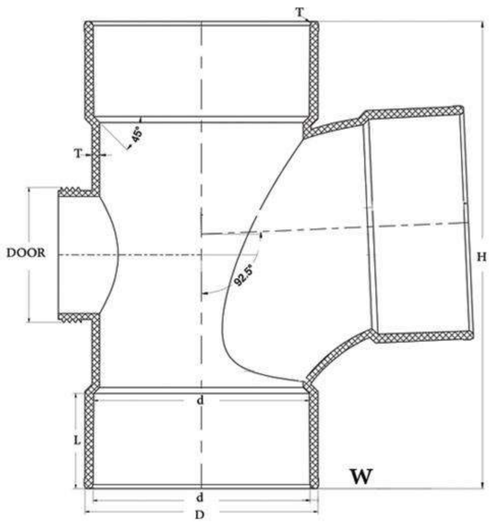


Size	d	D	H	w	L	T
25	26.7	33.3	70.4	51.2	21.5	3.1
32	33.5	40.3	78.8	58.9	22.5	3.7
48	47.8	56.2	113.3	91.8	27.2	3.7
60	60.0	68.7	153.2	119.4	37.6	4.0
75	75.4	83.8	167.2	137.8	41.4	4.2
110	111.0	122.0	245.0	198.0	45.0	6.0
160	161.5	170.0	326.0	274.0	73.0	6.5

Tee45

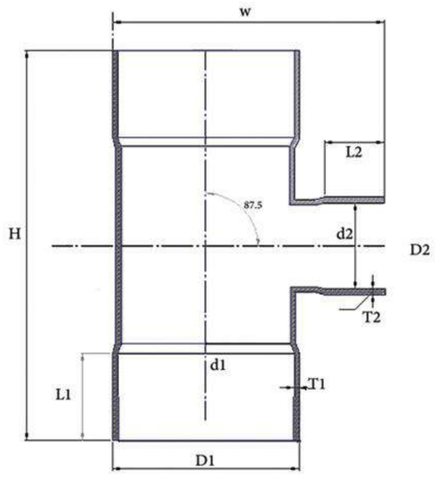
size	d	D	H	L	T
25	27.0	33.0	80.0	20.8	3.1
32	33.4	41.0	98.5	22.6	3.6
48	48.4	56.6	142.0	31.5	4.1
60	60.0	68.0	167.0	31.4	4.0
75	75.5	84.2	220.0	40.0	4.3
110	110.3	121.0	281.0	51.2	5.3
160	161.7	170.5	327.0	72.0	6.7

Tee87.5 With Access Door



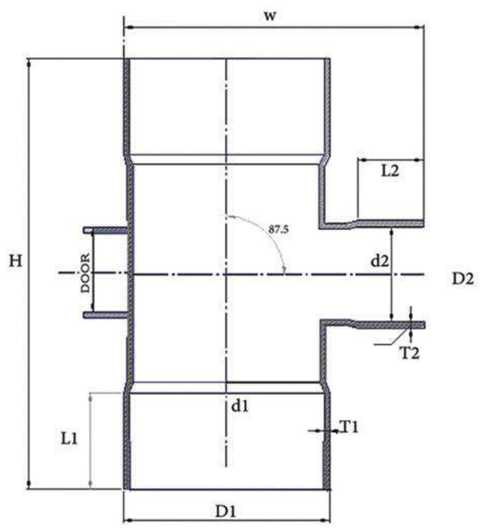
Size	d	D	H	w	L	T	door
60	60.0	68.7	153.2	119.4	37.6	4.0	75
75	75.4	83.8	167.2	137.8	41.4	4.2	75
110	111.0	122.0	245.0	198.0	45.0	6.0	110
160	161.5	170.0	326.0	274.0	73.0	6.5	110

Tee87.5 Reduser



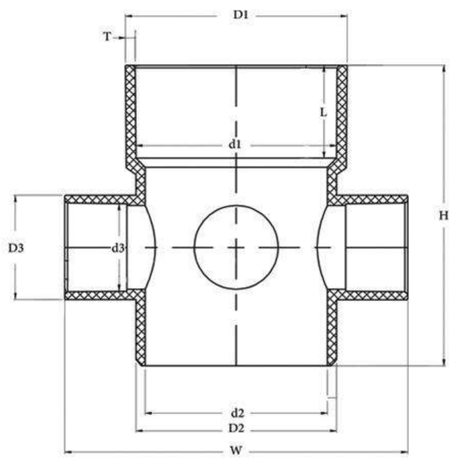
size	d	D	d2	D2	H	C	L1	T1	L2	T2
75*60	75.5	83.7	60.2	68.8	167.2	137.8	41.4	4.2	37.0	4.0
110*60	110.4	124.0	60.0	68.7	245.5	197.4	51.2	5.4	37.6	4.0
110*75	110.5	122.0	75.0	83.8	245.0	198.0	51.3	5.5	41.1	4.2
160*110	161.5	170.0	110.3	121.0	326.0	274.0	73.0	6.5	51.2	5.3

Tee87.5 With Access Door



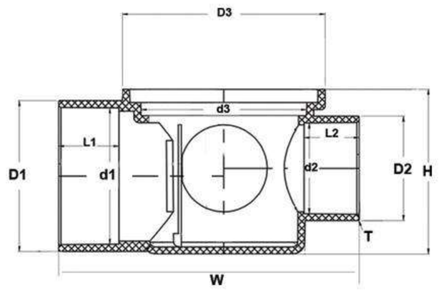
size	d	D	d2	D2	H	C	L1	T1	L2	T2	door
75*60	75.5	83.7	60.2	68.8	167.2	137.8	41.4	4.2	37.0	4.0	75
110*60	110.4	124.0	60.0	68.7	245.5	197.4	51.2	5.4	37.6	4.0	75
110*75	110.5	122.0	75.0	83.8	245.0	198.0	51.3	5.5	41.1	4.2	75
160*110	161.5	170.0	110.3	121.0	326.0	274.0	73.0	6.5	51.2	5.3	110

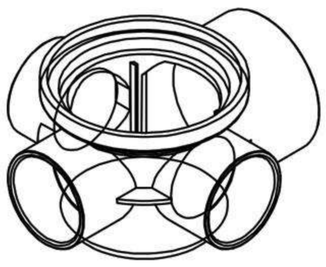
Complex



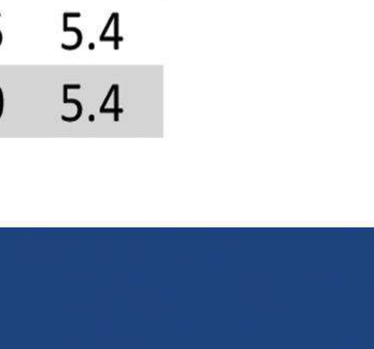
size	d1	D1	d2	D2	d3	D3	L	H	W	T
110*48	110.2	120.5	100.5	109.5	48.8	57.2	52.0	185.0	191.0	5.2
110*50	110.4	120.3	100.5	109.6	50.8	59.0	52.2	185.2	191.0	5.1
110*60	110.2	120.6	100.5	109.5	60.5	68.2	52.3	185.2	191.5	5.2
110*75	110.3	121.2	100.4	109.7	75.0	84.6	51.8	185.2	190.0	5.3

Floor Drain



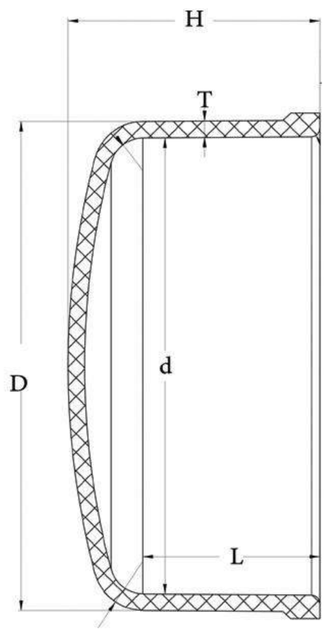


size	d1	D1	d2	D2	d3	D3	L	H	W	T
60*48	60.7	68.6	48.6	56.7	110.5	117.9	38.6	70.0	221.5	4.0
60*60	60.6	68.6	60.7	68.7	110.6	118.0	38.5	70.0	222.0	4.2
75*48	75.7	84.8	48.6	56.8	110.5	117.8	38.6	80.8	221.7	4.7
75*60	75.7	84.7	60.6	68.6	110.5	118.1	38.7	80.8	221.5	4.8
60*48	60.6	68.7	48.6	56.7	110.3	134.4	40.3	10.0	200.5	5.3
60*60	60.6	68.6	60.7	68.6	110.3	134.3	40.3	10.0	200.8	5.4
75*48	75.6	84.8	48.6	56.6	110.5	134.0	40.0	10.0	200.5	5.4
75*60	75.6	84.8	60.6	68.7	110.5	134.2	41.0	10.0	210.0	5.4



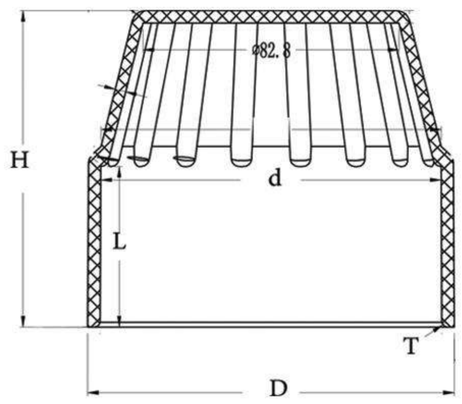
UPVC Fitting Dimensions

Pipe Plug



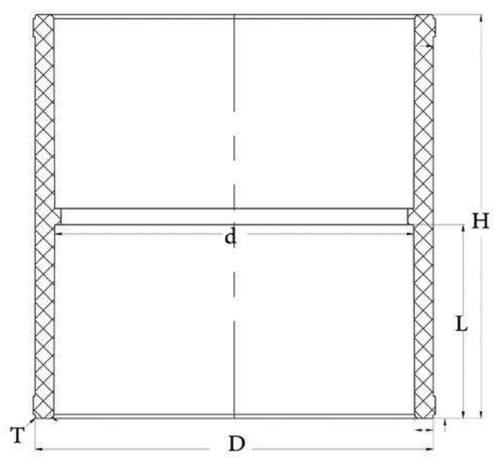
size	d	D	H	L	T
25	26.6	33.1	25.6	19.6	2.0
32	34.2	40.9	31.2	28.2	3.7
48	48.1	55.2	29.7	29.0	4.5
60	60.7	70.4	44.5	36.8	5.0
75	75.8	85.0	54.9	43.6	4.5
110	110.5	118.0	59.0	46.0	5.5
160	161.8	170.1	77.0	66.5	7.7

Air Vent



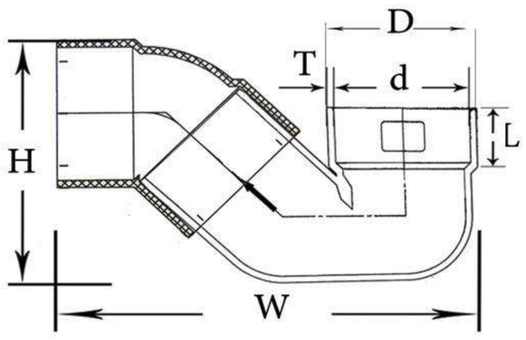
size	d	D	H	L	T
60	60.6	67.4	87.0	41.0	3.4
75	75.6	81.7	101.6	50.0	3.1
110	109.8	118.0	102.5	59.0	4.0

Socket



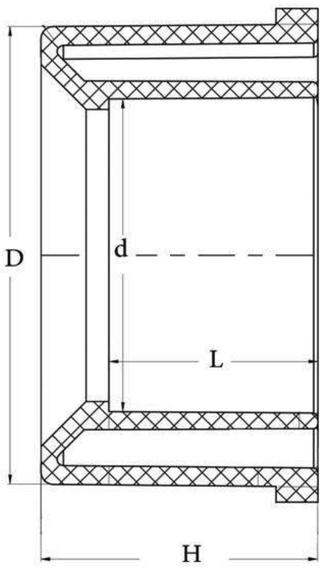
size	d	D	H	L	T
25	26.9	33.0	42.0	20.0	3.0
32	33.6	40.8	49.0	22.5	3.5
48	48.4	55.7	65.9	32.0	3.5
60	60.5	78.1	38.9	38.1	3.7
75	75.6	84.0	94.0	45.0	4.1
110	110.4	121.0	109.2	55.0	5.2
160	161.0	171.5	144.0	78.0	6.0

Siphon



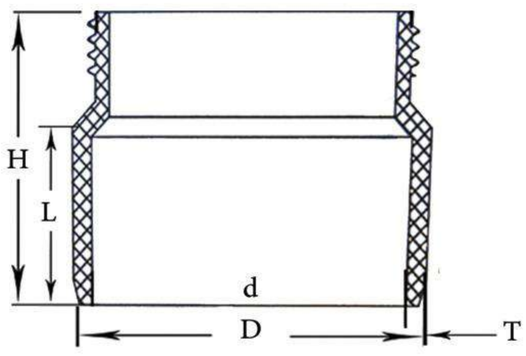
size	d	D	H	W	L	T
50	50.8	59.0	75.0	140.0	31.0	3.5
75	75.8	83.2	90.0	237.0	39.5	4.1
110	109.7	122.0	200.0	313.5	51.8	7.8

Reducing Bush



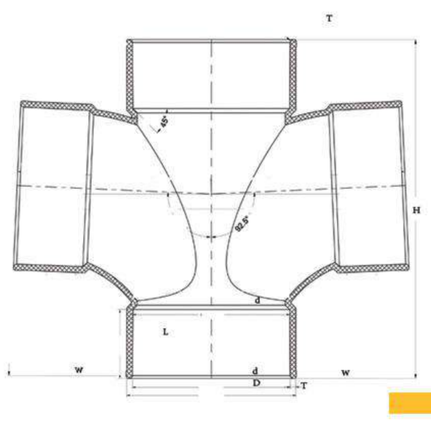
size	d	D	H	L	T
1*25	27.0	33.4	25.0	19.0	3.2
48*1	33.0	48.0	37.8	33.0	7.4
60*48	48.0	60.0	45.4	30.6	6.0
75*60	60.0	75.0	51.2	37.4	8.5
110*60	60.0	110.0	65.7	42.0	TS
110*75	75.0	110.0	66.0	51.0	TS
160*110	111.0	159.0	76.3	55.8	TS

Cleaning Insert



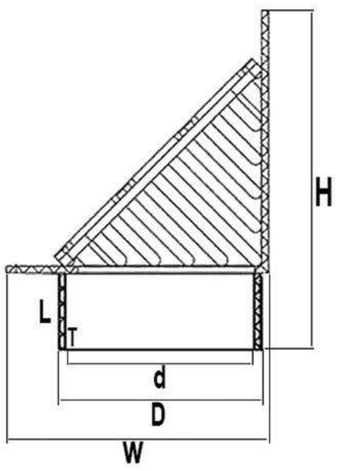
size	d	D	H	L	T	Door
48	49.4	60.0	63.1	34.0	5.3	48
60	51.7	60.1	67.8	45.5	4.3	75
75	66.3	75.1	73.5	48.7	4.5	75
110	97.6	109.2	79.2	50.1	5.6	110
160	147.6	160.1	118.9	76.2	5.7	110

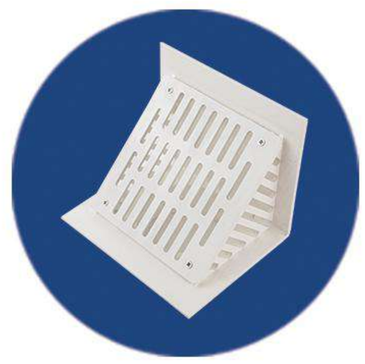
Cross87.5



size	d	D	H	W	L	T
75	75.5	84.2	220.0	260.0	40.0	4.3
110	110.3	123.0	244.0	285.0	45.2	6.5

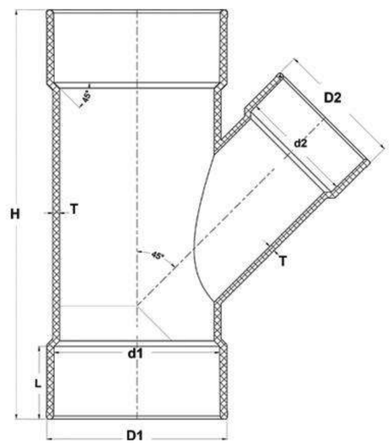
Rain drain with cover





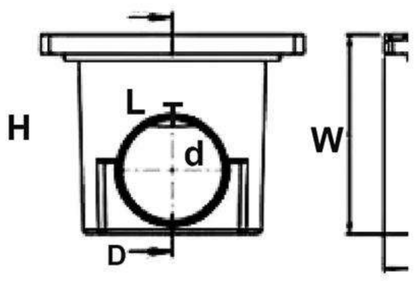
size	d	D	H	W	L	T
75	75.5	118.0	190.7	190.3	43.2	2.2
110	110.7	118.0	190.7	190.3	43.3	3.5

Tee45 Reducer



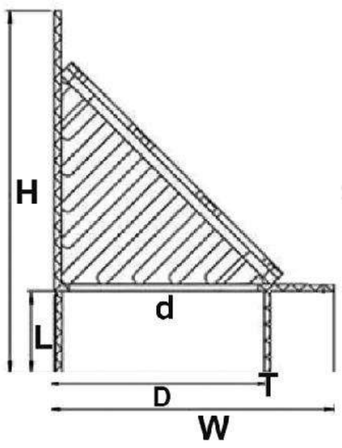
size	d	D	d2	D2	H	W	L1	T1	L2	T2
75*60	75.7	86.5	60.6	70.5	200.0	170.0	72.0	5.2	37.8	4.8
110*60	110.8	122.5	60.5	70.3	219.0	190.0	49.7	6.7	37.9	4.9
110*75	110.7	122.7	75.6	86.2	219.5	221.2	46.6	6.2	42.2	5.3
160*110	161.0	178.5	110.7	122.4	388.6	320.0	71.4	7.2	50.9	6.6

Small Drain

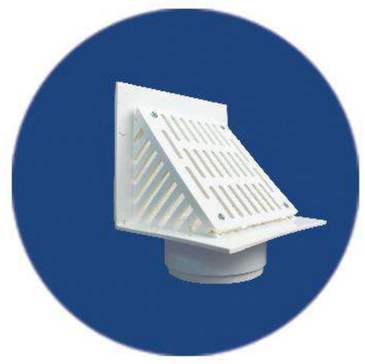


size	d	D	H	W	L	T
48	39.1	48.1	88.5	67.8	38.3	4.1

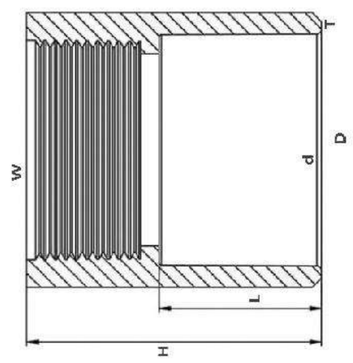
Rain drain with cover



size	d	D	H	W	L	T
75	75.5	118.0	190.7	190.3	43.2	2.2
110	110.7	118.0	190.7	190.3	43.3	3.5

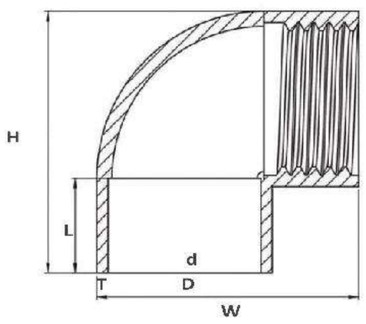


Socket with Inner Thread



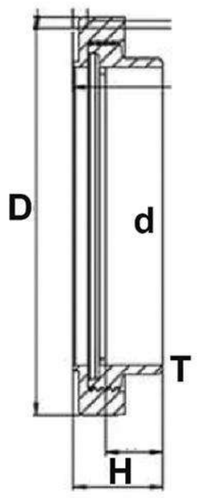
size	d	D	H	W	L	T
48	47.4	57.6	59.4	57.8	29.4	4.5

Elbow with Inner Thread

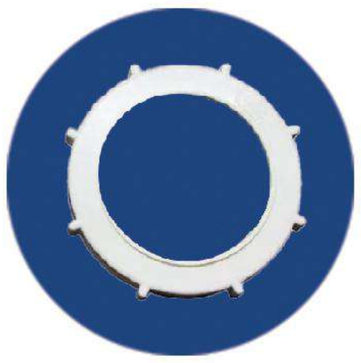


size	d	D	H	W	L	T
48	47.3	55.9	84.4	86.0	33.0	3.9

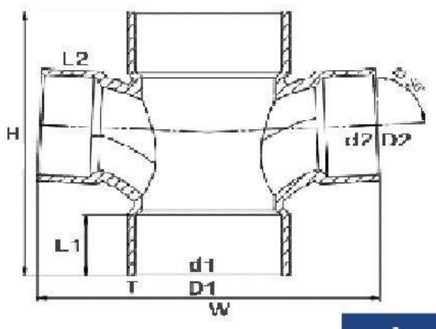
Rain drain with cover



size	d	D	H	W	L	T
75	84.2	92.8	28.3	113.1	17.2	4.2
110	121.1	131.9	155.2	33.7	20.2	4.7



Cross Reducer



size	d	D	d2	D2	H	w	L1	T1	L2	T2
110*60	109.6	122.4	58.5	70.3	198.0	230.1	46.6	6.2	39.2	4.8
110*75	109.4	122.9	74.2	84.8	198.0	232.7	45.2	6.3	41.3	4.6

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)	-	-
ACETALDEHYDE	CH3CHO	100	25	3	2
		-	60	3	-
		-	100	-	-
- AQUEOUS SOLUTION		40	25	3	1
		-	60	3	2
		-	100	-	-
ACETIC ACID	CH3COOH	≤25	25	1	1
		-	60	2	1
		-	100	-	1
		30	25	1	1
		-	60	2	1
		-	100	-	1
		60	25	1	1
		-	60	2	1
		-	100	-	2
		80	25	1	1
		-	60	2	3
		-	100	-	3
- GLACIAL		100	25	2	1
		-	60	3	2
		-	100	-	3
ACETIC ANHYDRIDE	(CH3CO)2O	100	25	3	1
		-	60	3	2
		-	100	-	3
ACETONE	CH3COCH3	10	25	3	1
		-	60	3	3
		-	100	-	3
ACETOPHENONE	CH3COC6H5	nd	25	-	1
		-	60	-	3
		-	100	-	-
ACRYLONITRILE	CH2CHCN	technically pure	25	-	1
		-	60	3	1
		-	100	-	-
ADIPIC ACID	(CH2CH2CO2H)2	sat.	25	1	1
- AQUEOUS SOLUTION		-	60	2	1
		-	100	-	-
ALLYL ALCOHOL	CH2CHCH2OH	96	25	2	1
		-	60	3	1
		-	100	-	1
ALUM	AI2(SO4)3.K2SO.nH2O	dil	25	1	1
- AQUEOUS SOLUTION		-	60	2	1
		-	100	-	-
	AI2(SO4)3.K2SO4.nH2O	sat	25	-	1
		-	60	2	1
		-	100	-	-
ALUMINIUM	AICI3	all	25	1	-
- CHLORIDE		-	60	1	-
		-	100	-	-
- FLUORIDE	AIF3	100	25	1	-
		-	60	1	-
		-	100	-	-
- HYDROXIDE	AI(OH4)3	all	25	1	-
		-	60	1	-
		-	100	-	-
- NITRATE	AI(NO2)3	nd	25	1	-
		-	60	1	-
		-	100	-	-
- SULPHATE	AI(SO4)3	deb	25	1	1
		-	60	1	1
		-	100	-	-
		sat	25	1	1
		-	60	1	1
		-	100	-	2

Chemical	Formula	Conc.	Temp.	u PVC	PP
		(%)	(°C)	-	-
AMMONIA	NH3	deb	25	1	1
- AQUEOUS SOLUTION		-	60	2	-
		-	100	-	-
		sat	25	1	1
		-	60	2	-
		-	100	-	-
- DRY GAS		100	25	1	1
		-	60	1	1
		-	100	-	-
- LIQUID		100	25	2	1
		-	60	3	1
		-	100	-	-
AMMONIUM	CH3COONH4	sat	25	-	1
- ACETATE		-	60	2	1
		-	100	-	-
- CARBONATE	(NH4)2CO3	all	25	1	1
		-	60	2	1
		-	100	-	-
- CHLORIDE	NH4CI	sat	25	1	1
		-	60	1	1
		-	100	-	2
- FLUORIDE	NH4F	25	25	1	1
		-	60	2	1
		-	100	-	-
- HYDROXIDE	NH4OH	28	25	-	1
		-	60	2	1
		-	100	-	-
- NITRATE	NH4NO3	sat	25	1	1
		-	60	1	1
		-	100	-	1
- PHOSPHATE DIBASIC	NH4(HPO4)2	all	25	1	1
		-	60	1	1
		-	100	-	-
- PHOSPHATE META	(NH4)4P4O12	all	25	1	1
		-	60	1	1
		-	100	-	-
- PHOSPHATE TRI	(NH4)2HPO4	all	25	1	1
		-	60	1	1
		-	100	-	-
- PERSULPHATE	(NH4)2S2O8	all	25	1	1
		-	60	1	-
		-	100	-	-
- SULPHIDE	(NH4)2S	deb	25	1	1
		-	60	2	1
		-	100	-	-
		sat	25	1	1
		-	60	1	1
		-	100	-	-
- SULPHYDRATE	NH4OHSO4	dil	25	1	1
		-	60	2	1
		-	100	-	-
		sat	25	1	1
		-	60	1	1
		-	100	-	-
AMYLACETATE	CH3CO2CH2(CH2)3CH3	100	25	3	2
		-	60	3	-
		-	100	-	-
AMYLALCOHOL	CH3(CH2)3CH2OH	nd	25	1	1
		-	60	2	1
		-	100	-	1
ANILINE	C	H5NH2	25	3	1
	6	-		-	-
		-	60	3	1
		-	100	-	-
- CHLORHYDRATE	C	H5NH2HCl	25	2	2
	6	-		-	-
			60	3	2
			100	-	3

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)	-	-
CARBON	CO2	-	-	25	1
- DIOXIDE		-	-	60	1
AQUEOUS SOLUTION		-	-	100	-
- GAS		-	100	25	1
		-	-	60	1
		-	-	100	-
- DISULPHIDE	CS2	-	100	25	2
		-	-	60	-
		-	-	100	-
- MONOXIDE	CO	-	100	25	1
		-	-	60	1
		-	-	100	-
- TETRACHLORIDE	CCl4	-	100	25	2
		-	-	60	3
		-	-	100	-
CARBONIC ACID	H2CO3	-	sat	25	-
- AQUEOUS SOLUTION		-	-	60	-
		-	-	100	-
- DRY		-	100	25	-
		-	-	60	-
		-	-	100	-
- WET		-	all	25	-
		-	-	60	-
		-	-	100	-
CARBON OIL		-	comm	25	-
		-	-	60	-
		-	-	100	-
CHLORAMINE		-	dil	25	1
		-	-	60	-
		-	-	100	-
CHLORIC ACID	HClO3	-	20	25	1
		-	-	60	3
		-	-	100	-
CHLORINE	Cl2	-	sat	25	-
		-	-	60	-
		-	-	100	-
- DRY GAS		-	10	25	-
		-	-	60	-
		-	-	100	-
		-	100	25	-
		-	-	60	-
		-	-	100	-
- WET GAS		-	5g/m3	25	-
		-	-	60	-
		-	-	100	-
		-	10g/m3	25	-
		-	-	60	-
		-	-	100	-
		-	66g/m3	25	-
		-	-	60	-
		-	-	100	-
- LIQUID		-	100	25	3
		-	-	60	-
		-	-	100	-
CHLOROACETIC ACID	ClCH2COH	-	85	25	2
		-	-	60	3
		-	-	100	-
		-	100	25	3
		-	-	60	3
		-	-	100	-
CHLOROBENZENE	C	H5Cl	all	25	-
	6	-	-	-	-
		-	-	60	-
		-	-	100	-
CHLOROFORM	CHCl3	-	all	25	2
		-	-	60	-
				100	-

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
CHLOROSULPHONIC	ClHSO3	-	100	25	3
ACID		-	-	60	3
		-	-	100	-
CHROME ALUM	KCr(SO4)2	-	nd	25	1
		-	-	60	1
		-	-	100	-
CHROMIC ACID	CrO3+H2O	-	10	25	2
		-	-	60	3
		-	-	100	-
		-	30	25	2
		-	-	60	3
		-	-	100	-
		-	50	25	2
		-	-	60	3
		-	-	100	-
CHROMIC SOLUTION	CrO3+H2O+H2SO4	-	5015/35/	25	3
		-	-	60	3
		-	-	100	-
CITRIC ACID	C	H4(OH)(CO2H)	50	25	1
	3	3	-		-
AQ. SOL. min		-	-	60	1
		-	-	100	-
COPPER	CuCl2	-	sat	25	1
- CHLORIDE		-	-	60	1
		-	-	100	-
- CYANIDE	CuCN2	-	all	25	-
		-	-	60	-
		-	-	100	-
- FLUORIDE	CuF2	-	all	25	1
		-	-	60	1
		-	-	100	-
- NITRATE	Cu(NO3)2	-	nd	25	1
		-	-	60	1
		-	-	100	-
- SULPHATE	CuSO4	-	dil	25	1
		-	-	60	1
		-	-	100	-
		-	sat	25	1
		-	-	60	1
		-	-	100	-
COTTONSEED OIL		-	comm	25	-
		-	-	60	-
		-	-	100	-
CRESOL	CH3C6H4OH	-	£90	25	1
		-	-	60	-
		-	-	100	-
		-	>90	25	-
		-	-	60	-
		-	-	100	-
CRESYLIC ACID	CH3C6H4COOH	-	50	25	-
		-	-	60	-
		-	-	100	-
CYCLOHEXANE	C6H12	-	all	25	1
		-	-	60	-
		-	-	100	-
CYCLOHEXANONE	C6H10O	-	all	25	1
		-	-	60	-
		-	-	100	-
DECAHYDRONAFTALENE	C10H18	-	nd	25	1
		-	-	60	2
		-	-	100	-
DEMINERALIZED WATER		-	100	25	1
		-	-	60	1
		-	-	100	-
DEXTRINE	C	H12OCH2O	nd	25	1
	6	-	-	-	-
		-	-	60	1
		-	-	100	-

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
ANTIMONY	SbCl3	100	25	1	1
- TRICHLORIDE			60	1	1
			100	-	-
ANTHRAQUINONE		suspension	25	1	1
SULPHONIC ACID			60	2	1
			100	-	-
AQUA REGIA	HC+HNO3	100	25	2	3
			60	2	3
			100	-	3
ARSENIC ACID	H3AsO4	deb	25	1	1
			60	2	1
			100	-	-
		80	25	1	1
			60	2	1
			100	-	2
BARIUM		all	25	1	1
- CARBONATE	BaCO3		60	1	1
			100	-	-
- CHLORIDE	BaCl2	10	25	1	1
			60	1	1
			100	-	-
- HYDROXIDE	Ba(OH)2	all	25	1	1
			60	1	1
			100	-	-
- SULPHATE	BaSO4	nb	25	1	1
			60	1	1
			100	-	-
- SULPHIDE	BaS	sat	25	1	1
			60	1	-
			100	-	-
BEER		comm	25	1	-
			60	1	-
			100	-	-
BENZALDEHYDE	C6H5CHO	nd	25	3	3
			60	3	3
			100	-	-
BENZENE	C6H6	100	25	3	3
			60	3	3
			100	-	3
- LIGROIN		2080/	25	3	3
			60	3	3
			100	-	-
- MONOCHLORINE	C6H5Cl	technically pure	25	3	1
			60	-	-
			100	-	-
BENZOIC ACID	C6H5COOH	sat	25	1	1
			60	2	1
			100	-	3
BENZYL ALCOHOL	C6H5CH2OH	100	25	1	1
			60	2	2
			100	-	-
BLEACHING LYE	NaOCl+NaCl	12.50%	25	1	2
		Cl	60	2	-
			100	-	-
BORIC ACID	H3BO3	deb	25	1	1
			60	2	1
			100	-	1
		sat	25	1	1
			60	2	1
			100	-	1
BRINE		comm	25	1	1
			60	1	-
			100	-	-
BROMIC ACID	HBrO3	10	25	1	-
			60	1	-
			100	1	-

Chemical	Formula	Conc.	Temp.	uPVC	PP
			(°C)		
BROMINE	Br2	(%)	25	3	3
- LIQUID		100	60	3	3
		-	100	-	3
- VAPOURS		-	25	2	3
		low	60	-	3
		-	100	-	-
BUTADIENE	C4H6	-	25	1	1
		100	60	1	3
		-	100	-	-
BUTANEDIOL	CH3CH2CHOHCH2OH	-	25	1	1
AQUEOUS		10	60	3	-
		-	100	-	-
	concentrated	-	25	2	2
		-	60	3	2
		-	100	-	-
BUTANE	C H10	-	25	1	1
	4	10	-	-	-
GAS		-	-	60	1
		-	-	100	-
BUTYL	CH3CO2CH2CH2CH2CH3	-	100	25	3
- ACETATE		-	-	60	3
			-	100	-
- ALCOHOL	C	-	-	25	1
	4	H9OH	-	-	-
		-	-	60	1
		-	-	100	-
- PHENOL	C	-	100	25	3
	4	H9C6H4 OH	-	-	-
		-	-	60	3
		-	-	100	-
BUTYLENE GLYCOL	C4H6(OH)2	-	100	25	1
		-	-	60	1
		-	-	100	-
BUTYRIC ACID	C2H5CH2COOH	-	20	25	1
		-	-	60	2
		-	-	100	-
		-	concentrated	25	3
		-	-	60	3
		-	-	100	-
CALCIUM	Ca(HSO3)2	-	nd	25	1
- BISULPHITE		-	-	60	1
		-	-	100	-
- CARBONATE	CaCO3	-	all	25	1
		-	-	60	1
		-	-	100	-
- CHLORATE	CaHCl	-	nd	25	1
		-	-	60	1
		-	-	100	-
- CHLORIDE	CaCl2	-	all	25	1
		-	-	60	1
		-	-	100	-
- HYDROXIDE	Ca(OH)2	-	all	25	-
		-	-	60	-
		-	-	100	-
- HYPOCHLORITE	Ca(OCl)2	-	sat	25	1
		-	-	60	1
		-	-	100	-
- NITRATE	Ca(NO3)2	-	50	25	1
		-	-	60	-
		-	-	100	-
- SULPHATE	CaSO4	-	nd	25	1
		-	-	60	1
		-	-	100	-
- SULPHIDE	CaS	-	sat	25	2
		-	-	60	2
		-	-	100	-

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
HEXANE	C6H14	100	25	1	1
			60	2	2
			100		
HYDROBROMIC ACID	HBr	≤10	25	1	1
			60	2	1
			100		3
		48	25	1	1
			60	2	1
			100		3
HYDROCHLORIC ACID	HCl	≤25	25	1	1
			60	2	1
			100		1
		≤37	25	1	1
			60	1	1
			100		2
HYDROCYANIC ACID	HCN	deb	25	1	1
			60	1	1
			100		
HYDROFLUORIC ACID	HF	10	25	1	1
			60	2	1
			100		3
		60	25	2	1
			60	3	3
			100		3
HYDROGEN	H2	all	25		
			60		
			100		
HYDROGEN	H2O2	30	25	1	1
- PEROXIDE			60	1	1
			100		
		50	25	1	1
			60	1	2
			100		
		90	25	1	1
			60	1	2
			100		
- SULPHIDE DRY		sat	25	1	1
			60	2	1
			100		
- SULPHIDE WET		sat	25	1	1
			60	2	1
			100		
HYDROSULPHITE		≤10	25	1	1
			60	2	1
			100		
HYDROXYLAMINE	(H2NOH)2H2SO4	12	25	1	1
SULPHATE			60	1	1
			100		
ILLUMINATING GAS		100	25	1	1
			60		
			100		
IODINE	I2	3	25	2	1
- DRY AND WET			60	3	
			100		
- TINCTURE		>3	25	2	1
			60	3	3
			100		
ISOCTANE	C8H18	100	25	1	2
			60		3
			100		
ISOPROPYL	(CH3)2CHOCH(CH3)2	100	25	2	2
- ETHER			60	3	3
			100		
- ALCOHOL	(CH3)2CHOH	100	25		1
			60	2	1
			100		

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
LACTIC ACID	CH3CHOHCOOH	≤28	25	1	1
			60	2	1
			100		1
LANOLINE		nd	25		1
			60	2	2
			100		
LEAD ACETATE	Pb(CH3COO)2	sat	25	1	1
			60	1	2
			100		2
LINSEED OIL		comm	25	1	1
			60	2	1
			100		
LUBRICATING OILS		comm	25	1	1
			60	1	2
			100		
MAGNESIUM	MgCO3	all	25	1	1
- CARBONATE			60	1	1
			100		
- CHLORIDE	MgCl2	sat	25	1	1
			60	1	1
			100		2
- HYDROXIDE	Mg(OH)2	all	25	1	1
			60	1	1
			100		
- NITRATE	MgNO3	nd	25	1	1
			60	1	1
			100		
- SULPHATE	MgSO4	dil	25	1	1
			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		
MALEIC ACID	COOHCHCHCOOH	nd	25	1	1
			60	1	1
			100		1
MALIC ACID	CH2CHOH(COOH)2	nd	25	1	1
			60		1
			100		
MERCURIC	HgCl2	sat	25	1	1
- CHLORIDE			60	1	1
			100		
- CYANIDE	HgCN2	all	25	1	1
			60	1	1
			100		
MERCUROUS NITRATE	HgNO3	nd	25	1	1
			60	1	1
			100		
MERCURY	Hg	100	25	1	1
			60	2	1
			100		
METHYL	CH3COOCH3	100	25		1
- ACETATE			60		1
			100		
- ALCOHOL	CH3OH	nd	25	1	1
			60	1	2
			100		2
- BROMIDE	CH3Br	100	25	3	3
			60		3
			100		
- CHLORIDE	CH3Cl	100	25	3	3
			60	3	3
			100		3
- ETHYLKETONE	CH3COCH2CH3	all	25	3	1
			60	3	2
			100		

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
METHYLAMINE	CH3NH2	32	25	2	1
			60	3	
			100		
METHYLENE	CH2Cl2	100	25	3	3
CHLORIDE			60	3	3
			100		3
METHYL	CH3COOSO4	50	25	1	2
SULPHORIC ACID			60	2	2
			100		3
		100	25	1	3
			60	2	3
			100		3
MILK		100	25	1	1
			60	1	1
			100		1
MINERAL ACIDOULOUS		nd	25	1	1
WATER			60	1	1
			100		1
MOLASSES		comm	25	1	1
			60	2	1
			100		2
NAPHTA		100	25	2	1
			60	3	3
			100		
NAPHTALINE		100	25	1	3
			60		3
			100		3
NICKEL	NiCl3	all	25	1	1
- CHLORIDE			60	1	1
			100		1
- NITRATE	Ni(NO3)2	nd	25	1	1
			60	1	1
			100		2
- SULPHATE	NiSO4	dil	25	1	1
			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		
NITRIC ACID	HNO3	anhydrous	25	3	3
			60	3	3
			100		3
		20	25	1	1
			60	2	2
			100		3
		40	25	1	2
			60	1	3
			100		3
		60	25	1	2
			60	2	3
			100		3
		98	25	3	3
			60	3	3
			100		3
NITROBENZENE	C6H5NO2	all	25	3	1
			60	3	2
			100		
OLEIC ACID	C8H17CHCH(CH2)7CO2H	comm	25	1	1
			60	1	2
			100		

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
OLEUM		nd	25	3	3
			60	3	3
			100		
- VAPOURS		low	25	3	3
			60	3	3
			100		
		hight	25	3	3
			60	3	3
			100		
OLIVE OIL		comm	25		1
			60	2	1
			100		
OXALIC ACID	HO2CCO2H	10	25	1	1
			60	2	2
			100		2
		sat	25	1	1
			60	1	2
			100		3
OXYGEN	O2	all	25	1	3
			60	1	3
			100		
OZONE	O3	nd	25	1	3
			60	2	3
			100		
PALMITIC ACID	CH3(CH2)14COOH	10	25	1	
			60	1	3
			100		
		70	25	1	
			60	1	3
			100		
PARAFFIN		nd	25		
			60	2	1
			100		
- EMULSION		comm	25	1	3
			60	1	3
			100		
- OIL		nd	25	1	1
			60	1	3
			100		
PERCHLORIC ACID	HClO4	100	25	1	1
			60	2	1
			100		
		70	25	1	1
			60	2	
			100		
PETROL		100	25	1	1
- REFINED			60		3
			100		
- UNREFINED		100	25	1	1
			60	1	3
			100		
PHENOL	C6H5OH	1	25	1	1
- AQUEOUS SOLUTION			60		1
			100		3
		≤90	25	2	1
			60	3	3
			100		3
PHENYL HYDRAZINE	C6H5NHNH2	all	25	3	2
			60	3	2
			100		
- CHLORHYDRATE	C6H5NHNH3Cl	sat	25	1	1
				60	3
				100	

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
PHOSPHORIC	H3PO4	≤25	25	1	1
- ACID			60	2	1
			100		1
		≤50	25	1	1
			60	1	1
			100		1
		≤85	25	1	1
			60	1	1
			100		1
- ANHYDRIDE	P2O5	nd	25	1	1
			60	2	1
			100		
PHOSPHORUS	PCl3	100	25	3	1
TRICHLORIDE			60	3	
			100		
PHOTOGRAPHIC		comm	25	1	
- DEVELOPER			60	1	
			100		
- EMULSION		comm	25	1	
			60	1	
			100		
PHTHALIC ACID	C6H4(CO2H)2	50	25		1
			60	3	1
			100		
PICRIC ACID	HOC6H2(NO2)3	1	25	1	1
			60	1	
			100		
		>1	25	3	3
			60	3	3
			100		
POTASSIUM	K2CrO7	40	25	1	1
- BICHROMATE			60	1	
			100		
- BORATE	K3BO3	sat	25	1	1
			60	2	1
			100		
- BROMATE	KBrO3	nd	25	1	1
			60	2	1
			100		2
- BROMIDE	KBr	sat	25	1	1
			60	1	1
			100		
- CARBONATE	K2CO3	sat	25	1	1
			60	1	
			100		
- CHLORIDE	KCl	sat	25	1	1
			60	1	1
			100		2
- CHROMATE	KCrO4	40	25	1	1
			60	1	1
			100		
- CYANIDE	KCN	sat	25	1	1
			60	1	1
			100		
- FERROCYANIDE	K4Fe(CN)6.3H2O	100	25	1	1
			60	1	1
			100		2
- FLUORIDE	KF	sat	25		1
			60		1
			100		
- HYDROXIDE	KOH	≤60	25	1	1
			60	2	1
			100		1
- NITRATE	KNO3	sat	25	1	1
			60	1	1
			100		

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical	Formula		Conc.	Temp.	uPVC	PP
			(%)	(°C)		
- PERBORATE	KBO3	-	all	25	1	1
		-		60	1	
		-		100		
- PERMANGANATE	KMnO4	-	10	25	1	1
		-		60	1	2
		-		100		
- PERSULPHATE	K2S2O8	nd		25	1	1
		-				
		-		60	2	1
		-		100		
- SULPHATE	K2SO4	sat		25		1
		-				
		-		60	1	1
		-		100		
PROPANE	C3H8	100		25	1	1
		-				
- GAS		-		60		
		-		100		
- LIQUID		-	100	25	1	2
		-		60		
		-		100		
PROPYL ALCOHOL	C3H7OH	-	100	25	1	1
		-				
		-	60	2	1	1
		-	100			
PYRIDINE	CH(CHCH)2N	nd	25	3	1	1
		-	60	3	2	3
		-	100			
RAIN WATER		100	25	1	1	1
		-	60	1	1	1
		-	100			1
SEA WATER		100	25	1	1	1
		-	60	1	1	1
		-	100			1
SILICIC ACID	H2SiO3	all	25	1	1	1
		-	60	1	1	1
		-	100			
SILICONE OIL		nd	25	1	1	
		-	60	3	2	
		-	100			
SILVER	AgCN	all	25	1		1
- CYANIDE		-	60	1		1
		-	100			
- NITRATE	AgNO9	nd	25	1	1	1
		-	60	2	1	1
		-	100			1
- PLATING SOLUTION		comm	25	1		1
		-	60	1		
		-	100			
SOAP		high	25	1		1
- AQUEOUS SOLUTION		-	60	2		1
		-	100			
SODIC LYE		£60	25	1		
		-	60	1		
		-	100			
SODIUM	CH3COONa	100	25	1	1	1
- ACETATE		-	60	1	1	1
		-	100			1
- BICARBONATE	NaHCO3	nd	25	1	1	1
		-	60	1	1	1
		-	100			1
- BISULPHITE	NaHSO3	100	25	1	1	1
		-	60	1	1	1
		-	100			1
- BROMIDE	NaBr	sat	25	1		1
		-	60	1		1
		-	100			
- CARBONATE	Na2CO3	sat	25	1	1	1
			60	1	1	2
			100			2

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
- CHLORATE	NaClO3	nd	25	1	1
			60	2	
			100		
- CHLORIDE	NaCl	dil	25	1	1
			60	2	1
			100		
		sat	25	1	1
			60	1	1
			100		3
- CYANIDE	NaCN	all	25	1	1
			60	1	1
			100		
- FERROCYANIDE	Na4Fe(CN)6	sat	25	1	
			60	1	
			100		
- FLUORIDE	NaF	all	25	1	
			60	1	
			100		
- HYDROXIDE	NaOH	60	25	1	1
			60	1	1
			100		1
- HYPOCHLORITE	NaOCl	deb	25	1	1
			60	2	2
			100		
- HYPOSULPHITE	Na2S3O3	nd	25	1	1
			60	1	
			100		
- NITRATE	NaNO3	nd	25	1	1
			60	1	1
			100		
- PERBORATE	NaBO3H2O	all	25	1	1
			60	1	
			100		
- PHOSPHATE di	Na2HPO4	all	25	1	1
			60	1	1
			100		1
- PHOSPHATE tri	Na3PO4	all	25	1	1
			60	1	1
			100		1
- SULPHATE	Na2SO4	dil	25	1	1
			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		
- SULPHIDE	Na2S	dil	25	1	1
			60	2	1
			100		
		sat	25	1	1
			60	1	1
			100		
- SULPHITE	NaSO3	sat	25	1	1
			60	1	1
			100		
STANNIC CHLORIDE	SnCl4	sat	25	1	1
			60	1	1
			100		
STANNOUS CHLORIDE	SnCl2	dil	25	1	1
			60	1	1
			100		
STEARIC ACID	CH3(CH2)16CO2H	100	25	1	2
			60	1	2
			100		
SUGAR SYRUP		high	25	1	1
			60	2	
			100		

Chemical	Formula	Conc.		Temp.	uPVC	PP
			(%)	(°C)		
SULPHUR	S		100	25	1	1
				60	2	1
				100		
- DIOXIDE AQUEOUS	SO2		sat	25	1	1
				60	2	
				100		
- DIOXIDE DRY			all	25	1	1
				60	1	1
				100		3
- DIOXIDE LIQUID			100	25	2	
				60	3	
				100		
- TRIOXIDE	SO3		100	25	2	3
				60	2	3
				100		
SULPHURIC ACID	H2SO4		≤10	25	1	1
				60	1	1
				100		1
			≤75	25	1	1
				60	2	2
				100		2
			≤90	25	1	1
				60	2	2
				100		3
			≤96	25	2	3
				60	3	3
				100		3
- FUMING	H2C6H4(OH)2			25	2	3
				60	3	3
				100		3
- NITRIC AQUEOUS SOLUTION	H2SO4+HNO3+H20	483/49/		25	1	3
				60	2	3
				100		3
		500/50/		25	2	3
				60	3	3
				100		3
		1070/20/		25	1	2
				60	1	2
				100		
TALLOW EMULSION		comm		25	1	1
				60	1	2
				100		
TANNIC ACID	C14H10O9		10	25	1	
				60	1	
				100		
TARTARIC ACID	HOOC(CHOH)2COOH		all	25	1	1
				60	2	1
				100		
TETRACHLORO - ETHANE	CHCl2CHCl2		nd	25	3	2
				60	3	3
				100		
- ETHYLENE	CCl2CCl2		nd	25	3	2
				60	3	3
				100		
TETRAETHYLLEAD	Pb(C2H5)4		100	25	1	1
				60	2	
				100		
TETRAHYDROFURAN	C4H8O		all	25	3	2
				60	3	3
				100		3
THIONYL CHLORIDE	SOCl3			25	3	3
				60		
				100		
THIOPHENE	C4H4S		100	25	3	2
				60	3	3
				100		

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
DIBUTYLPHTALATE	C6H4(CO2C4H9)2	100	25	3	3
			60	3	3
			100		
DICHLOROACETIC	Cl2CHCOOH	100	25	1	1
ACID			60	2	2
			100		
DICHLOROETHANE	CH2ClCH2Cl	100	25	3	1
			60	3	
			100		
DICHLOROETHYLENE	ClCH2Cl	100	25	3	2
			60	3	
			100		
DIETHYL ETHER	C H5OC2H5 2	100	25	3	1
			60	3	1
			100		
DIGLYCOLIC ACID	(CH2)2O(CO2H)2	18	25	1	1
			60	2	1
			100		
DIMETHYLAMINE	(CH3)2NH	100	25	2	1
			60	3	2
			100		
DIOCTYLPHTHALATE		all	25	3	2
			60	3	2
			100		
DISTILLED WATER		100	25	1	1
			60	1	1
			100		1
DRINKING WATER		100	25	1	1
			60	1	1
			100		1
ETHERS		all	25	3	3
			60	3	3
			100		
ETHYL	CH3CO2C2H5	100	25	3	2
- ACETATE			60	3	3
			100		3
- ALCOHOL	CH3CH2OH	nd	25	1	1
			60	2	1
			100		1
- CHLORIDE	CH3CH2Cl	all	25	3	3
			60	3	3
			100		
- ETHER	CH3CH2OCH2CH3	all	25	3	3
			60	3	3
			100		
ETHYLENE	ClCH2CH2OH	100	25	3	
- CHLOROHYDRIN			60	3	
			100		
- GLYCOL	HOCH2CH2OH	comm	25	1	1
			60	2	1
			100		
FATTY	ACIDS	nd	25	1	
			60	1	
			100		
FERRIC	FeCl3	10	25	1	1
- CHLORIDE			60	2	1
			100		
		sat	25	1	1
			60	1	1
			100		1
- NITRATE	Fe(NO3)3	nd	25	1	
			60	1	
			100		
- SULPHATE	Fe(SO4)3	nd	25	1	1
			60	1	
			100		

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
FERROUS	FeCl2	sat	25	1	1
- CHLORIDE			60	1	
			100		
- SULPHATE	FeSO4	nd	25	1	1
			60	1	
			100		
FERTILIZER		≤10	25	1	1
			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		
FLUORINE GAS - DRY F2		100	25	2	3
			60	3	3
			100		
FLUOROSILICIC ACID	H2SiF6	32	25	1	1
			60	1	1
			100		
FORMALDEHYDE	HCOH		25	1	1
			60	2	1
			100		
FORMIC ACID	HCOOH	50	25	1	1
			60	2	1
			100		
		100	25	1	1
			60	3	1
			100		
FRUIT PULP AND JUICE		comm	25	1	1
			60	1	1
			100		
FUEL OIL		100	25	1	1
			60	1	2
			100		
		comm	25	1	1
			60	1	2
			100		
FURFUROLE ALCOHOL C5H3OCH2OH		nd	25	3	2
			60	3	2
			100		
GAS EXHAUST		all	25	1	
- ACID			60	1	
			100		
- WITH NITROUS VAPOURS		traces	25	1	1
			60	1	1
			100		
GAS PHOSGENE	ClCOCl	100	25	1	2
			60	2	2
			100		
GELATINE		100	25	1	1
			60	1	1
			100		
GLUCOSE	C6H12O6	all	25	1	1
			60	2	1
			100		
GLYCERINE	HOCH2CHOHCH2OH	all	25	1	1
AQ.SOL			60	1	1
			100		1
GLYCOGLUE		10	25	1	1
AQUEOUS			60	1	1
			100		1
GLYCOLIC ACID	HOCH2COOH	37	25	1	1
			60	1	
			100		
HEPTANE	C7H16	100	25	1	3
			60	2	3
			100		

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
TOLUENE	C6H5CH3	100	25	3	2
			60	3	3
			100		3
TRANSFORMER OIL		nd	25	1	1
			60	2	2
			100		
TRICHLOROACETIC	CCl3COOH	≤50	25	1	1
ACID			60	3	1
			100		
TRICHLOROETHYLENE	Cl2CCHCl	100	25	3	3
			60	3	3
			100		
TRIETHANOLAMINE	N(CH2CH2OH)2	100	25	2	1
			60	3	
			100		
TURPENTINE		100	25	2	3
			60	2	3
			100		
UREA	CO(NH2)2	²10	25	1	1
AQUEOUS SOLUTION			60	2	1
			100		
		33	25	1	1
			60	2	1
			100		
URINE		nd	25	1	1
			60	2	1
			100		
URIC ACID	C5H4N4O3	10	25	1	
			60	2	
			100		
VASELINE OIL		100	25	1	1
			60	3	2
			100		
VINYL ACETATE	CH3CO2CHCH2	100	25	3	
			60	3	
			100		
WHISKY		comm	25	1	1
			60	1	
			100		
WINES		comm	25	1	1
			60	1	1
			100	1	
WINE VINEGAR		comm	25	1	1
			60	2	1
			100		
ZINC	ZnCl2	dil	25	1	1
- CHLORIDE			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		2
- CHROMATE	ZnCrO4	nd	25	1	1
			60	1	1
			100		
- CYANIDE	Zn(CN)2	all	25	1	
			60	1	
			100		
- NITRATE	Zn(NO3)2	nd	25	1	1
			60	1	1
			100		
- SULPHATE	ZnSO4	dil	25	1	1
			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Chemical Resistance Guide

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
DIBUTYLPHTALATE	C6H4(CO2C4H9)2	100	25	3	3
			60	3	3
			100		
DICHLOROACETIC	Cl2CHCOOH	100	25	1	1
ACID			60	2	2
			100		
DICHLOROETHANE	CH2ClCH2Cl	100	25	3	1
			60	3	
			100		
DICHLOROETHYLENE	ClCH2Cl	100	25	3	2
			60	3	
			100		
DIETHYL ETHER	C H5OC2H5 2	100	25	3	1
			60	3	1
			100		
DIGLYCOLIC ACID	(CH2)2O(CO2H)2	18	25	1	1
			60	2	1
			100		
DIMETHYLAMINE	(CH3)2NH	100	25	2	1
			60	3	2
			100		
DIOCTYLPHTHALATE		all	25	3	2
			60	3	2
			100		
DISTILLED WATER		100	25	1	1
			60	1	1
			100		1
DRINKING WATER		100	25	1	1
			60	1	1
			100		1
ETHERS		all	25	3	3
			60	3	3
			100		
ETHYL	CH3CO2C2H5	100	25	3	2
- ACETATE			60	3	3
			100		3
- ALCOHOL	CH3CH2OH	nd	25	1	1
			60	2	1
			100		1
- CHLORIDE	CH3CH2Cl	all	25	3	3
			60	3	3
			100		
- ETHER	CH3CH2OCH2CH3	all	25	3	3
			60	3	3
			100		
ETHYLENE	ClCH2CH2OH	100	25	3	
- CHLOROHYDRIN			60	3	
			100		
- GLYCOL	HOCH2CH2OH	comm	25	1	1
			60	2	1
			100		
FATTY	ACIDS	nd	25	1	
			60	1	
			100		
FERRIC	FeCl3	10	25	1	1
- CHLORIDE			60	2	1
			100		
		sat	25	1	1
			60	1	1
			100		1
- NITRATE	Fe(NO3)3	nd	25	1	
			60	1	
			100		
- SULPHATE	Fe(SO4)3	nd	25	1	1
			60	1	
			100		

Chemical	Formula	Conc.	Temp.	uPVC	PP
		(%)	(°C)		
FERROUS	FeCl2	sat	25	1	1
- CHLORIDE			60	1	
			100		
- SULPHATE	FeSO4	nd	25	1	1
			60	1	
			100		
FERTILIZER		≤10	25	1	1
			60	1	1
			100		
		sat	25	1	1
			60	1	1
			100		
FLUORINE GAS - DRY F2		100	25	2	3
			60	3	3
			100		
FLUOROSILICIC ACID	H2SiF6	32	25	1	1
			60	1	1
			100		
FORMALDEHYDE	HCOH		25	1	1
			60	2	1
			100		
FORMIC ACID	HCOOH	50	25	1	1
			60	2	1
			100		
		100	25	1	1
			60	3	1
			100		
FRUIT PULP AND JUICE		comm	25	1	1
			60	1	1
			100		
FUEL OIL		100	25	1	1
			60	1	2
			100		
		comm	25	1	1
			60	1	2
			100		
FURFUROLE ALCOHOL C5H3OCH2OH		nd	25	3	2
			60	3	2
			100		
GAS EXHAUST		all	25	1	
- ACID			60	1	
			100		
- WITH NITROUS VAPOURS		traces	25	1	1
			60	1	1
			100		
GAS PHOSGENE	ClCOCl	100	25	1	2
			60	2	2
			100		
GELATINE		100	25	1	1
			60	1	1
			100		
GLUCOSE	C6H12O6	all	25	1	1
			60	2	1
			100		
GLYCERINE	HOCH2CHOHCH2OH	all	25	1	1
AQ.SOL			60	1	1
			100		1
GLYCOGLUE		10	25	1	1
AQUEOUS			60	1	1
			100		1
GLYCOLIC ACID	HOCH2COOH	37	25	1	1
			60	1	
			100		
HEPTANE	C7H16	100	25	1	3
			60	2	3
			100		

Class 1: High Resistance Class 2: Limited Resistance Class 3: No Resistance.

Characteristics of the raw materials used

Egyptian Petrochemicals Co

Material safety Data Sheet
Poly Vinyl Chloride

IDENTIFICATION OF THE PRODUCT & COMPANY

Product Name : Poly Vinyl Chloride (P V C)
Synonyms : Poly Vinyl Chloride (P V C)
Formula : ($C_2H_3CL)_n$
Company Name : Egyptian Petrochemicals Co

COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME : PVC RESIN
%(BY WT) : 30-60
EXPOSURE LIMITS : N / A

PHYSICAL & CHEMICAL PROPERTIES

ppearance & Odor :	White Powder With No Limited Odor
Flash point :	301 C (573.8 F)
Method Used :	Closed Cup
Evaporation Rate :	N / A
PH (Undiluted Product)	N / A
Solubility In Water :	Insoluble In Water (Cold/ Hot)
Vapor Density :	N / A
Vapor Pressure :	N / A
Lower explosive limit :	N / E
Upper explosive limit :	N / E
Boiling point :	400 F
Melting point :	320 F
Specific gravity :	1.32 (water = 1)
Percent volatile :	N / E

STABILITY & REACTIVITY

Thermal Stability : STABL E ☒ UNSTABLE ☐

Hazardous Decomposition Occurs At 400F.

Hazardous Decomposition Or Byproducts:HCL Gas Is Evolved

Hazardous Polymerization : None

EGYPTIAN PETROCHEMICALS CO.
KM.36 ALEX / CAIRO DESERT ROAD AMREYIA, ALEXANDRIA EGYPT
TEL: (00203) 4770012–14 FAX: (00203) 4770029
E. Mail: epc@egy-petrochem.com
Web site: www. egy-petrochem.com

F(2-54) Rev (1-0) 5/8/2015

Characteristics of the raw materials used

SHINTECH INC.
Q.A. LABORATORY
SE-650F PRODUCT SPECIFICATIONS
DOCUMENT NUMBER: QAQPS1002

EFFECTIVE DATE: 06/02/14
PREPARED BY: Jeanette Wilson-Hawkins
APPROVED BY:
PAGE 1 OF 1

CONTROLLED DOCUMENT

SHINTECH

Polyvinyl Chloride Resin Effective Date: 06/02/14
Product Specifications Supersedes: 03/03/03

SE-650F

General Description

Type :	Polyvinyl Chloride Homopolymer
Polymerization Process :	Suspension
Appearance :	White, free flow powder

Features and Uses

Extrusion :	Film Sheet, Profiles, Blow Molding
Calendering :	Film
Injection Molding	Fittings

Specification

Resin Properties	Unit	Specification Range	Test Method
Inherent Viscosity		0.650 – 0.700	ASTM D 1243
K Value ❶		55.0 – 57.3	ISO 1628-2/DIN 53726
Bulk Density	lbs./ft.^{3}	36.5 – 39.5	ASTM D 1895
	g /cc	0.584 – 0.633	
Particle Size	%		ASTM D 1921
40 mesh on		0.5 maximum	
pan		5.0 maximum	
Volatile	%	0.3 maximum	ASTM D 3030
Residual VCM	ppm	1.5 maximum	EPA 107
Foreign Matter (250g PVC/Liter of water)		30 maximum	QAWT 1008

❶ K Value (reference) from a viscosity conversion table.

Shintech warrants only that the product will comply with the foregoing specifications. All other warranties, expressed and i
merchantability and fitness for a particular purpose, are expressly disclaimed. While "Typical Value" represents Shintech's experi
warranty is given that the product will achieve Typical Values; Shintech only warrants that the product will be within the applicable s

SHINTECH INC.
Q.A. LABORATORY
SE-950 PRODUCT SPECIFICATIONS
DOCUMENT NUMBER: QAQPS1009

EFFECTIVE DATE: 06/02/14
PREPARED BY: Jeanette Wilson-Hawkins
APPROVED BY:
PAGE 1 OF 1

CONTROLLED DOCUMENT

SHINTECH

Polyvinyl Chloride Resin Effective Date: 06/02/14
Product Specifications Supersedes: 03/03/03

SE-950

General Description

Type :	Polyvinyl Chloride Homopolymer
Polymerization Process :	Suspension
Appearance :	White, free flow powder

Features and Uses

Extrusion :	Pipe, Siding, Profiles

Specification

Resin Properties	Unit	Specification Range	Test Method
Inherent Viscosity		0.890 – 0.920	ASTM D 1243
K Value ❶		65.7 – 67.1	ISO 1628-2/DIN 53726
Bulk Density	lbs./ft.^{3}	33.0 – 37.0	ASTM D 1895
	g /cc	0.528 – 0.593	
Particle Size	%		ASTM D 1921
40 mesh on		0.5 maximum	
pan		5.0 maximum	
Volatile	%	0.3 maximum	ASTM D 3030
Residual VCM	ppm	1.0 maximum	EPA 107
Foreign Matter (10g PVC/Liter of water)		10 maximum	QAWT 1008

❶ K Value (reference) from a viscosity conversion table.

h warrants only that the product will comply with the foregoing specifications. All other warranties, expressed and implied, incl the implied warranties
ntability and fitness for a particular purpose, are expressly disclaimed. While "Typical Value" represents Shintech's experience with respect to the resin's properties,
y is given that the product will achieve Typical Values; Shintech only warrants that the product will be within the applicable specification range.

Characteristics of the raw materials used

Formolon® PVC

Formosa Plastics®

Formolon® 608

PVC Homopolymer General Purpose Grade Resin

F608 is a low molecular weight PVC homopolymer of particular interest in rigid applications and has established a deserved reputation for low gels, and exceptional early color heat stability. These properties, along with outstanding lot to lot uniformity have made F608 an industry-wide standard for rigid formulations.

Suggested Applications:
Injection Molding, Rigid Calendering, Bottles and Flooring.

Properties		Test Method	Typical Value
Relative Viscosity		estimated	1.81
Inherent Viscosity		ASTM D-5225	0.68
K-Value		estimated	56
Volatiles (%)		ASTM D-6980	0.20
Bulk Density	(lbs/ft3)	ASTM D-1895	36
	(g/cc)		0.57
Sieve Analysis		Malvern	
% thru 40 Mesh			99.9
% thru 200 Mesh			5.0
Residual VCM (ppm)		GC Head Space Method	<1.0
Contamination Count		OCS per 100g	20

Effective as of November 2015

Any inquiries regarding this data sheet should be addressed to: 9 Peach Tree Hill Road • Livingston, NJ 07039 • Phone: (888) FPCUSA3 • Fax: (973) 422-7724

Formosa Plastics®

Formolon® 614

Homopolymer - General Purpose Grade Resin

F614 is a medium-low molecular weight PVC homopolymer of particular interest in rigid applications and has established a deserved reputation for low gels, and exceptional early color heat stability. These properties, along with outstanding lot to lot uniformity have made F614 an industry-wide standard for rigid formulations.

Suggested Applications:
Injection Molding, Rigid Calendering, Bottles, Rigid Foam Profile, and Rigid Sheet.

Properties		Test Method	Typical Value
Relative Viscosity		estimated	1.88
Inherent Viscosity		ASTM D-5225	0.73
K-Value		estimated	58
Volatiles (%)		ASTM D-6980	0.20
Bulk Density	(lbs/ft3)	ASTM D-1895	35
	(g/cc)		0.56
Sieve Analysis		Malvern	
% thru 40 Mesh			99.9
% thru 200 Mesh			5.0
Residual VCM (ppm)		GC Head Space Method	<1.0
Contamination Count		OCS per 100g	20

Effective as of November 2015

Any inquiries regarding this data sheet should be addressed to: 9 Peach Tree Hill Road • Livingston, NJ 07039 • Phone: (888) FPCUSA3 • Fax: (973) 422-7724

OXYVINYLS

OxyVinyls® 225

General Description

Type:	Polyvinyl Chloride Homopolymer
Polymerization Process:	Suspension
Appearance:	White, free flowing powder

Features and Uses:

OxyVinyls®225 is a suspension resin designed for rigid applications. It is often converted into a wide range of pipe sizes and types, which meet the most stringent standards for water supply and distribution. Its medium molecular weight provides excellent processing characteristics in both single and multi-screw extruders. Typical Applications include irrigation, foam core, potable water, DWV/sewer pipe, electrical conduit and rigid profiles.

Resin Properties	Typical Value	Specification Range	Test Method
Inherent Viscosity (dl/g)	0.900	0.880 – 0.920	OxyVinyls 1386
Relative Viscosity	2.16	2.12 – 2.19	Correlation
K Value	65	64 – 65	Correlation
Volatiles (%)	0.07	0.24 Max.	OxyVinyls 1242
Malvern Particle Size			
% Retained on 40 mesh	0.1	0.5 Max.	OxyVinyls 1505
% Retained on 60 mesh	3.0	10.0 Max.	OxyVinyls 1502
% Retained on 200 mesh	6.0	15.0 Max.	
% Retained on Pan	1.1	5.0 Max.	
Residual Monomer (ppm)	0.11	3.2 Max.	OxyVinyls 1005
Apparent Bulk Density (g/cc)	0.545	0.515 – 0.575	OxyVinyls 1501
ASTM Cell Classification	GP4-16040		ASTM D 1755
CAS Number	9002-86-2		

OxyVinyls, LP
Occidental Tower
5005 LBJ Freeway
Dallas, Texas 75244
877-699-8465

Pasadena Plant
January 2014

PP Pipes & Fittings

Push Fit System

roka PLAST

Product List (Drainage) Push Fit System











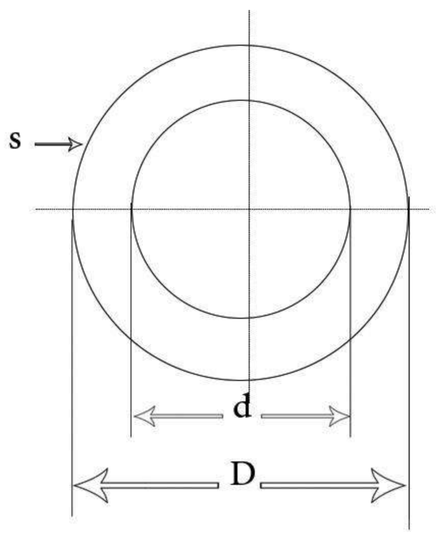






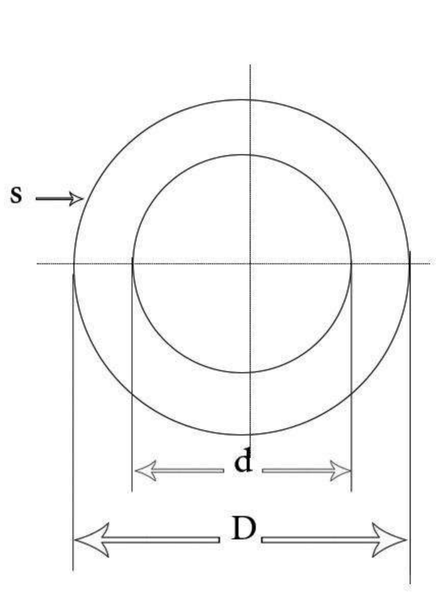
Single Socket Pipe (Push-Fit)

Pipe 3 meter
ROKAPLAST PP Pipe (Two Layers) Gray / Black
Acc. To DIN EN 1451, (Pipe series 20) color is Gray a Thick Black Line



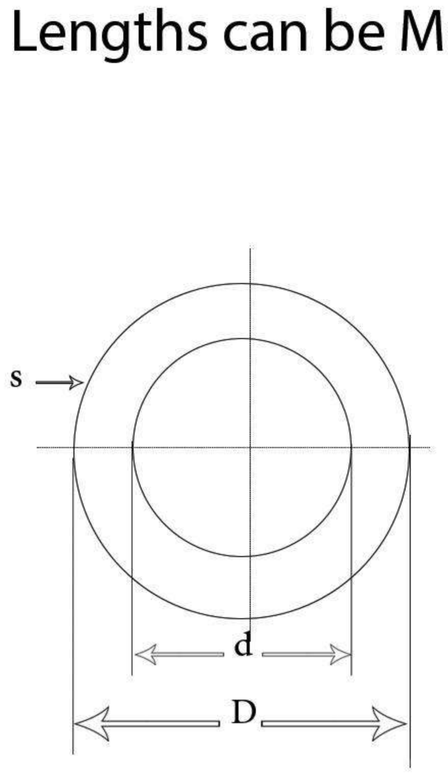
Item No	d	d1	s	Lengrh(m)
40100	32	28.4	1.8	3
40200	50	46.4	1.8	3
40300	63	59.2	1.8	3
40400	75	71.2	1.9	3
40500	110	104.6	2.7	3
40600	160	152.2	3.9	3

Pipe 3 meterROKAPLAST PP Pipe (Two Layers) Gray / Black
Acc. To DIN EN 1451, (Pipe series 20) color is Gray a Thick Black Line
Lengths can be Manufactured according to customers request



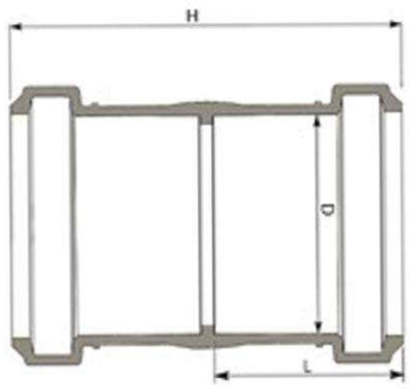
Item No	d	d1	s	Lengrh(m)
40101	32	28.4	1.8	0.1
40201	50	46.4	1.8	75.0
40202	50	46.4	1.8	5.1
40301	63	59.2	1.8	75.0
40302	63	59.2	1.8	5.1
40401	75	71.2	1.9	0.1
40501	110	104.6	2.7	0.1
40601	160	152.2	3.9	0.1

Pipe 3 meter
ROKAPLAST PP Pipe (Two Layers) Gray / Black
Acc. To DIN EN 1451, (Pipe series 16 and 14) color is Gray a Thick Black Line
Lengths can be Manufactured according to customers request



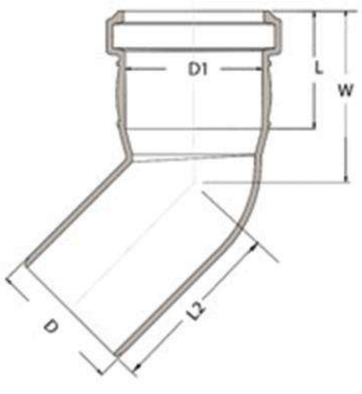
Item No	d	d1	s	Lengrh(m)
40310	63	59.0	2.0	3.0
40320	63	59.0	2.2	3.0
40410	75	70.0	2.3	3.0
40420	75	70.0	2.6	3.0
40510	110	102.6	3.4	3.0
40520	110	102.6	3.8	3.0
40610	160	151.4	4.9	3.0
40620	160	151.4	5.5	3.0

Double Socket



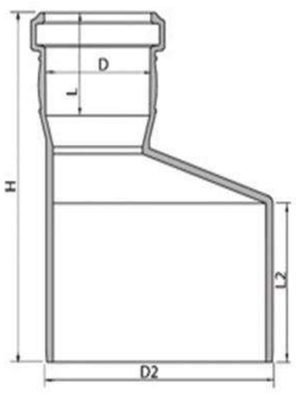
Item No	D	L	H	Stq/c
50001	32	37.5	77.0	200
50002	50	44.0	91.0	90
50003	63	50.0	103.0	60
50004	75	49.0	101.0	48
50005	110	56.0	115.0	18
50006	160	67.0	139.0	24

Elbow 45°



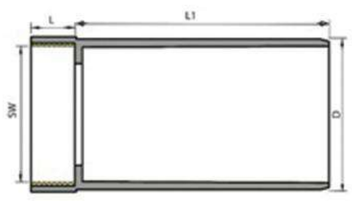
Item No	D	D2	L	L2	W	Stq/c
51001	32	32	37.0	50.0	54.0	180
51002	50	50	44	65.0	65.5	75
51003	63	50	48.0	59.0	76.0	30
51004	75	75	49	67.0	67.0	30
51005	110	110	56.0	95.0	95.0	33
51006	160	160	67	120.0	120.0	12

Reducer Eccentric



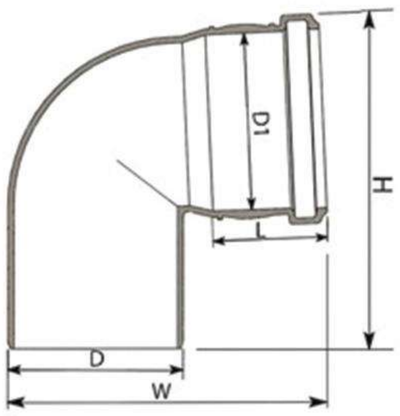
Item No	D	D2	L	L2	H	Stq/c
50201	32	50	37.5	55.0	114.0	120
50205	50	75	44	60.0	144.0	45
50206	75	110	44	70.0	149.0	75
50208	110	110	49	70.0	155.0	75
50209	160	160	56	90.0	205.0	32

Adaptor with Thread



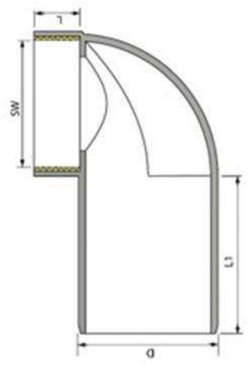
Item No	D	SW	L1	H	Stq/c
50302	50	$1_1/_2$	15.0	84.0	100

Elbow 87.5°



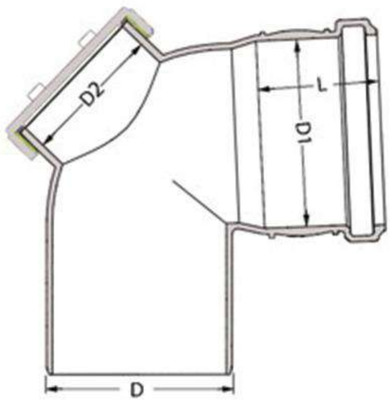
Item No	D	D1	W	H	L	Stq/c
51101	32	32	80.0	81.5	37.0	160
51102	50	50	103.0	113.0	44.0	70
51103	63	63	128.5	121.5	48.0	40
51104	75	75	135.7	139.8	49.0	25
51105	110	110	183.9	183.4	56.0	24
51106	160	160	241.9	262.1	67.0	10

Elbow 90° with Thread



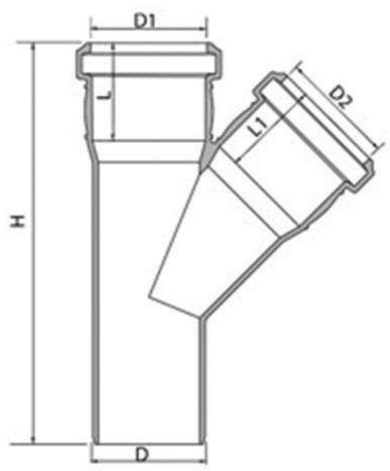
Item No	D	SW	L1	H	Stq/c
51202	50	1₁/₂	16.8	56.0	100

Elbow 87.5° with inspection door



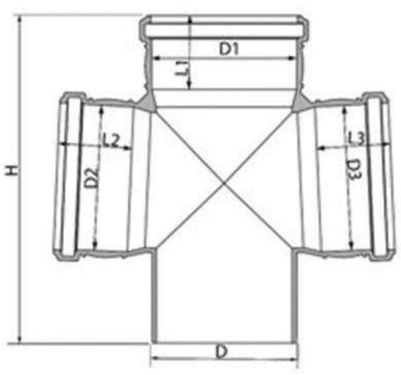
Item No	D	D1	D2	L	Stq/c
51203	63	63	57.0	49.0	30.0
51204	75	75	57.0	49.0	25.0
51205	110	110	95.0	56.0	24.0
51206	160	160	93.0	67.0	10.0

Branch 45°



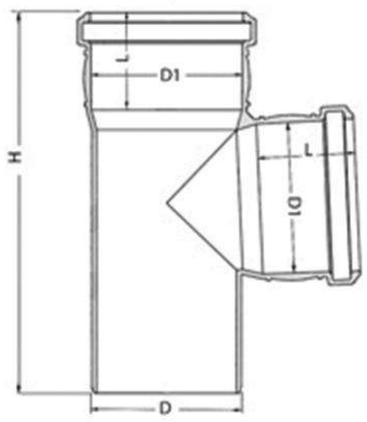
Item No	D	D1,D2	H	L1	L2	Stq/c
52001	32	32	132.0	37.0	37.0	90
52002	50	50	180.0	44.0	44.0	40
52003	63	63	205.0	48.0	48.0	25
52004	75	75	225.0	49.0	49.0	36
52005	110	110	295.0	56.0	56.0	12
52006	160	160	404.0	67.0	67.0	6

Double Branch 87.5°



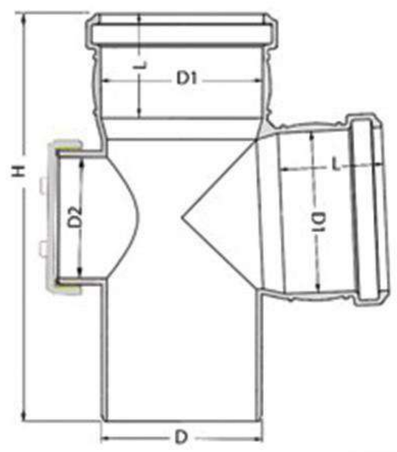
Item No	D,D1	D2,D3	H	L1,L2	L3	Stq/c
52504	75	75	192.0	56.0	56.0	30
52505	110	110	250.0	67.0	67.0	12

Branch 87.5°



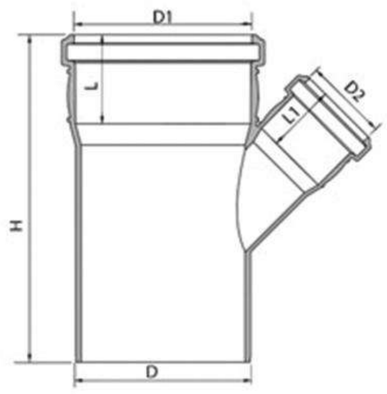
Item No	D	D1	H	L1	Stq/c
52301	32	32	123.0	37.0	100
52302	50	50	160.0	44.0	40
52303	63	63	182.0	48.0	18
52304	75	75	192.0	49.0	15
52305	110	110	250.0	56.0	18
52306	160	160	345.0	67.0	6

Branch 87.5° with Inspection door



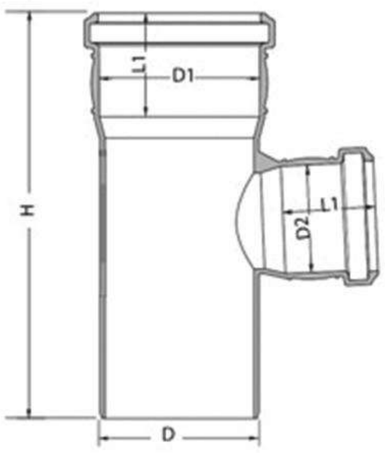
Item No	D	D1	D2	H	L1	Stq/c
52403	63	63	57.0	182	48.0	18
52404	75	75	57.0	192	49.0	36
52405	110	110	95.0	250	56.0	15
52406	160	160	93.0	345	67.0	6

Reducer Branch 45°



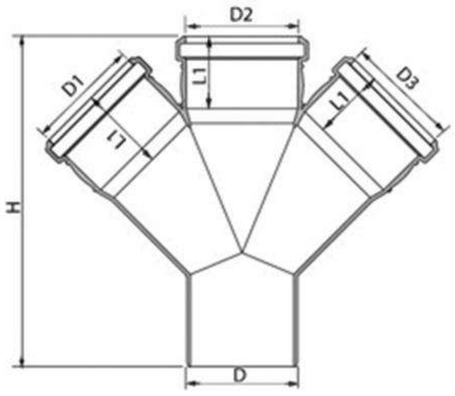
Item No	D,D1	D2	H	L1	L2	Stq/c
52204	75	50	187.0	49.0	44.0	20
52205	75	63	207.0	48.0	48.0	20
52206	110	50	207.0	56.0	44.0	24
52207	110	63	230.0	56.0	48.0	18
52208	110	75	243.0	56.0	49.0	18
52209	160	110	330.0	67.0	56.0	7

Reducer Branch 87.5°



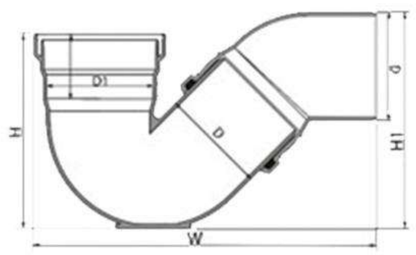
Item No	D,D1	D2	H	L1	L2	Stq/c
52604	75	50	192.0	49.0	44.0	20
52605	75	63	192.0	49.0	48.0	20
52606	110	50	250.0	56.0	44.0	24
52607	110	63	250.0	56.0	48.0	22
52608	110	75	250.0	56.0	49.0	22
52609	160	110	290.0	67.0	56.0	10

Double Branch 45°



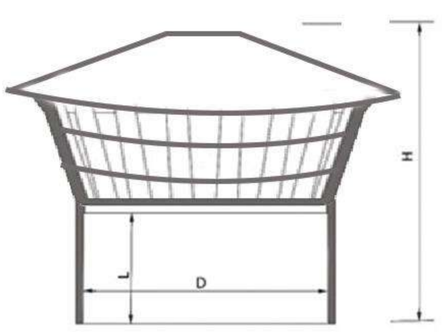
Item No	D,D1	D2	H	L1	L2,L3	Stq/c
52104	75	75	225.0	56.0	56.0	26
52105	110	110	295.0	67.0	67.0	8

Siphon



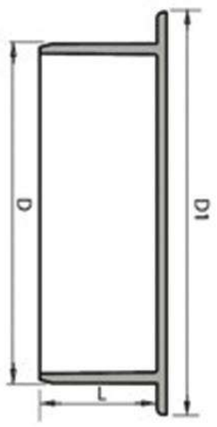
Item No	D	D1	H	H1	W	Stq/c
53105	110	110	203.0	217.0	345.0	11

Air Vent



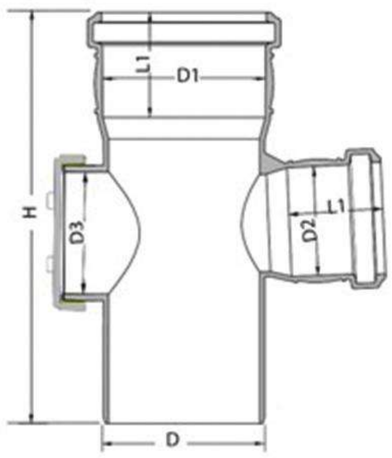
Item No	D	L	H	Stq/c
54004	75	20.7	68.5	75
54005	110	20.7	68.5	28

End Cap



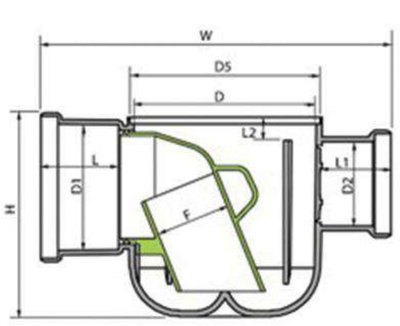
Item No	D	D1	L	Stq/c
55001	32	50.0	32.5	120
55002	50	70.0	37.5	240
55003	63	85.0	40.0	160
55004	75	95.0	42.0	140
55005	110	130.0	51.5	55
55006	160	190.0	55.5	22

Reducer Branch 87.5° with Inspection door



Item No	D,D1	D2	H	L1	L2	D3	Stq/c
52704	75	50	192.0	49.0	44.0	57.0	15
52705	75	63	192.0	49.0	48.0	57.0	15
52706	110	50	250.0	56.0	44.0	95.0	18
52707	110	63	250.0	54.0	44.0	95.0	18
52708	110	75	250.0	56.0	49.0	95.0	18
52709	160	110	290.0	67.0	56.0	95.0	8

Floor Drain (ABS)



Items No	D,D1	D1	D2,3,4	D5	W	H	L	L1	Stq/c
58001	110	75	50	50	220	120	53	75	22
58002	110	75	63	63	230	120	53	102	22

Chemical Resistance

- Material properties of PP Polypropylene
(Physical - Thermal – Mechanical) see table-1.
- Polypropylene Copopoly and Homopolymer are high molecular weight and stabilized to high temperature.

Table -1

properties	Measuring technique	Unit	PP Value
Melting index MFR 230/2.16	ISO /R 1133	g/10 min.	0.4 : 0.5
Density	ISO /R 1183	g/cm^3	0.9 : 0.95
Melting range	Polarizing microscope	C°	140 - 150
Yield Stress	ISO / R 527	N/mm^2	25
Tensile Strength	Feed Speed	N/mm^2	40
Limit Bending Stress	DIN 53452 Standard small bar	N/mm^2	40
Modulus of elasticity	ISO 178	N/mm^2	1400
Mechanical properties Following impact Bending test at 0°C	DIN 8078	15-Jul	No fracture
Expansion coefficient	VDE 0304 Part 1&4	K^{-1}	1.3×10^{-4}
Thermal conductivity at 20°C	DIN 52612	W/m Kº	0.24
Specific heat at 20°C	Adiabatic calorimeter	KJ/kg Kº	2
Hardness Rockwell	---	R	80
Pipe friction factor	---		0.007

Chemical Resistance

Chemical Resistance of PP (R.M)

- Detailed information on chemical resistance of polypropylene pipes and pipelines is available at the flowing table.
- The Polypropylene family of polyolefin polymer that features. A high molecular weight. Therefore, it is more resistant to chemicals such as (acid, lime or cement)

Temperature °C			Concentration	Chemical or Product
100	60	20		
-	S	S	Up to 40 %	Acetic acid
L	S	S	50%	Acetic acid
NS	L	S	> 96 %	Acetic acid, glacial
-	-	S	100%	Acetic anhydride
-	S	S	100%	Acetone
-	L	S	100%	Aceptophenone
-	-	S	100%	Acrylonitrile
S	S	S	----	Air
-	S	S	100%	Ally alcohol
-	-	S	----	Almond oil
-	S	S	Sol	Alum
-	S	S	Sat.sol	Ammonia, aqueous
-	-	S	100%	Ammonia, dry gas
-	-	S	100%	Ammonia, liquid
-	S	S	Sat. sol	Ammonium acetate
-	S	S	Sat.sol	Ammonium chloride
-	S	S	Up to 20 %	Ammonium fluoride
-	S	S	Sat.sol	Ammonium hydrogen carbonate
S	S	S	Sat.sol	Ammonium met phosphate
S	S	S	Sat.sol	Ammonium nitrate
-	S	S	Sat.sol	Ammonium persulphate
-	-	S	Sat.sol	Ammonium phosphate
S	S	S	Sat.sol	Ammonium sulphate
-	S	S	Sat.sol	Ammonium sulphide
-	-	L	100%	Amyl acetate
S	S	S	100%	Amyl alcohol
-	S	S	100%	Aniline
-	-	S	----	Apple juice
NS	NS	NS	HCl/HNO_3=3/1	Aqua regia
S	S	S	Sat.sol	Barium bromide
S	S	S	Sat.sol	Barium carbonate
S	S	S	Sat.sol	Barium chloride
S	S	S	Sat.sol	Barium hydroxide
S	S	S	Sat.sol	Barium sulphide
-	S	S	-----	Beer
NS	NS	L	100%	Benzene
-	S	S	Sat.sol	Benzoic acid
-	L	S	100%	Benzyl alcohol
-	S	S	Sol	Borax
-	-	S	Sat.sol	Boric acid
-	-	S	Sat.sol	Boron trifluoride
NS	NS	NS	----	Bormine, gas
NS	NS	NS	100%	Bromine, liquid
-	-	S	100%	Butane, gas
L	L	S	100%	Butanol
NS	NS	L	100%	Butyl acetate
-	-	S	100%	Butyl glycol
-	-	S	Sat.sol	Butyl phenols

Temperature °C			Concentration	Chemical or Product
100	60	20		
L	L	S	100%	Butyl phthalate
S	S	S	Sat.sol	Calcium carbonate
-	S	S	Sat.sol	Calcium chlorate
S	S	S	Sat.sol	Calcium chloride
S	S	S	Sat.sol	Calcium hydroxide
-	-	S	Sol	Calcium hypochlorite
-	S	S	Sat.sol	Calcium nitrate
NS	NS	NS	----	Camphor oil
-	S	S	----	Carbon dioxide, dry gas
-	S	S	----	Carbon dioxide, wet gas
NS	NS	S	100%	Carbon disulphide
-	S	S	----	Carbon monoxide, gas
NS	NS	NS	100%	Carbon tetrachloride
-	S	S	100%	Castor oil
L	L	S	Up to 50 %	Caustic soda
-	L	S	Sat.sol	Chlorine, aqueous
NS	NS	NS	100%	Chlorine, dry gas
NS	NS	NS	100%	Chlorine, liquid
-	-	S	Sol	Chloroacetic acid
-	-	S	100%	Chloroethanol
NS	NS	L	100%	Chloroform
NS	NS	NS	100%	Chlorosulphonic acid
-	S	S	Sol	Chrome alum
NS	L	S	Up to 40 %	Chromic acid
S	S	S	Sat.sol	Citric acid
-	-	S	----	Coconut oil
-	S	S	Sat.sol	Copper (II) chloride
S	S	S	Sat.sol	Copper (II) nitrate
-	S	S	Sat.sol	Copper (II)
-	L	S	----	Corn oil
-	S	S	----	Cottonseed oil
-	-	S	Greater than 90 %	Cresol
-	-	S	100%	Cyclohexane
-	L	S	100%	Cyclohexanol
NS	NS	L	100%	Cyclohexanone
NS	NS	NS	100%	Decalin (decahydronaphthalene)
-	S	S	Sol	Dextrin
S	S	S	Sol	Dextrose
NS	L	S	100%	Dibutyl phthalate
-	-	L	100%	Dichloroacetic acid
-	-	L	100%	Dichloroethylene (A and B)
-	-	S	100%	Diethanolamine
-	L	S	100%	Diethyl ether
-	S	S	100%	Diethylene glycol
-	-	S	Sat.sol	Diglycolic acid
-	L	S	100%	Diisooctyl
-	-	S	----	Dimethyl amine, gas
-	S	S	100%	Dimethyl formamide
-	L	L	100%	Dioctyl phthalate
-	L	L	100%	Dioxane
S	S	S	100%	Distilled water
-	-	S	100%	Ethanolamine
NS	NS	L	100%	Ethyl acetate
S	S	S	Up to 95 %	Ethyl alcohol
NS	NS	NS	----	Ethyl chloride, gas
-	L	L	----	Ethylene chloride (mono and di)
-	L	S	100%	Ethyl ether
S	S	S	100%	Ethylene glycol
S	S	S	Sat.sol	Ferric chloride
-	-	S	40%	Formaldehyde
L	S	S	10%	Formic acid

Chemical Resistance

NS	NS	S	85%	Formic acid
L	L	S	100%	Formic acid, anhydrous
S	S	S	Sol	Fructose
S	S	S	----	Fruit juice
NS	NS	NS	----	Gasoline, petrol (aliphatic hydrocarbons)
-	S	S	----	Gelatine
S	S	S	20%	Glucose
S	S	S	100%	Glycerine
-	-	S	30%	Glycolic acid
NS	NS	L	100%	Heptane
-	L	S	100%	Hexane
NS	L	S	Up to 48 %	Hydrobromic acid
S	S	S	Up to 20 %	Hydrochloric acid
L	L	S	30%	Hydrochloric acid
-	-	S	From 35 to 36 %	Hydrochloric acid
-	-	S	Dil.sol	Hydrofluoric acid
-	-	S	40%	Hydrofluoric acid
-	-	S	100%	Hydrogen
-	S	S	100%	Hydrogen chloride, dry gas
-	-	S	Up to 10 %	Hydrogen peroxide
-	L	S	Up to 30 %	Hydrogen peroxide
-	S	S	100%	Hydrogen sulphide, dry gas
-	-	S	----	Iodine, in alcohol
NS	NS	L	100%	Isoctane
S	S	S	100%	Isopropyl alcohol
-	-	L	100%	Isopropyl ether
-	S	S	Up to 90 %	Lactic acid
-	L	S	----	Lanoline
S	S	S	----	Linseed oil
S	S	S	Sat.sol	Magnesium carbonate
-	S	S	Sat.sol	Magnesium chloride
-	S	S	Sat.sol	Magnesium hydroxide
-	S	S	Sat.sol	Magnesium sulphate
-	S	S	Sat.sol	Maleic acid
-	S	S	Sat.sol	Mercury (II) chloride
-	S	S	Sat.sol	Mercury (II) cyanide
-	S	S	Sol	Mercury (I) nitrate
-	S	S	100%	Mercury
-	S	S	100%	Methyl acetate
L	L	S	5%	Methyl alcohol
-	-	S	Up to 32 %	Methyl amine
NS	NS	NS	100%	Methyl bromide
-	-	S	100%	Methyl ethyl ketone
NS	NS	L	100%	Methylene chloride
S	S	S	----	Milk
-	S	S	>85 %	Monochloroacetic acid
NS	NS	S	----	Naphtha
-	S	S	Sat.sol	Nickel chloride
-	S	S	Sat.sol	Nickel nitrate
-	S	S	Sat.sol	Nickel sulphate
NS	NS	S	Up to 30 %	Nitric acid
NS	NS	L	From 40 to 50 %	Nitric acid
NS	NS	NS	----	Nitric acid, fujming (with nitrogen dioxide)
_	L	S	100%	Nitrobenzene
-	L	S	100%	Oleic acid
-	L	S	----	Oleum (sulphuric acid with 60 % of SO3)
L	S	S	----	Olive oil
NS	L	S	Sat.sol	Oxalic acid
-	-	S	----	Oxygen, gas

NS	L	S	----	Paraffin oil (FL65)
-	S	S	----	Peanut oil
-	-	S	----	Peppermint oil
-	-	S	(2 N) 20 %	Perchloric acid
-	L	L	----	Petroleum ether (ligroine)
-	S	S	5%	Phenol
-	-	S	90%	Phenol
-	S	S	----	Phosphine, gas
S	S	S	Up.to 85 %	Phosphoric acid
-	-	L	100%	Phosphorus oxychloride
-	-	S	Sat.sol	Picric acid
S	S	S	Sat.sol	Potassium bicarbonate
-	S	S	Sat.sol	Potassium borate
-	S	S	Up to 10 %	Potassium bromate
S	S	Sat.sol	----	Potassium bromide
S	S	Sat.sol	----	Potassium carbonate
S	S	Sat.sol	----	Potassium chlorate
S	S	Sat.sol	----	Potassium chlorite
S	S	Sat.sol	----	Potassium chromate
-	S	Sol	----	Potassium cyanide
S	S	S	Sat.sol	Potassium dichromate
-	S	S	Sat.sol	Potassium ferricyanide
-	S	S	Sat.sol	Potassium fluoride
S	S	S	Up to 50 %	Potassium hydroxide
-	-	S	Sat.sol	Potassium iodide
-	S	S	Sat.sol	Potassium nitrate
-	S	S	10%	Potassium perchlorate
-	-	S	(2 N) 30 %	Potassium permanganate
-	S	S	Sat.sol	Potassium persulphate
-	S	S	Sat.sol	Potassium sulphate
-	-	S	100%	Propane, gas
-	-	S	>50 %	Propionic acid
-	-	L	100%	Pyridine
S	S	S	----	Seawater
S	S	S	----	Silicon oil
L	S	S	Sat.sol	Silver nitrate
S	S	S	Sat.sol	Sodium acetate
-	L	S	35%	Sodium benzoate
S	S	S	Sat.sol	Sodium bicarbonate
L	S	S	Up to 50 %	Sodium carbonate
-	S	S	Sat.sol	Sodium chlorate
-	S	S	Sat.sol	Sodium chloride
NS	L	S	2%	Sodium chlorite
NS	L	S	20%	Sodium chlorite
S	S	S	Sat.sol	Sodium dichromate
S	S	S	Sat.sol	Sodium hydrogen carbonate
-	S	S	Sat.sol	Sodium hydrogen sulphate
-	-	S	Sat.sol	Sodium hydrogen sulphite
S	S	S	1%	Sodium hydroxide
S	S	S	From 10 to 60 %	Sodium hydroxide
-	S	S	5%	Sodium hypochlorite
-	-	S	10 % - 15 %	Sodium hypochlorite
-	L	S	20%	Sodium hypochlorite
-	-	S	Sol	Sodium metaphosphate
-	S	S	Sat.sol	Sodium nitrate
-	S	S	Sat.sol	Sodium perborate
S	S	S	----	Sodium phosphate (neutral)
-	S	S	Sol	Sodium silicate
-	S	S	Sat.sol	Sodium sulphate
-	-	S	Sat.sol	Sodium sulphide

Chemical Resistance

S	S	S	40%	Sodium sulphite
-	-	S	Sat.sol	Sodium thiosulphate (hypo)
-	L	S	----	Soybean oil
-	S	S	Sat.sol	Succinic acid
S	S	S	Up to 10 %	Sulphuric acid
-	S	S	100%	Sulphuric dioxide, dry or wet
-	S	S	From 10 to 30 %	Sulphur acid
L	L	S	50%	Sulphuric acid
NS	L	S	96%	Sulphuric acid
NS	NS	L	98%	Sulphuric acid
-	-	S	Up to 30 %	Sulphurous acid
-	S	S	Sat.sol	Tartaric acid
NS	NS	L	100%	Tetrahydrofuran
NS	NS	NS	100%	Tetralin
-	L	S	100%	Thiophene
-	S	S	Sol	Tin (IV) chloride
-	S	S	Sat.sol	Tin (II) chloride
NS	NS	L	100%	Toluene
-	S	S	Up to 50 %	Trichloroacetic acid
NS	NS	NS	100%	Trichloroethylene
-	-	S	Sol	Triethanolamine
NS	NS	NS	----	Turpentine
-	S	S	Sat.sol	Urea
-	S	S	----	Vinegar
S	S	S	----	Water brackish, mineral, potable
-	S	S	----	Whiskey
-	S	S	----	Wines
NS	NS	NS	100%	Xylene
S	S	S	Sol	Yeast
-	S	S	Sat.sol	Zinc chloride
-	S	S	Sat.sol	Zinc sulphate

S = Satisfactory **L = Limited** **NS = Not satisfactory**

Sat.sol Saturated aqueous solution, prepared at 20oC
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

Working Instructions and Installation

General

- **ROKA PLAST** Push fit system (PP) The modified house discharge system from **ROKA PLAST**. It unites all the requirements of a modern house discharge system from fire protection/ easy installation to Beautiful view. Of course, all the established properties such as low inflammability, chemical resistance and hot water resistance have been taken on. What has come about is a qualitatively high-grade house discharge pipe system with a maximum degree of compliance to all the requirements.
- **ROKA PLAST** Push fit system high chemical resistance pH2 – pH 12 (acid/alkaline) resistant to bioorganic sulphuric acid corrosion » see chapter Chemical resistance.
- **ROKA PLAST** Push fit system high abrasion resistance of PP – long lasting and safe in operation

- Jointing

- Push fit joints:

• Compared to the solvent-gluing drainage system, **ROKA PLAST** produced push-fit drainage. system made of polypropylene to ensure ease of assembly and insulation ROKA PLAST. products include a special se sockets

- Threaded joints:

• The threaded joints af adaptor pipe-fittings correspond to the requirements of DIN 2999 resp.ISO 7, cylindrical female threads.

- Advantage Of ROKA PLAST push fit system

- The speed of making a connection with push-fit fittings where plumber can quickly cap or repair.
- Push-fit fittings are available in various sizes for different kinds of applications.
- Push-fit fittings are easily removed so they can be repositioned as needed without specialized tools.
- Plastic pipe with high flexibility, anti-leakage and chemical resistant.

Installation Tips:

- Pipes and fittings are connected by a push and sealed tight with sealing ring.
- Pipes can be easily cut to fit ant length , chamfered and burned , connected and fixed in position.
-In horizontal lines , the spacing of pipe clamps must not be more then 1 meter (maximum 2 meters)
- If the floor is covered with asphalt mastic, exposed pipe should be protected with heat-insulating material.
-when RokaPlast push fit system pipes ae laid in concrete , the socket gaps should be sealed with adhesive tape in order to prevent penetration of cement grout

Utilization:

- Drainage within the building structure as
• Waste water pipe
• Rain water pipe
• Ventilation pipe

Working Instructions and Installation

Installation Instructions

- Field of application

• The following instruction describes how the ROKAPLAST pipes and fittings - for discharging media in foul water, rainwater and ventilation pipes inside buildings - are to be handled, stored and mounted. Orders for laying the detailed waste water piping systems are only to be placed with companies with a pool of trained operating personnel. The instruction is only for installing genuine pipes and fittings involving the use of the genuine sealing elements and lubricants.

Transport, handling and storage

• Un-palletized pipes should be laid completely flat along their entire length during transport. Heavy shocks - especially in freezing temperatures - must be avoided. For loading and unloading wide canvass lifting harnesses must be used. Pipes and fitting may be stored outdoors; pre-installed sealing elements should not be stored longer than three years.

The following points must be observed when laying pipes:

a) Pipes must be stored in a stable position so that no deformation or sagging can take place.

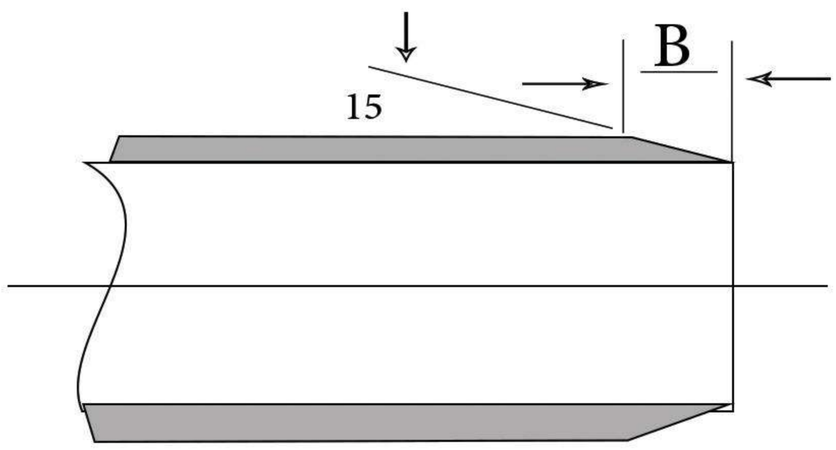
b) The pipe sockets must be free, both in the vertical and horizontal directions.

c) A stacking height of 1.5 meters should not be exceeded

CuttIng to length and beveling

• Cutting pipes to length is done at right angles by using a pipe cutter or a fi ne-toothed saw. The cut edges must be deburred. The pipe end is then beveled with a beveling tool or by using a coarse file at an angle of approx. 15° as shown in the following figure.

Beveling Dimension					
DN	32	50	75	110	160
B (mm)	3.5	3.5	3.5	4.5	6.0



Beveling Dimension						
DN	32	50	63	75	110	160
B (mm)	3.5	3.5	4.0	4.5	5.0	6.0

Connecting Pipes and Fittings

• Clean the pipe spigot end and clean the socket.

• Check the condition and quality of the factory pre-installed sealing element.

• Apply factory supplied lubricant lightly and evenly on the bevelled surface only of the spigot end.(When inserting, the ring seal must be free of lubricant. Center up the spigot end of the pipe and push until the pipe end reaches the end of the socket).

Working Instructions and Installation

• Length changes between pipes and fittings as well as between pipes within the spigot and socket connection are possible. It is required that the pipe be pulled back a maximum of 10 mm. For Normal Roka Plast Push Fit system pipes, that means a maximum length of 2 meters. The spigot ends of fittings may remain fully pushed into the socket. Pipes must be secured with pipe clamps to prevent slippage during subsequent installation work. This is done after taking into account the necessary measures concerning length changes

Pipe Clamps

• In general, plastic waste water pipe systems must be installed so that they are not under mechanical stresses and are allowed to undergo natural length changes. As a rule, securing pipes is done with pipe clamps that have an inner lining and that are appropriate for the given outer diameter and which completely circumvent the pipe. If no inner lining is used inside the clamp, then the inside edge of the clamp must be rounded off and the inside surface must be smooth.

Fixed Clamps

• Fixed points are achieved by completely tightening the pipe clamps in a piping system. They must be positioned so that each pipe length is prevented from slipping. The fixed clamps must be positioned directly behind the socket for pipe with sockets. Fittings or groups of fittings must always be laid out as fixed points

Loose Clamps

• Pipe clamps which are not completely tightened (loose clamps) must allow unimpaired longitudinal movement of the pipeline after installation. For this reason the inside diameter of the clamp must be slightly bigger than the outside diameter of the pipe when installed.

Distance between Pipe Clamps

Recommended Pipe Clamp Intervals		
DN	Horizontal (m)	Vertical (m)
32	0.5	1.2
50	0.5	1.5
63	8.0	1.5
75	0.8	2.0
110	1.1	2.0
160	1.6	2.0

Working Instructions and Installation

Laying pipe lines in masonry structures

- Slots in masonry must be made to allow stress and tension free pipe installation.
- If the pipes must be embedded in mortar without the use of mortar carriers or enclosures, then the pipes and fittings must be completely wrapped in flexible material, such as cardboard, mineral or glass wool.
- At areas where high temperatures can occur, appropriate measures must be taken to protect the pipes (insulation of heat carrying lines e.g. heating lines).
- Horizontally laid pipelines (connecting or collecting lines) which, for example, serve as a connection for multiple wall fixture elements should have a wrapping along the entire length.
- Linear expansion of the pipes and fixtures must not be hindered.

Pipe installation in ceilings and floors

- Laying pipes in ceilings must be done so that they are moisture proof and sound proof.
- The appropriate wrapping material must be used. In case of floors using poured asphalt, the pipeline parts must be protected by using protective pipes or by wrapping with heat insulating materials.
- If fire protection requirements are placed on ceilings, then the appropriate fire protection steps are to be observed

Installing Pipe Systems in Concrete

- House waste water pipes and fittings may be embedded in concrete. Length changes of the pipes from thermal expansion must be considered as previously described.
- The parts of the pipe system must be fastened so that movement and expansion is prevented during concrete pouring.
- To prevent penetration of concrete fluid into the gaps of connections, an adhesive tape strip must be used to seal the socket joint. All pipe openings must be closed off

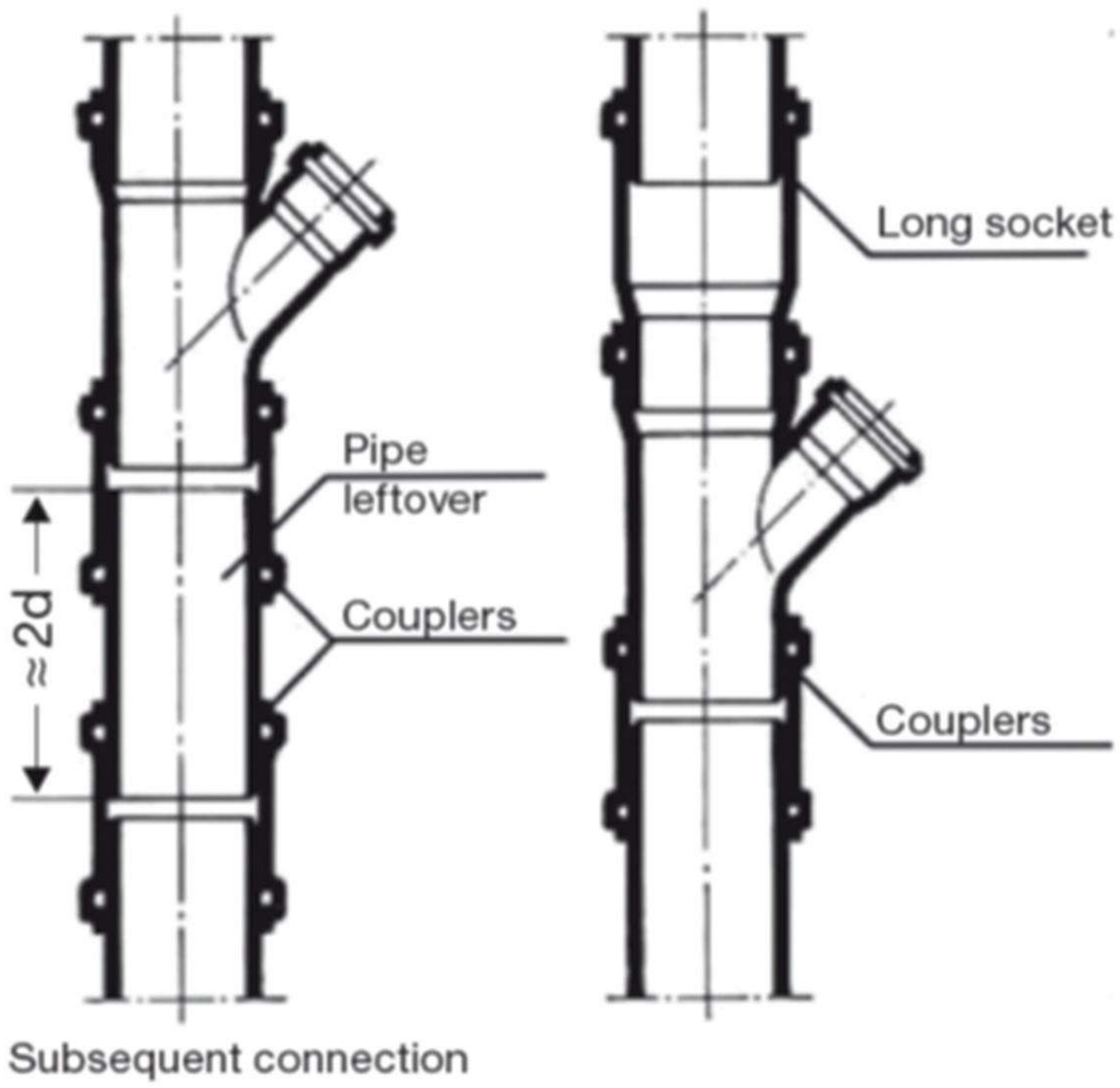
Subsequent Connection of Pipes and Fittings

- If a connection must be done to an existing line, then fittings and components made by the manufacturer must be used.

a) When using couplers a sufficiently long pipe length (length of the fitting 2d) is cut out, the ends of the pipe are then to beveled and the branch connector is then installed. The remaining space in the line is closed off by inserting an appropriately long pipe length and two couplers (Fig A).

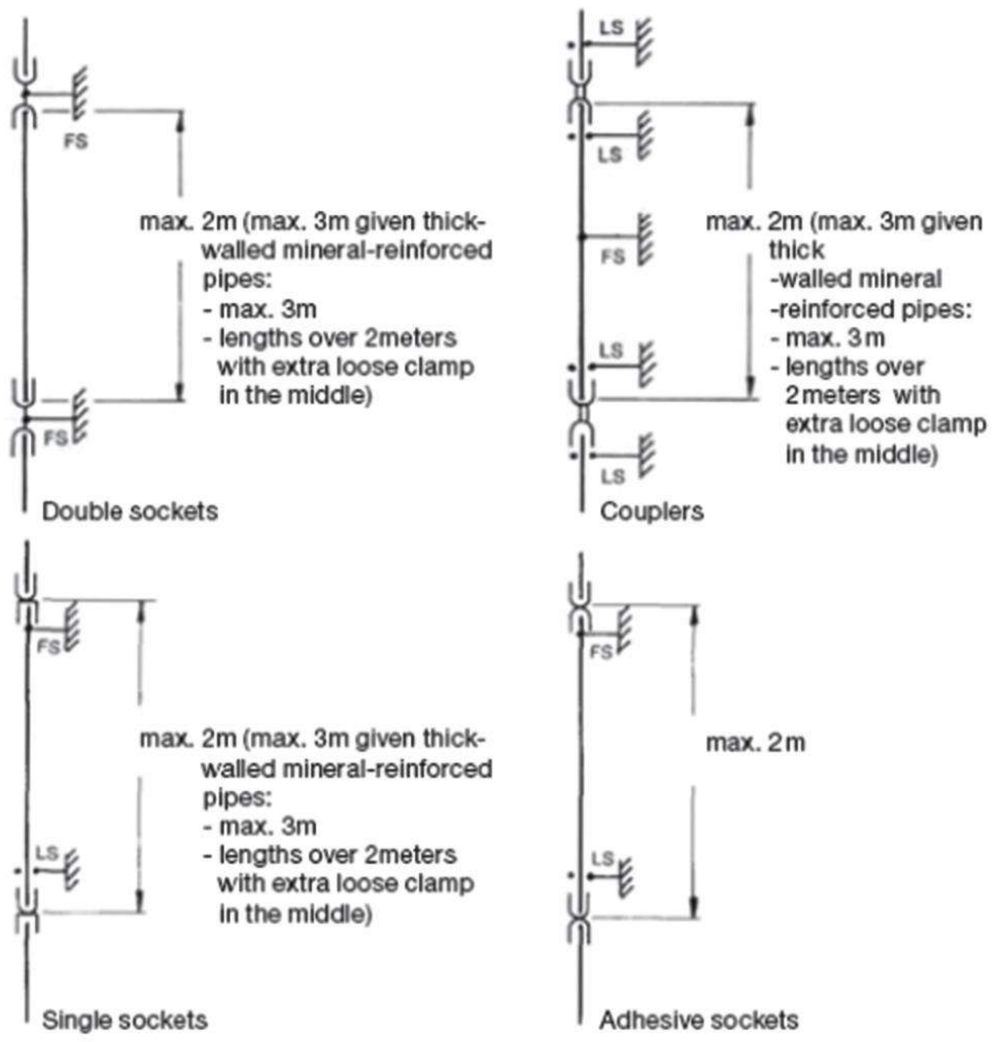
b) If long sockets are used, then a length of pipe that equals the length of the fitting plus the insert depth is cut out. The long socket is then inserted all the way to the end and the fitting is installed by using a coupler. Afterwards the spigot end of the long socket is to be inserted in the other socket end of the fitting (Fig B).

Working Instructions and Installation



Preparing and Using Smooth Pipes and Leftover Pipes

- Cutting, using and preparing leftover pieces (pipes with plain ends) can be done by using double sockets, couplers and single sockets.
- When using these connectors, a maximum length of 2 meters should not be exceeded when laying pipes with plain ends.
- They must be laid in accordance with the following installation regulation.
- It must be adhered to ensure compensation for expansion (see linear expansion).
- The instructions of the pipe manufacturer in question are to be observed when using thick-walled, mineral-reinforced pipe systems and setting up welded joints.
- Decisive in horizontal installation are the pipe clamp intervals for horizontal pipe lines.



Standards and Prescriptions

Standards for Pipes and fittings with push-fit sockets
Polypropylene PP-R with reinforced material

Standards	
DIN-V 19560	Polypropylene Pipes and fittings with push-fit sockets for hot water-resistant sewage pipe
DIN EN 1451-1	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure (Polypropylene)
DIN 4109	Sound insulation in building constructions
DIN 4102-1	Fire behavior of building materials and building components
ISO 1133	Determination of the melt mass-flow rate of thermoplastics.
ISO 2138	Plastics piping systems for non-pressure underground drainage and sewerage — Structured-wall piping systems of un-plasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE)
EN 14366	Laboratory measurement of noise from wastewater installations
EN 12056 P 1:5	Gravity discharge systems within buildings
DIN 2999	Pipe Threads for tubes and fittings.

Characteristics of the raw materials used

Polypropylene BorECO BA212E

سابك
sabic

Product Data Sheet

Polypropylene
BorECO™ BA212E

Polypropylene Block Copolymer for Non-Pressure Pipes

DESCRIPTION

BorECO BA212E is a high molecular weight, low melt flow rate polypropylene block copolymer (PP-B) with very high stiffness (PP-B HM) and impact strength.

APPLICATIONS

BorECO BA212E is recommended for solid wall and structured wall non-pressure pipes (including spiral wound pipes and twin wall corrugated pipes), fittings and chambers and profiles.

PHYSICAL PROPERTIES

Property	Typical Value	Test Method
Density	900 kg/m3	ISO 1183
Melt Flow Rate (230 °C/2.16 kg)	0,3 g/10min	ISO 1133
Flexural Modulus (2 mm/min)	1.700 MPa	ISO 178
Tensile Strain at Yield (50 mm/min)	8 %	ISO 527-2
Tensile Stress at Yield (50 mm/min)	31 MPa	ISO 527-2
Charpy Impact Strength, notched (23 °C)	50 kJ/m²	ISO 179/1eA
Charpy Impact Strength, notched (-20 °C)	5 kJ/m²	ISO 179/1eA

** Data should not be used for specification work*

PROCESSING TECHNIQUES

The actual conditions will depend on the type of the equipment used and the diameter and wall thickness of the pipes produced.

Following parameters should be used as guidelines for **extrusion**:

Cylinder	200 - 220 °C
Head	210 - 220 °C
Die	210 - 220 °C
Melt temperature	210 - 230 °C

Specific recommendations for processing conditions can be determined only when the application and type of equipment are known. Please contact your local Borouge representative for such particulars.

STORAGE

BorECO BA212E should be stored in dry conditions at temperature bellow 50 °C and protected fr
UV-light. Improper storage can initiate degradation, which results in odour generation and c
changes and can have negative effects on physical properties of this product.
More information on storage can be found in Safety Information Sheet (SIS) for this product.

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Borouge is part of the ADNOC and Borealis group of companies

TÜV NORD ISO 14001 TÜV NORD ISO 9001

SABIC® PP RELY 61EK61PS

PP IMPACT COPOLYMER

DESCRIPTION

This impact copolymer has a high molecular weight and is provided with a long-term heat stabilisation package. It exhibits extra high stiffness in combination with very high impact strength even at low temperatures. This material is typically used for extrusion of non-pressure sewage pipe applications and can also be typically used for blow-moulding of large containers and sheet extrusion.

Health, Safety and Food Contact regulations:
Material Safety Data Sheets (MSDS) and Product Safety declarations are available on our Internet site http://www.SABIC.com

IMDS 80775790

TYPICAL PROPERTY VALUES

Revision 20210812

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
POLYMER PROPERTIES			
Melt Flow Rate			
at 230 °C and 2.16 kg	0.30	dg/min	ISO 1133
Density	905	kg/m³	ASTM D1505
FORMULATION			
Anti static agent	☐	-	-
MECHANICAL PROPERTIES			
Tensile test			
strain at yield [1]	8	%	ISO 527-2 1A
tensile modulus [2]	1850	MPa	ISO 527-2 1A
stress at yield	40	MPa	ISO 527-2 1A
Izod impact notched			
at 0 °C	20	kJ/m²	ISO 180/1A
at -20 °C	5	kJ/m²	ISO 180/1A
Izod impact notched			
at 23 °C	No Break	kJ/m²	ISO 180/1A
Charpy Impact Strength Notched			
at -20 °C	6	kJ/m²	ISO 179/1eA
at 0 °C	10	kJ/m²	ISO 179/1eA
Charpy Impact Strength Notched			
at 23 °C	No Break	kJ/m²	ISO 179/1eA
Charpy impact unnotched			
at 23 °C	No Break	kJ/m²	ISO 179/1eU
Hardness Shore D	70	-	ISO 868
THERMAL PROPERTIES			
Vicat ...ng Temperature [3]			
at	80	°C	ISO 306
	155	°C	ISO 306
	>100	Minutes	EN 728

CHEMISTRY THAT MATTERS™

Taita Chemical Company, Limited
Head Office : 12FL, No.39, Ji-Hu, Taipei, Taiwan
Tel : (886) 2-8751-6888
Fax : (886) 2-2650-3260

DESCRIPTION
- Injection
- Medium impact
- Good flow for process
- High gloss
- High rigidity

APPLICATION
- Tape recorders
- Video cassettes
- Clocks
- Office equipment
- House-ware

Product Information
Ver. : 6.0

TAITALAC 5000S
ABS Resin

Properties	Test	Test Condition	SI unit		English unit	
			Unit	s.p.	Unit	s.p.
Specific Gravity	ASTMD792		g/10min	1.04		
Melt Flow Index	ASTMD1238	200℃, 5kg load	g/10min	2.1		
Melt Flow Index	ASTMD1238	220℃, 10kg load		23.0		
Mechanical						
Izod Impact Strength	ASTMD256	23℃, 1/4 in notched	kg-cm/cm		ft-lb/in	
Izod Impact Strength	ASTMD256	23℃, 1/8 in notched	kg-cm/cm	16	ft-lb/in	
Tenslie Strength at Yield	ASTMD638	23℃, 1/8 in, 5 mm/min	kg/cm²	16	psi	
Tenslie Strength at Break	ASTMD638	23℃, 1/8 in, 5 mm/min	kg/cm²	480	psi	
Elongation at Break	ASTMD638	23℃, 1/8 in, 5 mm/min	%	380		
Flexural Yield	ASTMD790	23℃, 2.8 mm/min	kg/cm²	20		
Flexural Modulus	ASTMD790	23℃, 2.8 mm/min	kg/cm²	800		
Thermal						
Heat Distortion Temperature	ASTMD648	Unannealed, 1/2 in, 18.56 kg/cm² load pressure	℃	80	℉	176
Vicat Softening Temperature	ASTMD1525	1/8 in , 1 kg load	℃	83	℉	181
Physical						
Rockwell Hardness	ASTMD785	23℃, R-scale	R-scale	119		
Mold Shrinkage	ASTMD955		%	≦0.4		
Water Absorption	ASTMD570		wt %	≦0.3		
Flammability						
	UL-94	1/16 in	File No E50263	HB		
Electrical						
Relative Temperature Index	UL-746B	0.062 in above	℃	60	℉	140
Hot Wire Ignition	UL-746A	0.062 in above	Secs	15		
High Current Arc Ignition	UL-746A	0.062 in above	Arcs	15		
Arc Tracking Rate	UL-746A	0.062 in above	in/min	0		

Note : The data listed represent average values and are believed to be reliable. They are given for information; no guarantees of their accuracy is made.

TAITALAC is the Tradename of Taita chemical company

Characteristics of the raw materials used

TECHNICAL DATA SHEET

Topilene® HB240P

Polypropylene Block Copolymer
For PP-B Pipes and Fittings(Non-Pressure Pipes)

Product Description

***Topilene*® HB240P** is a specially designed polypropylene block copolymer (PP-B, natural colored) that features excellent long-term hydrostatic pressure resistance. It is suitable for underground drainage & sewage pipes and fittings. It is the outcome of HYOSUNG's integrated polymerization and crystallization technology with advanced PP manufacturing process technique.

Characteristics

Typical Application Drainage & sewage pipes and fittings (Solid wall & twin wall corrugated pipes system) / Industrial pipes

Features Excellent long-term hydrostatic pressure resistance / Excellent stiffness and impact strength balance / Enhanced big diameter pipe manufacturing processability / Chemical stability / Environment-friendly

Compliance The pipes produced with ***Topilene*® HB240P** complies with the hydrostatic pressure requirements according to ISO/DIS 15874. It complies with the requirements of FDA 21 CFR 177.1520. This product corresponds to GB/T17219-1998 for drinking water system.

Typical Properties

Resin Properties	Method	Value	Unit
Melt Index(230℃, 2.16kg)	ASTM D1238	**0.30**	g/10min
Density	ASTM D792	**0.90**	g/㎤
Tensile Strength at Yield	ASTM D638	**320**	kg/㎠
Flexural Modulus	ASTM D790	**15,000**	kg/㎠
Notched Izod Impact Strength(23℃ / -10℃)	ASTM D256	**N.B / 5.0**	kg·cm/cm
Rockwell Hardness	ASTM D785	**85**	R-Scale
Heat Deflection Temperature	ASTM D648	**120**	℃
Vicat Softening Point	ASTM D1525	**155**	℃

The values listed above are typical values for reference purpose only and shall not be construed as specifications.

Storage and Handling

This product should be stored in dry condition at temperature below 40°C and protected from UV-light. When condensation is visible or can be expected, pre-drying is recommended. (Drying condition: 80~100°C/2~4hours at air circulated condition)

Contacts

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Tel: +82-2-2146-5451~7 Fax: +82-2-2146-5428
Online www.hyosungchemical.com
www.topilene.com

HYOSUNG CHEMICAL

Characteristics of the raw materials used

Taita Chemical Company, Limited

Head Office : 12FL, No.39, Ji-Hu, Taipei, Taiwan
Tel : (886) 2-8751-6888
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Product Information
Ver. : 6.0

TAITALAC 5000S

ABS Resin

DESCRIPTION

- Injection
- Medium impact
- Good flow for process
- High gloss
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Melt Flow Index	ASTMD1238	220℃, 10kg load	g/10min	23.0		
Mechanical						
Izod Impact Strength	ASTMD256	23℃, 1/4 in notched	kg-cm/cm	16	ft-lb/in	2.9
Izod Impact Strength	ASTMD256	23℃, 1/8 in notched	kg-cm/cm	16	ft-lb/in	2.9
Tensile Strength at Yield	ASTMD638	23℃, 1/8 in, 5 mm/min	kg/cm^2	480	psi	6800
Tensile Strength at Break	ASTMD638	23℃, 1/8 in, 5 mm/min	kg/cm^2	380	psi	5400
Elongation at Break	ASTMD638	23℃, 1/8 in, 5 mm/min	%	20		
Flexural Yield	ASTMD790	23℃, 2.8 mm/min	kg/cm^2	800	Psi	11400
Flexural Modulus	ASTMD790	23℃, 2.8 mm/min	kg/cm^2	30000	Psi	420000
Thermal						
Heat Distortion Temperature	ASTMD648	Unannealed, 1/2 in, 18.56 kg/cm^2 load pressure	℃	83	℉	181
Vicat Softening Temperature	ASTMD1525	1/8 in , 1 kg load	℃	104	℉	219
Physical						
Rockwell Hardness	ASTMD785	23℃, R-scale	R-scale	119		
Mold Shrinkage	ASTMD955		%	≦0.4		
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Arc Tracking Rate	UL-746A	0.062 in above	in/min	0		

Note : The data listed represent average values and are believed to be reliable. They are given for information; no guarantee of their accuracy is made.

APPLICATION

- Tape recorders
- Video cassettes
- Clocks
- Office equipment
- House-ware

TAITALAC is the Tradename of Taita chemical company

ROKA PLAST

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QALYBIA - A.R.E

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ROKA PLAST
FOR PLASTIC INDUSTRIES

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للصناعات البلاستيكية

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