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NSF Product and Service Listings

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Acertified (PwsComponents Listings, asp?Compane=C002696585tandard=0518

NSF/ANSI STANDARD 61 Drinking Water System Components - Health Effects

NOTE: Unless otherwise indicated for Materials, Certification is only for the Water Contact Material shown in the Listing. Click here for a list of Abbreviations used in these Listings.

New Products Industries Co., Ltd. (Neproplast)

Jeddah Industrial City, Phase 3 P.O. Box 460 Jeddah 21411 Saudi Arabia 966 26363558 Visit this company's website

Facility: Jeddah, Saudi Arabia



INTRODUCTION

NEPROPLAST ASTM standard Rigid PVC Pipes are manufactured at our Jeddah factory to meet the ever growing demand in the commercial, housing, irrigation and industrial sectors as well as the various amenities for water and sewage pipe line systems.

To assure NEPROPLAST clients of its quality over finished products, NEPROPLAST is maintained throughout its operation a quality assurance system based on ISO 9001:2008 over raw materials as well as finished products to guarantee the right products for a safe, tough & reliable system.

Material:

NEPROPLAST material fully meets or exceed the requirements of cell class 12454 - B in accordance with ASTM D - 1784 Type 1, Grade 1 compound designated as PVC 1120 with hydrostatic Design Stress of 2000 psi.

Standards:

- A) PVC Pipes schedule 40 (white) and schedule 80 (Grey) series meet the requirements of ASTM standards specification ASTM D -1785.
- B) PVC (SDR Series) (White) Meet the requirements of ASTM D 2241.
- C) PVC (DWV) pipes (Drain, Waste and Vent) (White) series meets the requirements of ASTM D 2265.

Size Range:

NEPROPLAST ASTM Rigid PVC pipes are offered from size 1/2" through 8" diameters.

Marking:

NEPROPLAST ASTM PVC Pipes are marked as prescribed in the ASTM standards indicating manufacturer name, material designation code, nominal pipe size, schedule, size with pressure rating in PSI, water at 73°F and manufacturing date as below example.



Indicating manufacturer name, material designation code, nominal pipe size, schedule, and size with pressure rating in PSI, water at 73°F and date of manufacturing

Approvals:

NEPROPLAST ASTM Rigid PVC pipes approval includes Saudi Aramco, Sceco, Royal commission, Marafiq, Sabic, industrial Factories and numerous consulting offices as well as government ministries, etc....







PROPERTIES OF NEPROPLAST ASTM PVC PIPES

Table - 1All values are registered at 23 °C 73 °F.

Properties	Test Method as per ASTM	Unit	Values	
General Properties				
Specific Gravity	D - 792	g/cm ³	1.42	
Water Absorption	D - 570/24hrs	%	<0.05	
Cell Designation	D - 1784		12454B	
Flame Spread E - 84			< 25	
Poisson's Ratio @ 73 ⁰ F			0.38	
Friction Co-efficient	Hazen-William	(Factor) C	150	
Mechanical Properties				
·	D - 638 / type1	PSI	7,000	
Tensile Strengh	D - 636 / type i	MPA	> 50	
Modulus of Electicity in Tansian	D - 639 / type1	PSI	>400,000	
Modulus of Elasticity in Tension	D - 639 / type i	MPA	> 2700	
Compressive Strongth	D - 695	PSI	9,000	
Compressive Strength	D - 093	MPA	62	
Flexural Strength	D - 790 proc.B	PSI	14,500	
riexulai Stierigiti	D = 790 proc.b	MPA	100	
Izod Impact	D - 256 / notch	Ft-Lbs / In of notch	0.65	
izou impact	D - 230 / Hotel1	JM	>34.7	
Hardness (Rockwell)	D - 2240	Durometer "D"	80 <u>+</u> 3	
Hardriess (Nockwell)	D - 785	Rockwell "R"	110-120	
Thermal Properties				
Coefficient of Thermal Linear Expansion	D - 696	in/in/ ⁰ F	3.0x10 ⁻⁵	
Coomolon of Mormal Linear Expansion	D - 696	cm/(cm ^O C)	6.0 x 10 ⁻⁵	
Thermal Conductivity	D - 177	BTU/hr/ft ²⁰ /F/in	1.2	
	D - 177	Wm/ ^o k/m ²	0.14	
Heat Deflection Temp @ 264 PSI (1.82 MPa)	D - 648	°C(°F)	>78 (173)	
Electrical Properties				
Dielectric Strength	D - 149	Votts/Mil	1100	
Dielectric Constant 60 Hz @30°F	D - 150	60cps@30 ^O C	4.06	
Specific Volume Resistivity @ 73 ⁰ F	D - 257	Ohms/cm	>10 ¹⁴	
Flammability Properties				
Flammability	D - 635	Resistance	Self-extinguishing	
Rate of burning	D - 635	S	<10	
Extent of burning	D - 635	mm	<15	
Flammability rating	UL-94/0.062"	Rating	V - 0	



DIMENSIONAL SPECIFICATION

Table - 2 Dimensions is based on ASTM D 1785

				Sched	ule 40		Schedule 80					
Nominal Pipe size	Diamete	er Outside	Min. V Thick		Nominal Weight	Max W.P	Min. Thick		Nominal Weight	Max W.P		
Inch	Inch	mm	Inch	mm	kg/m	PSI	Inch	mm	kg/m	PSI		
1/2"	0.840	21.336	0.109	2.77	0.248	600	0.147	3.73	0.309	850		
3/4"	1.050	26.670	0.113	2.87	0.329	480	0.154	3.91	0.418	690		
1"	1.315	33.401	0.133	3.38	0.483	450	0.179	4.55	0.614	630		
1 1/4"	1.660	42.164	0.140	3.56	0.652	370	0.191	4.85	0.850	520		
1 1/2"	1.900	48.260	0.145	3.68	0.779	330	0.200	5.08	1.030	470		
2"	2.375	60.325	0.154	3.91	1.040	280	0.218	5.54	1.430	400		
2 1/2"	2.875	73.020	0.203	5.16	1.650	300	0.276	7.01	2.180	420		
3"	3.500	88.900	0.216	5.49	2.160	260	0.300	7.62	2.910	370		
4"	4.500	114.300	0.237	6.02	3.070	220	0.337	8.56	4.260	320		
6"	6.625	168.275	0.280	7.11	5.410	180	0.432	10.97	8.130	280		
8"	8.625	219.075	0.322	8.18	8.150	160	0.500	12.70	12.400	250		
10"	10.731	273.050	0.365	9.27	11.500	140	0.593	15.06	18.300	230		

Size and dimension of schedule 40 pipes fully confirm to the requirements of ASTM D 2665

Table - 3 Dimensions is based on ASTM D 2241 SDR Series

Nominal	Nominal Pipe	121	R 32.5 5 psi	SDF 160				SDR 17 250 psi		
Pipe Size	Size	Wall Thickness	Nominal Weight	Wall Thickness			Nominal Weight	Wall Thickness	Nominal Weight	
Inch	mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	
1 1/2"	48.26	1.5		1.9		2.3	0.520	2.9	0.634	
2"	60.32	1.9	0.558	2.3	0.657	2.9	0.804	3.6	0.970	
2 1/2"	73.02	2.2	0.772	2.8	0.952	3.5	1.16	4.3	1.39	
3"	88.90	2.7	1.13	3.4	1.39	4.2	1.68	5.2	2.05	
4"	114.30	3.5	1.85	4.4	2.28	5.4	2.79	6.7	3.39	
6"	168.28	5.2	3.99	6.5	4.97	8.0	6.06	9.9	7.39	
8"	219.08	6.7	6.72	8.4	8.35	10.4	10.2	12.9	12.5	

The maximum pressure rating given above is based on water at 73°F at 23°C and for unthreaded pipes.

Table - 4 Temperature pressure relationship

Temperature Correction Factor															
Operation (^O C)	23	27	32	38	43	46	49	52	54	60	65	71	77	82	93
Temperature (^O F)	73	80	90	100	110	115	120	125	130	140	150	160	170	180	200
% Correction	1.00	0.90	0.75	0.62	0.50	0.45	0.40	0.35	0.30	0.22		Not R	lecom	mende	ed

In case operating temperature is above 73°F / 23°C. Working pressure must be derated as shown in table - 4

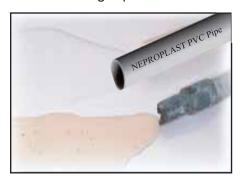




ADVANTAGES OF NEPROPLAST PVC PIPES OVER CONVENTIONAL PIPING MATERIALS

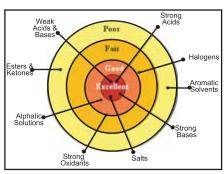
Corrosion Resistance & Scale Build up:

NEPROPLAST PVC pipes are chemically resistant to nearly all acids, alkalis, alcohols, halogens as well as many other corrosive fluids. Being non- conductor of electricity, it eliminates galvanic or electrolytic corrosion which is the cause of expensive repairs. NEPROPLAST PVC non-corroding properties ensure improved flow, lower maintenance costs and longer performance life.



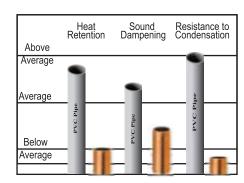
Chemical Resistance:

NEPROPLAST PVC pipe inhibits excellent chemical resistance against most acids, alcohols, alkalis, salt solutions and halogens. NEPROPLAST PVC pipes are also not adversely affected by atmospheric conditions and are well suited for outdoor installations. For specific applications see NEPROPLAST chemical resistance chart.



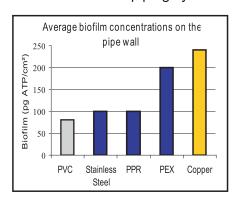
Thermal Conductivity:

NEPROPLAST PVC pipes have lower thermal conductivity than for metal which reduces heat losses (essentially acts as an insulator) and offer better uniform fluid temperature, prevent "sweating" formation of condensation on the pipe wall. Insulation in certain instances, may be completely eliminated.



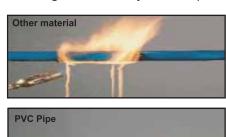
Low Bacteria Build up:

Studies show that bacteria build up with NEPROPLAST PVC pipes are far lower than with alternative piping materials. NEPROPLAST PVC piping systems are resistant to fungi and bacterial growth, particularly those which cause corrosion in metal piping systems.



Fire Proof:

NEPROPLAST PVC pipes do not support combustion and are self extinguishing. Pipes will not burn unless an external flame source is applied. NEPROPLAST PVC pipes are non toxic and will not affect taste, smell or colour of drinking water or any other liquid.



EASE of Handling, Installation & Maintenance:

NEPROPLAST PVC pipes are quick and easy to install and maintained with complete range of solvent cement fittings saving time, effort and money as it is light in weight, and easy to handle.



Reduced Additive Migration:

NEPROPLAST PVC pipes do not allow the migration of additives into water supply and hence no bad odour or taste of drinking water.

Mechanical Strength:

NEPROPLAST PVC pipes are light in weight having a specific weight which is about one fifth of steel pipes. This will reduce transportation costs and facilitate pipe installation.

Fluid Friction:

NEPROPLAST PVC pipes being a mirror-smooth inner surface has lower friction loss as compared to metals, i.e. Lower pressure losses.



SOLVENT WELDING OF PVC PIPES AND FITTINGS

Wheel Cutter

The method of joining is very simple and reliable if it is followed correctly, but any deviations from the recommended basic steps may reduce the strength and integrity of the joint. The procedures for preparation, insertion, and curing should be followed very carefully. For further details consult the manufacture or its representative.

Dry fit pipe and fitting

3

Deburring / Beveling

2

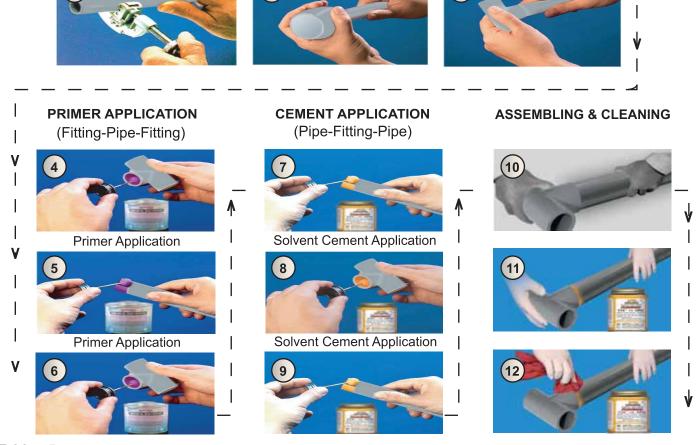


Table - 5:Recommended joint curing time chart (the necessary time to allow before pressurizing system)

Relative Humidity 60 % or Less		sure for pipe 2" to 1 1/4"	•	sure for pipe 1/2" to 3"	Test pressure for pipe size 4" to 8"		
Temperature range during assembly and cure periods	UP to 180 PSI	Above 180 to 370 PSI	UP to 180 PSI	Above 180 to 315 PSI	UP to 180 PSI	Above 180 to 315 PSI	
60 ⁰ - 100 ⁰ F	01 h.r.s	06 h.r.s	02 h.r.s	12 h.r.s	06 h.r.s	24 h.r.s	
40 ^O - 60 ^O F	02 h.r.s	12 h.r.s	04 h.r.s	24 h.r.s	12 h.r.s	48 h.r.s	
0 ⁰ - 40 ⁰ F	08 h.r.s	48 h.r.s	16 h.r.s	96 h.r.s	18 h.r.s	08 h.r.s	

Note: All above figures are estimates & approximate

Table - 6: Average number of joints / quart(1 Kg) of cement.

Pipe Diameter	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"
Number of Joints	300	200	125	90	90	40	30	10	5



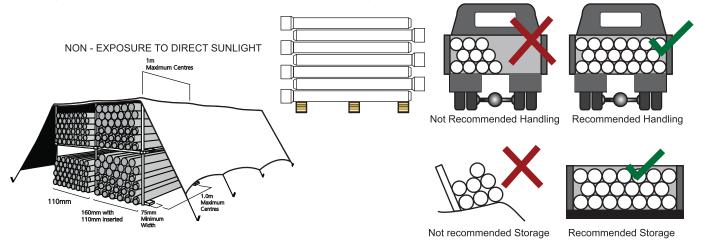


HANDLING & STORAGE OF PVC PIPES

NEPROPLAST PVC pipes should be adequately supported during handling and storage, pipes should not come into sever contact with sharp objects such as corners of truck beds, buildings, forklift trucks or other obstacle on the ground. Forklift forks must never be inserted into the ends of pipes as a means of lifting or moving. NEPROPLAST PVC pipes to be stacked in layers with socket, placed at alternative ends with socket protruding outside.

NEPROPLAST PVC Pipes should not be exposed to solar radiation for any length of time and ultraviolet rays which may cause discoloration. It is recommended to stock pipes in cool ventilated and shady places.

For field storage, where racks are not available, the ground should be leveled flat, free from coarse stones and dry. Pipes stored should not exceed 1.5 meter height.



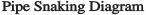
GENERAL MANUFACTURE RECOMMENDATIONS OR GUIDE LINES (COMMON PRACTICE)

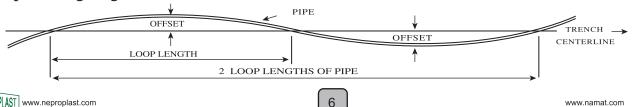
Expansion and Contraction:

The Coefficient of linear expansion of PVC pipe is greater than that of metallic piping, therefore, take this factor into consideration when designing and installing a PVC piping system. When the installation temperature is considerably higher than the operating temperature, the pipe should be installed by snaking in the trench. ((Recommended offsets and loop lengths for up to 2 1/2" nominal size are shown in the chart below No.7)) For pipe diameters above 2 1/2", the pipe should be installed in a straight alignment. Before backfilling the trench, the temperature of the pipe should be allowed to condition to within 15°F of the design operating temperature. When large swings in operating temperatures are expected, it may be necessary to consult the factory.

Table - 7:

		Max. Temp. Variation ^O F, Between Installation										
		And Final Operation										
	10^{0}	10^{0} 20^{0} 30^{0} 40^{0} 50^{0} 60^{0} 70^{0} 80^{0} 90^{0} 100^{0}										
Loop Length (Feet)				Loop (Offset (Inches	;)					
20	3.0	03.5	04.5	05.0	06.0	06.5	07.0	07.0	08.0	08.0		
50	7.0	09.0	11.0	13.0	14.0	15.5	17.0	18.0	19.0	20.0		
100	3.0	18.0	22.0	26.0	29.0	31.5	35.0	37.0	40.0	42.0		





GENERAL MANUFACTURER RECOMMENDATIONS OR GUIDE LINES

Temperature/Pressure:

The working pressure of PVC pipes and fittings varies with changes in temperature. Before placing a Piping system into service the maximum working pressure should be verified. See (Table 4).

Hanging and supporting:

The modulus of elasticity of PVC pipes is smaller than for metal pipes. Maximum working temperature and room temperature should be considered when determining the required support spacing.

Table - 8:

Outside	Spacing										
Outside diameter mm	21°C	50°C	70°C	80 ₀ C							
	М	М	M	M							
1/2" (20 mm)	1.7	1.4	0.9	0.8							
3/4" (25 mm)	1.7	1.5	0.9	0.8							
1" (32 mm)	1.8	1.7	0.9	0.9							
1 1/4" (40 mm)	2.0	1.8	1.1	0.9							
1 1/2" (50 mm)	2.1	2.0	1.1	1.1							
2" (63 mm)	2.1	2.0	1.2	1.1							

Trench Preparation:

When laying the PVC pipe under the ground, care should be taken to remove all rocks, boards, Empty primer and cement cans, brushes, bottles and other debris from the trench. Smaller diameter pipes should be "snaked" in the trench to allow for expansion and contraction. Since solvent cement welding is used for the method of joining Snaking, and pressure testing and pipe movement should not be done until after the joints have been given sufficient time to dry.

PVC for Non-Liquid Transport:

The manufacturers do not recommend its PVC Pipes and Fittings for use in air or compressed gas systems. PVC pipes and fittings are excellent products for the transport of water and corrosive chemicals, but there are a number of other piping products that are specially designed and suitable for compressed air and gases.

Testing:

Air or gas for pressure testing of PVC piping systems is not permitted.

Hydrostatic Pressure Testing Procedure

The assembled joints should be fully cured before filling the system with water.

All valves and air relief mechanisms should be opened at the ends and at elevations. The system should be filled slowly with flow velocities which does not exceed 1 feet per second. Preventing surges, water hammers, and air entrapments.

Water flow should continue until all entrapped air is completely flushed out at every branch of the system. Maintain the 1 ft/s velocity until every valve is checked. A rapidly fluctuating gauge Needle during the increase of pressure may be an indication that entrapped air still remains in the system. System Should include the appropriate air relief vacuum breaker valves to vent air during normal operation After installation. Trapped air is a major cause of the surge and burst failure in plastic piping systems.

Following filing of the system, do not pressurize until the responsible engineer is present to witness the test. All personnel in the vicinity of the system should wear safety glasses and hard hats. High voltage electrical equipment should be shielded from a possible spray.

The piping system should be pressurized to 120% of its maximum design operating pressure. This pressure must not exceed the working pressure of the lowest rated component in the system, i.e. Flanges, unions, threaded parts, valves, etc.

The pressure test should not exceed 240 hours. This should provide enough time to inspect all joints for leak repair. The system should be then recharged and retested.





APPLICATION OF NEPROPLAST PVC PIPES



WATER SUPPLIES:

Nontoxic NEPROPLAST PVC pipes will not affect the taste, colour or smell of drinking water. They will never corrode and are therefore extremely sanitary. Deposits and scales will not build up inside as in the case for conventional steel pipes. Their strength is greater than that of asbestos pipe. NEPROPLAST obtained SASO Certification and NSF 61 for drinking water use.



IRRIGATION SYSTEMS:

NEPROPLAST PVC pipes are ideal for agricultural irrigation and sprinkler systems. Non-corrosive NEPROPLAST PVC pipes are perfect for carrying water which contains chemical fertilizers and insect inhibitor. In thick wall and large diameter NEPROPLAST PVC pipes liquids can be transported under high pressure, which is convenient for the management of large volumes.



NEPROPLAST UPVC PIPES CASING & SCREEN:

Engineering difficulties, and the probability of adverse chemical reactions, make it impractical to overcome corrosion and encrustation through the use of protective coating, chemical treatment or cathodic protection. Thus, NEPROPLAST non-corrosion PVC pipes for water well casing and screens rapidly received approval by the appropriate ministry consultants and engineers.



INDUSTRY:

Resistant to most chemicals, NEPROPLAST PVC pipes have an important role to play in industrial plants. Light, noncorrosive, and easy to assemble, they allow more complex piping work than with steel or cast-iron pipes.



SOIL. WASTE & DRAINAGE SEWER SYSTEM:

Waste lines for corrosive gases, ventilation for office buildings and factories, drainage systems for private homes and elevated highways these are a few of the many possibilities for NEPROPLAST PVC pipes. A full line of PVC fittings is available to ensure easy installation.



MINING:

NEPROPLAST PVC pipes particularly are well suited for draining corrosive liquids found in mines. They make an ideal vent line for pits because they are easily installed in hard to reach places.



PLUMBING:

NEPROPLAST Rigid PVC Pipes are the most popular, widely used type of plumbing plastic pipes for Cold water supply lines.



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