



شركة صناعات المنتجات الجديدة المحدودة  
NEW PRODUCTS INDUSTRIES CO. LTD.

## PVC Schedule 40 & 80 and DWV ASTM Pipes

FOR POTABLE WATER AND SEWAGE SYSTEMS



Only products  
bearing the NSF mark  
are certified



Intertek



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# Certifications



## CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

**New Products Industries Co. Ltd. (NEPROPLAST)**

Main Site: PO Box 460, Street No 53, Industrial City – Phase 3, Jeddah – 21411, Kingdom of Saudi Arabia  
 Additional Site: PO Box 460, Plot No: 015060005, Industrial Area 2, Jazan Road, Jeddah – 21422, Kingdom of Saudi Arabia

See appendix for additional sites and additional site scopes:  
 has been registered by Intertek as conforming to the requirements of:

**ISO 9001:2015**

The management system is applicable to:

The Manufacture of UPVC (PVC) and CPVC Pipes

**Certificate Number:**  
0115632

**Initial Certification Date:**  
20 September 2012

**Date of Certification Decision:**  
08 July 2021

**Issuing Date:**  
08 July 2021

**Valid Until:**  
19 September 2024





**Calin Moldoveanu**  
President, Business Assurance  
Intertek Certification Limited, 35A Victory Park,  
Victory Road, Derby DE24 8DZ United Kingdom  
Intertek Certification Limited is a UKAS  
accredited body under schedule of  
accreditation no. 024.





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**New Products Industries Co. Ltd. (NEPROPLAST)**

Main Site: PO Box 460, Street No 53, Industrial City – Phase 3, Jeddah – 21411, Kingdom of Saudi Arabia  
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 has been registered by Intertek as conforming to the requirements of:

**ISO 45001:2018**

Certified to OHSAS 18001:2007 from 19.01.2015 to 07.06.2021

The management system is applicable to:

The Manufacture of UPVC, CPVC Plastic Pipes

**Certificate Number:**  
0115632

**Initial Certification Date:**  
19 January 2015

**Last Certificate Expiry Date:**  
11 March 2021

**Date of Last Recertification Audit:**  
06 March 2021

**Certification Cycle Start Date:**  
07 June 2021

**Issuing Date:**  
07 June 2021

**Valid Until:**  
18 January 2024





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## NSF International

RECOGNIZES

**New Products Industries Co., Ltd. (Neproplast)**  
Facility: Jeddah, Saudi Arabia

AS COMPLYING WITH NSF/ANSI 14, 61 AND ALL APPLICABLE REQUIREMENTS.  
PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE  
AUTHORIZED TO BEAR THE NSF MARK.





This certificate is the property of NSF International and must be returned upon request. For the most current and complete information, please access NSF's website (www.nsf.org)

June 17, 2013  
Certificate# C0026966 - 02



David Parkiss  
General Manager, Water Systems



1 ISO 9001 : 2015

2 Intertek: ISO 45001:2018

3 NSF Product & Service Listings "ONLY PRODUCTS BEARING THE NSF MARK ARE CERTIFIED"

# ●●● I. Introduction

**NEPROPLAST** ASTM standard rigid PVC pipes are manufactured at our Jeddah factory to meet the every growing demands in the commercial, housing, irrigation and industrial sectors as well at the various amenities for water and sewage pipe line systems.

To assure NEPROPLAST clients of its quality over finished products, NEPROPLAST has maintained throughout its operation a quality assurance system based on ISO 9001:2015 over raw material 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, 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) pipe (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.



## **APPROVALS**

NEPROPLAST ASTM PVC pipes approval includes Saudi ARAMCO, SCECO, Royal Commission, Marafiq, SABIC, Industrial factories and numerous consulting offices, government ministries and many more.



# ●●● II. Neproplast® ASTM PVC Pipes Properties

Table No. 1.0

All values are registered at 23°C 73°F

Properties	Test Method as per ASTM	Unit	Values
<b>General Properties</b>			
Specific Gravity	D-792	g/cm <sup>3</sup>	1.43
Water Absorption	D-570 / 24 hrs	%	< 0.05
Cell Designation	D-1784		12454B
Flame Spread E-84			< 25
Poisson's Ratio (@ 73°F)			0.38
Friction Co-efficient	Hazen-William	(Factor) C	150
<b>Mechanical Properties</b>			
Tensile Strength	D-638 / Type 1	PSI	7,000
		MPA	> 48.3
Modulus of Elasticity in Tension	D-639 / Type 1	PSI	> 400,000
		MPA	> 2,758
Compressive Strength	D-695	PSI	9,718
		MPA	67
Flexural Strength	D-790 Proc. B	PSI	14,500
		MPA	100
Izod Impact	D-256 / Notch	Ft.-Lbs / In of Notch	0.65
		JM	> 34.7
Hardness (Rockwell)	D-2240	Durometer "D"	80 ± 3
	D-785	Rockwell "R"	110-120
<b>Thermal Properties</b>			
Coefficient of Thermal Linear Expansion	D-696	in/in/°F	3.0 x 10 <sup>-5</sup>
	D-696	cm/(cm°C)	6.0 x 10 <sup>-5</sup>
Thermal Conductivity	D-177	BTU/hr/ft <sup>20</sup> /F/in	1.2
	D-177	Wm/°k/m <sup>2</sup>	0.14
Heat Deflection Temp (@ 264 PSI (1.82 MPa))	D-648	°C (°F)	> 78 (173)
<b>Electrical Properties</b>			
Dielectric Strength	D-149	Votts/Mil	1,100
Dielectric Constant 60 Hz @ 30°F	D-150	60 cps @ 30°C	4.06
Specific Volume Resistivity (@ 73°F)	D-257	Ohms/cm	> 10 <sup>14</sup>
<b>Flammability Properties</b>			
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

# III. Dimensional Specification

**Table No. 2.0** Dimensions are based on ASTM D 1785

Nominal Pipe Size	Diameter Outside		Schedule 40				Schedule 80			
			Min. Wall Thickness		Nominal Wt.	Max W.P	Min. Wall Thickness		Nominal Wt.	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	1.658	300	0.276	7.01	2.174	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	8.315	160	0.500	12.70	12.600	250
10	10.731	273.050	0.365	9.27	11.626	140	0.593	15.06	18.307	230

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

**Table No. 3.0** Dimensions are based on ASTM D 2241 SDR Series

Nominal Pipe Size		SDR 32.5 125 psi		SDR 26 160 psi		SDR 21 200 psi		SDR 17 250 psi	
		Wall Thickness	Nominal Weight	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	1.52	0.370	1.85	0.437	2.29	0.526	2.84	0.628
2	60.32	1.85	0.551	2.31	0.656	2.87	0.803	3.56	0.967
2 1/2	73.02	2.24	0.791	2.79	0.957	3.48	1.163	4.29	1.398
3	88.90	2.74	1.156	3.43	1.411	4.24	1.705	5.23	2.124
4	114.30	3.50	1.865	4.39	2.289	5.43	2.810	6.73	3.436
6	168.28	5.18	4.012	6.48	4.982	8.03	6.112	9.91	7.447
8	219.08	6.73	6.795	8.43	8.441	10.41	10.315	12.90	12.621

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

**Table No. 4.0** Temperature pressure relationship

Temperature Correction Factor															
Operation (°C)	23	27	32	38	43	46	49	52	54	60	65	71	77	82	93
Temperature (°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 Recommended				

In case operating temperature is above 73°F / 23°C. Working pressure must be derated as shown in Table No. 4

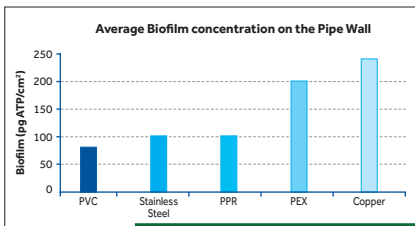
# IV. Advantages of Neproplast® PVC pipes over conventional piping materials

## 4.1 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.

## 4.2 Low Bacteria Build up



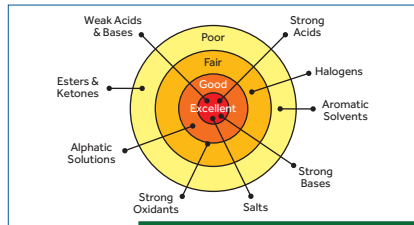
Studies shows that bacteria build up with **NEPROPLAST** PVC pipes are far lower than with alternative piping materials. **NEPROPLAST** PVC piping systems are resistant to fungi and bacteria growth, particularly those which cause corrosion in metal piping systems.

## 4.3 Reduced Additive Migration



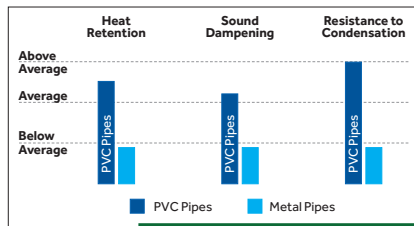
**NEPROPLAST** PVC pipes do not allow migration of additives into water supply and hence no bad odour or taste of drinking water.

## 4.4 Chemical Resistance



**NEPROPLAST** PVC pipes inhibit 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 the **NEPROPLAST** chemical resistance chart.

## 4.5 Thermal Conductivity



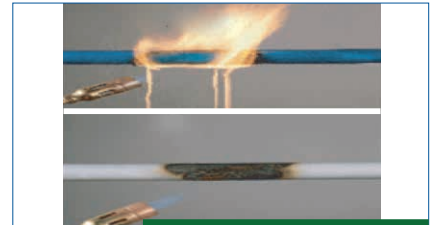
**NEPROPLAST** PVC pipes have lower thermal conductivity than for metal which reduces heat losses (essentially acts as an insulator) and offer better uniform fluid temperature, prevent "sweating" formation of condensation on the pipe wall. Insulation in certain instances, may be completely eliminated.

## 4.6 Mechanical Strength



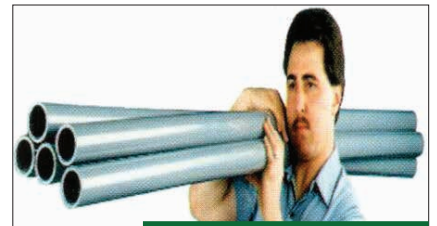
**NEPROPLAST** PVC pipes are light in weight having a specific weight which is about one fifth of steel pipes. This will cut down on transportation costs and facilitate easier pipes installation.

## 4.7 Fire Proof



**NEPROPLAST** PVC pipes do not support combustion and are self extinguishing. Pipes will not burn unless an external flame source is applied.

## 4.8 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.

## 4.9 Fluid Friction

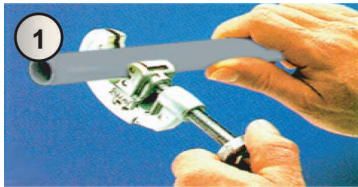


**NEPROPLAST** PVC pipes being a mirror-smooth inner surface has lower friction loss as compared to metals, i.e. lower pressure losses.

# V. Solvent Welding of PVC Pipes and Fittings

The method of joining is very simple and reliable, if 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 manufacturer or its representative.

### Wheel Cutter



### Deburring / Beveling



### Dry fit pipe & fitting



### PRIMER APPLICATION (Fitting-Pipe-Fitting)



Primer Application



Primer Application



Primer Application

### CEMENT APPLICATION (Pipe-Fitting-Pipe)



Solvent Cement Application



Solvent Cement Application



Solvent Cement Application

### ASSEMBLING & CLEANING



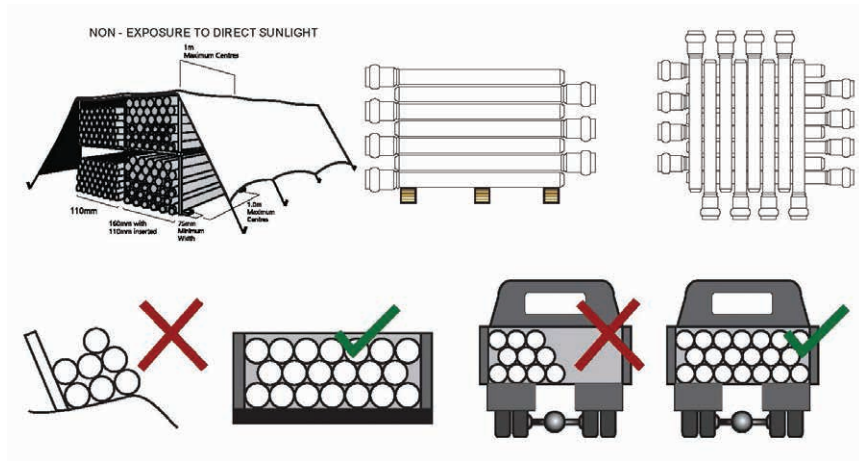
**Table No. 5.0 Recommended Joint Curing Time Chart (the necessary time to allow before pressurizing system)**

Relative Humidity 60% or less	Test Pressure for Pipe Size 1/2" to 1 1/4"		Test Pressure for Pipe Size 1 1/2" to 3"		Test Pressure for Pipe Size 4" to 8"	
	Upto 180 PSI	Above 180 to 370 PSI	Upto 180 PSI	Above 180 to 315 PSI	Upto 180 PSI	Above 180 to 370 PSI
Temperature range during assembly and cure periods						
60° - 100° 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° - 60° 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° - 40° 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

**Table No. 6.0 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

# VI. Handling & Storage of PVC Pipes



NEPROPLAST PVC pipes should be adequately supported during handling and storage. Pipes should not come into severe contact with sharp objects such as corners of truck beds, buildings, forklift trucks or other obstacle on the ground. Forklifts 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.

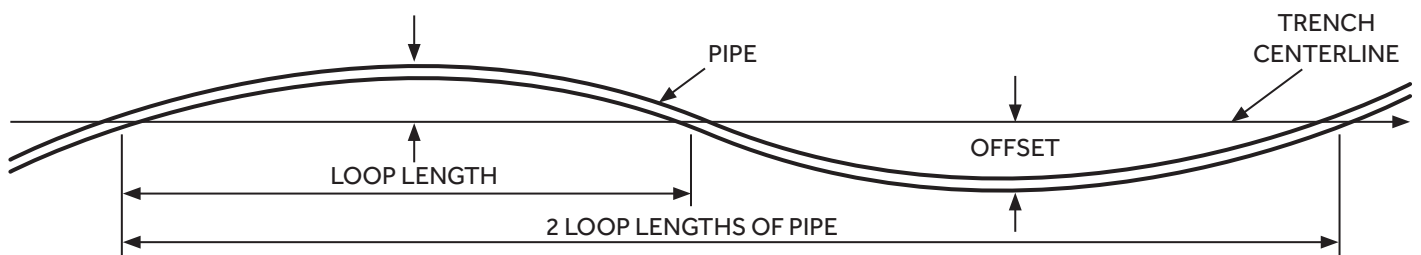
For field storage, where racks are not available, the ground should be leveled flat, free from coarse stones and dry. Pipes stored should not exceed 1.5 meters height.

# VII. General Manufacture Recommendations or Guidelines <Common Practice>

Table No. 7.0

	Max. Temp. Variation °F, Between Installation and Final Operation									
	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
Loop Length (Feet)	Loop Offset (Inches)									
20	3.0	3.5	4.5	5.0	6.0	6.5	7.0	7.0	8.0	8.0
50	7.0	9.0	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

## Pipe Snaking Diagram





## 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 No. 8.0

Outside Diameter		Spacing			
		21°C	50°C	70°C	80°C
(Inch)	(mm)	M	M	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 gasses.

## 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 filling 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 24.0 hours. This should provide enough time to inspect all joints for leak repair. The system should be then recharged and retested.

# ●●● VIII. Application of Neproplast® PVC pipes



## 8.1 Water Supplies

Non-toxic NEPROPLAST PVC pipes will not affect the taste, color 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 pipes. NEPROPLAST obtained SASO certification and NSF 61 for drinking water use.



## 8.2 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 inhibitors. Within a thick wall and large diameter NEPROPLAST PVC pipes liquids can be transported under high pressure, which is convenient for the management of large volumes.



## 8.3 NEPROPLAST PVC 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 screen rapidly received approval by the appropriate ministry consultants and engineers.



## 8.4 Industry

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



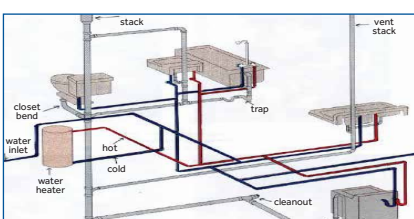
## 8.5 Soil, Waste & Drainage Sewer System

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.



## 8.6 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.



## 8.7 Plumbing

NEPROPLAST Rigid PVC pipes are the most popular, widely used types of plumbing plastic pipes for cold water supply lines.



Manufacturing Plant

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Manufacturing Plant, Jeddah

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شركة صناعات المنتجات الجديدة المحدودة  
NEW PRODUCTS INDUSTRIES CO. LTD.



## أنابيب بي في سي مجموعة ٤٠ و ٨٠ و (DWV) نظام امريكي ASTM

أنظمة مياه الشرب و الصرف الصحي



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