ProWater
Rwanda Ltd

PRO WATER RWANDA LTD

MANUFACTURING OF

- HDPE PIPES
- PP-R PIPES
- WATER STORAGE PLASTICS TANKS



COMPANY OVERVIEW

PRO WATER RWANDA LTD is a General irrigation (consultancy and implementation) firm registered by RDB in Rwanda with Investment Registration Certificate number C/1686/2017; and Private Sector Federation Rwanda Member Slip Card N° 7952-2010502-6308. It was established by professionals in Agriculture engineering fields, and manufacturing of **HDPE, DRIP, PPR PIPES A and PLASTICS WATER STORAGE TANKS CERTIFIED BY RWANDA STANDARDS BOARD.**

Soil and water resources management experts, agricultural production and greenhouse design, irrigation design and installation of different types of irrigation. The factory is for manufacturing the **irrigation and water supply equipment** such as HDPE Pipes, PP-R Pipes, Drip Pipes, and Plastics Water Tank for rain water harvesting. It has head office in Kigali, Rwanda.

PRO WATER RWANDA LTD mainly works with and through highly experienced bodies, professionals who are fully qualified and of high moral standards.

PRO WATER RWANDA LTD has an objective oriented Quality Assurance Manual.

PRO WATER RWANDA LTD has offered a number of consultancy services in the fields of water harvesting, irrigation designs and constructing and management of greenhouses.

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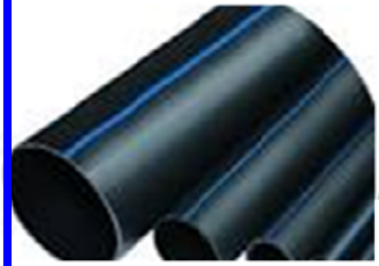
ProWater Rwanda Ltd

PROLIFE HDPE PIPES
High Density Polyethylene pipes

PROLIFE PIPES



PIPES FOR WATER SUPPLY

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KARURUMA CELL
GATSATA SECTOR
GASABO DISTRICT
KIGALI-RWANDA

PROLIFE HDPE Pressure Pipes is made of High Density Polyethylene PE 100 (HDPE) Plastic Material for the Manufacture of High Pressure pipes.

Due to its high chemical resistance property, it is used in piping system.

ANALYSIS REPORT OF RAW MATERIALS PE 100

DESCRIPTION

Borstar HE3490-LS is a black, bimodal, high density polyethylene classified as a MRS 10.0 material (PE100) produced by the advanced Borstar technology. Well dispersed carbon black gives outstanding UV resistance. Long term stability is ensured by an optimised stabilization system.

PHYSICAL PROPERTIES		Typical Value*	Unit	Test Method
Density	(Base resin)	949	kg/m^3	ISO 1183/ISO 1872-2B
Density	(Compound)	959	kg/m^3	ISO 1183/ISO 1872-2B
Melt Flow Rate	(190°C/2.16 kg)	<0.1	g/10 min	ISO 1133
Melt Flow Rate	(190°C/5.0 kg)	0.25	g/10 min	ISO 1133
Tensile Stress at Yield	(50 mm/min)	25	Mpa	ISO 527-2
Elongation at Break		>600	%	ISO 527-2
Charpy Impact, notched	(0°C)	16	kJ/m^2	ISO 179/1eA
Hardness, Shore D		60	-	ISO 868
Carbon Black content		≥2	%	ASTM D 1603
Brittleness Temperature		<-70	°C	ASTM D 746
ESCR	(10% Igepal), F_{50}	>10000	h	ASTM D 1693-A
Thermal Stability	(210°C)	>15	min	EN 728

HDPE pipes are used for:

- Drinking water supply line,
- Water lines in hills areas,
- Irrigation lines,
- Sewage and gas lines,
- Fuel gas line and Industrial effluent disposal lines

PROLIFE HDPE Pipes are available in 16 mm Diameter to 300 mm and pressure rating: PN -6.3, PN-8, PN-10, PN-12.5, PN-16, PN-20, and PN-25

HDPE PIPES FITTINGS

PROLIFE HDPE Pipes are manufactured and conform to international standards

Pressure Rating	PN 6.3			PN 8			PN 10			PN 12.5			PN 16			PN 20			PN 25		
SDR	SDR-26			SDR-21			SDR- 17			SDR-13.6			SDR-11			SDR-9			SDR-7.4		
SIZE in (mm)	Wall Thickness in mm			Wall Thickness in mm			Wall Thickness in mm			Wall Thickness in mm			Wall Thickness in mm			Wall Thickness in mm			Wall Thickness in mm		
	Min	Max	Wt./m in Kg	Min	Max	Wt./m in Kg	Min	Max	Wt./m in Kg	Min	Max	Wt./m in Kg	Min	Max	Wt./m in Kg	Min	Max	Wt./m in Kg	Min	Max	Wt./m in Kg
16																					
20										1.6	1.9	0.1	1.8	2.1	0.11	2.2	2.6	0.13	2.7	3.2	0.15
25							1.6	1.9	0.12	1.8	2.2	0,14	2.3	2.7	0.17	2.8	3.3	0.2	3.1	4	0.25
32				1.6	1.9	0.16	1.9	2.2.	0.18	2.4	2.8	0.23	2.9	3.4	0.27	3.6	4.2	0.33	4.3	5.1	0.39
40				1.9	2.2	0.24	2.4	2.8	0.29	2.9	3.4	0.35	3.6	4.3	0.43	4.4	5.2	0.51	5.4	6.3	0.6
50	1.9	2.3	0.3	2,4	2.8	0.37	2.9	3.4	0.45	3.7	4.3	0.55	4.5	5.3	0.67	5.6	6.5	0.8	6.8	7.9	0.94
63	2.4	2.8	0.48	3	3.5	0.59	3.7	4.3	0.75	4.6	5.4	0.88	5.7	6.7	1.06	7	8.2	1,27	8.5	10	1.5
75	2.9	3.3.	0.67	3.6	4.1	0,82	4.4	5.1	1	5.5	6.3	1.23	6.8	7.8	1.5	8.3	9.6	1.78	10.1	11.7	2.11
90	3.5	4	0.97	4.3	4.7	1.19	5.5	6.1	1.45	6.6	7.6	1.78	8.2	9.4	2.16	10	11.5	2.57	12.2	14	3.04
110	4.2	4.9	1.45	5.2	6	1.77	6.5	7.4	2.16	8.1	9.4	2.67	10	11.5	3.22	12.2	14.1	3.84	14.9	17	4.53
125	4.8	5.5	1.87	6	6.8	2.29	7.4	8.5	2.79	9.2	10.6	3.43	11.4	13.1	4.16	13.9	16	4.96	16.9	19.4	5.86
140	5,4	6.2	2.34	6.7	7.7	2,87	8.2	9.2	3.5	10.3	11.8	4.3	12.7	14.6	5.21	15.6	17.9	6.22	18.9	21.8	7.34
160	6.2	6.9	3.02	7.6	8.5	3.7	9.4	10.5	4.51	11.8	13.3	5.55	14.5	16.3	6.72	17.8	19.9	8.02	21.6	24.2	9.48
180	6.9	7.8	3.82	8.6	9.5	4.68	10.6	11.9	5.71	13.2	14.8	7.06	16.4	18.3	8.51	20	22.4	10.16	24.3	27.2	12
200	7.7	8.6	4.71	9.5	10.7	5.78	11.8	13.2	7.05	14.7	16.5	8.66	18.2	20.4	10.5	22.2	24.9	12.53	27	30.3	14.81

The characteristic that make it outstanding are its resistance to chemical attack (This make it an excellent material to convey), Highly corrosion resistant, Manufactured in long length and coils, Welding and assembly methods are very simple, Weather resistance in ground applications

WATER SUPPLY SYSTEM

1. Transportation and distribution system

2.House service connection

3.Geo-thermal pipe for room heating & hot water system

AGRICULTURAL IRRIGATION WITH FITTING PIPES

HDPE pipe inside sleek, great flow, cross road construction, good impact resistance, it is the ideal tool for agricultural irrigation.

PRONELLA PP-R PIPES

PRONELLA PP-R Pipes are cold and hot water supply system suitable for all potable water applications.

Why choose this type of material?

The thermoplastic resins most often used to make pipes for water and heating systems are:

- **PE-X cross linked polyethylene**
- **PP-C copolymer polypropylene**
- **PB polibutene**

All the above - mentioned resins belong to the polyolephine family, a group of plastic materials obtained by polymerization of unsaturated hydrocarbons, which have one or more double links.

Pipes are available in PN6, PN 10, PN 16 and PN 20.

Low thermal conductivity

ADVANTAGES:

- Low thermal conductivity
- Less insulation required
- Low maintenance
- Low friction & energy loss
- Low sagging due to glass fiber enforcement
- More joint strength

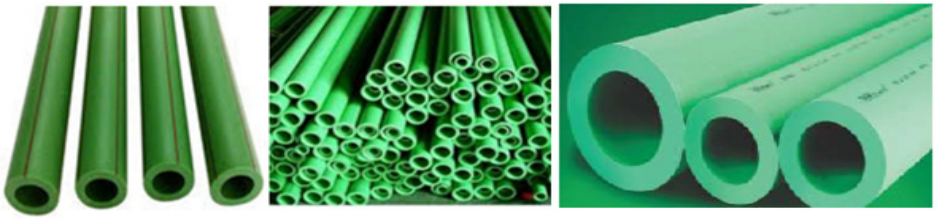
Features and Benefits

Complete plastic system

Jointed by fusion welding, ensuring a homogeneous, all plastic system. Suitable for carrying drinking water. PP-R Pipe system is in full compliance with the international standards for the use of plastic material for carrying drinking water and other fluids for human consumption.

PP-R System application:

- Hot and cold potable water piping networks in residential and commercial buildings
- Heating system
- Chilled water networks in air conditioning systems
- Transport of wide range of chemicals in the industry
- Piping networks for rainwater utilization systems and swimming pools facilities
- Compressed air installations and other industrial applications



PP-R Pipes

ANALYSIS REPORT OF RAW MATERIALS RA140E

Polypropylene Random Copolymer for Pressure Pipes Systems

DESCRIPTION

RA140E is a high molecular weight, low melt flow rate polypropylene random copolymer (PP-R) natural colored.

PHYSICAL PROPERTIES

Property	Typical Value	Test Method
Density	905 kg/m3	ISO 1183
Melt Flow Rate (230 °C/2.16 kg)	0,25 g/10min	ISO 1133
Flexural Modulus (2 mm/min)	800 MPa	ISO 178
Tensile Modulus (1mm/min)	900 MPa	ISO 527
Tensile Strain at Yield (50 mm/min)	13,5 %	ISO 527-2
Tensile Stress at Yield (50 mm/min)	25 MPa	ISO 527-2
Thermal Conductivity	0,24 W/(m K)	DIN 52612
Coefficient of Thermal Expansion (0 °C/70 °C)	1,5*10E-4/K	DIN 53752

PRONELLA PP-R Pipes are available in 16 mm Diameter to 110 mm

Nominal diameter	Approx. Wall Thickness (Minimum and Maximum)					
	SDR 11		SDR 7.4		SDR6	
	PN 10		PN 16		PN 20	
DN(OD)	MIN	MAX	MIN	MAX	MIN	MAX
20	NA	NA	2.80	3.30	3.40	4.00
25	NA	NA	3.50	4.10	4.20	4.90
32	2.3	2.9	4.40	5.10	5.40	6.20
40	3.5	3.7	5.50	6.30	6.70	7.60
50	4.4	4.6	6.90	7.80	8.30	9.40
63	5.4	5.8	8.60	9.70	10.50	11 .60
75	6.80	7.70	10.30	11.60	12.50	14.00
90	8.20	9.30	12.30	13.80	15.00	16.70
110	10.00	11 .20	15.10	16.90	18.30	20.40
125	11.40	12.60	17.10	19.10	20.80	23.10
140	12.70	14.20	19.20	21.40	23.30	25.90
160	14.60	16.30	21 .90	24.30	26.60	29.50

CHARACTERISTICS OF PP-R PIPE

PP-R Pipe systems offer many advantages like High long term reliability Smooth internal surface, Easy to handle, easy to install, High chemical resistance, allowing high flow speeds of the transported liquids, Resistant to corrosion and abrasion

PP-R FITTINGS

90° ELBOW

Dimension		
20mm	50mm	110mm
25mm	63mm	160mm
32mm	75mm	
40mm	90mm	

COUPLER

Dimension		
20mm	50mm	110mm
25mm	63mm	160mm
32mm	75mm	
40mm	90mm	

END CAP

Dimension		
20mm	50mm	110mm
25mm	63mm	160mm
32mm	75mm	
40mm	90mm	

TEE

Dimension		
20mm	50mm	110mm
25mm	63mm	160mm
32mm	75mm	
40mm	90mm	

45° ELBOW

Dimension		
20mm	50mm	110mm
25mm	63mm	160mm
32mm	75mm	
40mm	90mm	

REDUCING TEE

Dimension	
25/20mm75/40mm	50/40mm110/20mm
32/20mm75/50mm	63/20mm110/25mm
32/25mm75/63mm	63/25mm110/32mm
40/20mm90/20mm	63/32mm110/40mm
40/25mm90/25mm	63/40mm110/50mm
40/32mm90/32mm	63/50mm110/63mm
50/20mm90/50mm	75/20mm110/75mm
50/25mm90/63mm	75/25mm110/90mm
50/32mm90/75mm	75/32mm160/110mm

CROSS

Dimension	
20mm	40mm
25mm	50mm
32mm	63mm

PP-R UNION

Dimension	
20mm	40mm
25mm	50mm
32mm	63mm

REDUCING ELBOW

Dimension	
25/20mm	40/32mm
32/20mm	50/40mm
32/25mm	

PIPE PLUG

Dimension	
20mm	25mm
32mm	40mm

FE- THREADED COUPLING

Dimension		
20 x 1 /2"	2 x 3/4"	75 x 2-1 /2"
20 x 3/4"	32 x 1"	90 x 3"
25 x 1 /2"	40 x 1-1 /4"	110 x 4"
25 x 3/4"	50 x 1-1 /2"	
32 x 1/2"	63 x 2"	

MALE THREADED COUPLING

Dimension	
20 x 1/2"	32 x 3/4 "
20 x 3/4"	32 x 1"
25 x 1/2"	
25 x 3/4"	
32 x 1/2"	