



BEAULON

Polybutene-1 for hot & cold water pipe

Polymeric Materials Laboratory
Mitsui Chemicals Inc.

March 31,2016

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Flexibility, Creep resistance
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Chlorine resistance

Mitsui Chemicals has manufactured polybuten-1 resin since 1976 and had over 40 years history of selling polybutene-1 for hot and cold water application.

BEAULON has excellent long term durability and chlorine resistance by taking advantage of rich polymerization and formulation technology which have been cultivated throughout history.

Characteristic features of BEAULON (PB-1)

- ◆ Excellent creep resistance
- ◆ Excellent chlorine resistance
- ◆ Flexibility



Mechanical properties

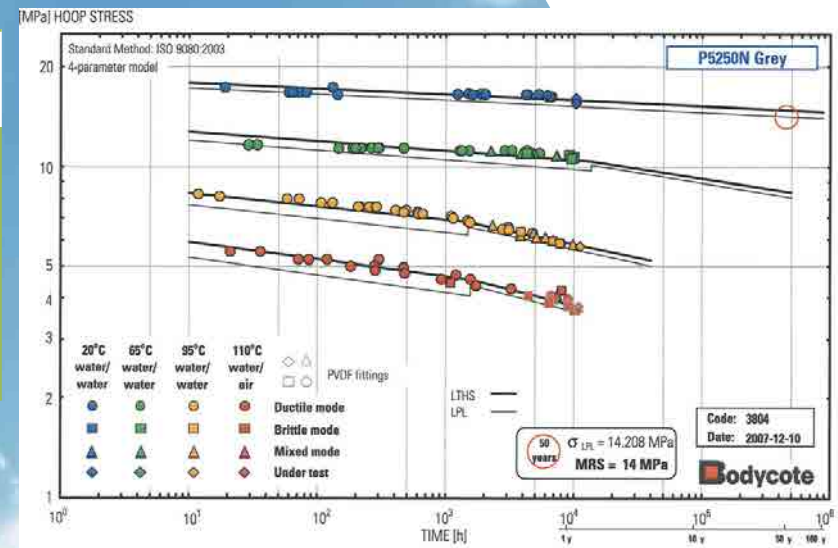
Creep resistance

Flexibility and creep resistance

Basic properties of plastics for piping

Items	Unit	BEAULON (PB-1)	PEX	PP-R
Density	kg/m ³	920	940~950	910
Melting point	°C	128	130	135~150
Young's mod(23°C)	MPa	400	600~800	1100
Young's mod(80°C)	MPa	250	100~120	240
MRS	MPa	14	10	10

Creep resistance



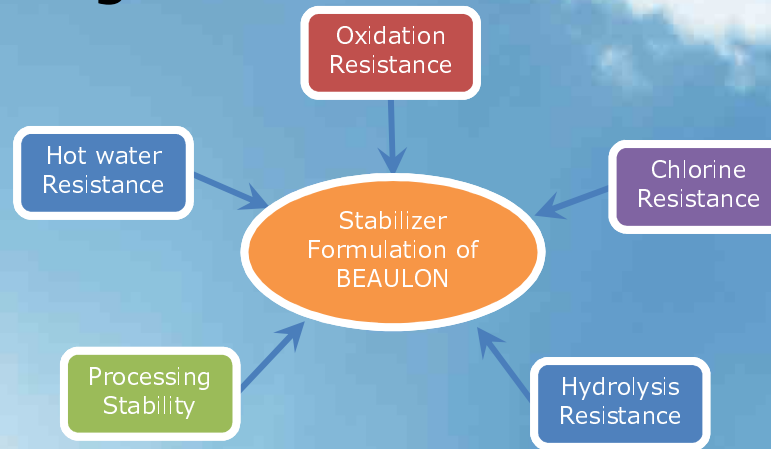
- ◆ Soft at Room temp even though high modulus is kept at high temp
⇒ Having easy installation & high pressure resistance in hot water
- ◆ Excellent creep resistance



Long-term durability

Chlorine resistance

Advantage in chlorine resistance



Resin	Grade	Time to reach surface degradation in chlorinated hot water (weeks)				
		5	10	15	20	25
BEAULON	P5250N	[Red bar extending past 20 weeks]				
Polyethylene	High density	[Blue bar extending to 10 weeks]				
	Middle density	[Blue bar extending to 5 weeks]				
Polypropylene	Homo polymer	[Blue bar extending to 5 weeks]				
Engineering Plastics	Polycarbonate	[Blue bar extending to 5 weeks]				
	Polyacetal	[Blue bar extending to 5 weeks]				
	Modified PPO	[Blue bar extending to 5 weeks]				

<Conditions> 2mm thickness sample were dipped into chlorinated water as shown below.
 The time when the surface of sample turned white was determined.
 Temp. = 90°C, Cl conc. = 100ppm, pH = 6~7

BEAULON shows excellent chlorine resistance because stabilizer formulation is optimized for hot water use.



Mitsui Chemicals