

SABIC MULTIMODAL HDPE

Committed to the market

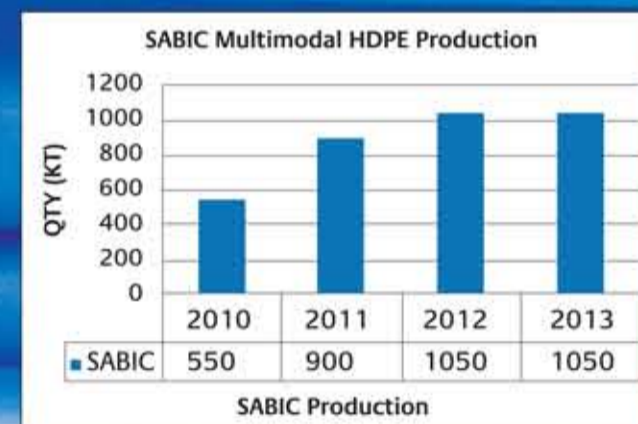
SABIC multimodal HDPE high Pressure pipes (PE100/PE80) of the highest quality and a top – notch customer service provide the building blocks for future success. In order to further strengthen our market position and improve our capability to sell and produce, we will expand our production capacity of multimodal HDPE from 550,000 metric tons annually to exceed one million tons by 2012 by introducing new production sites. This goes to show our commitment to the pressure pipe market as a reliable supplier whose target is to build and maintain long – term customer relationship.

WHY MULTIMODAL HDPE for PIPE....

Bimodal HDPE pressure pipes have a long and distinguished history of service to the potable water, gas, oil, mining and other industries. They have the lowest repair frequency per length of pipe per year compared with all other pressure pipe materials used for urban gas and water distribution networks.

Advantages

- Safe (e.g. used in medical application)
- Non – corrosive
- Chemical resistance
- Lightweight
- Easy installation (e.g. trenchless)
- Long lifetime (e.g. min. 50 yrs)
- Leak – free
- Flexibility (e.g. coiled)
- Environmentally friendly (e.g. recyclable material)
- Economical



Our global operations



SABIC Global Headquarters	(1)
Application centers	(10)
Manufacturing and compounding companies	(64)
Distribution, storage facilities and logistical hubs	(46)
Technology centers	(6)
International subsidiaries and sales offices	(86)

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SABIC HDPE
PRESSURE PIPE

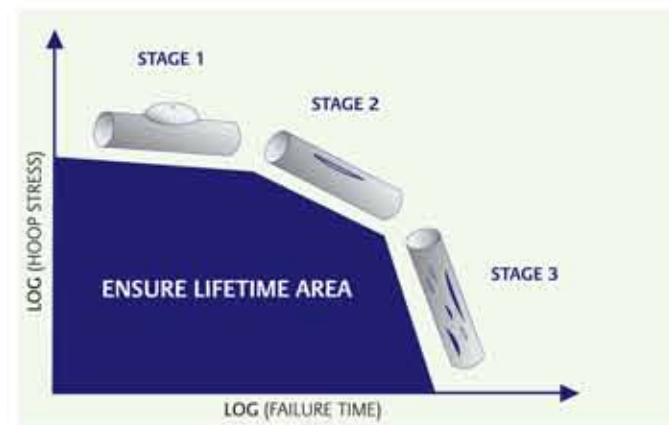


Sharing our futures



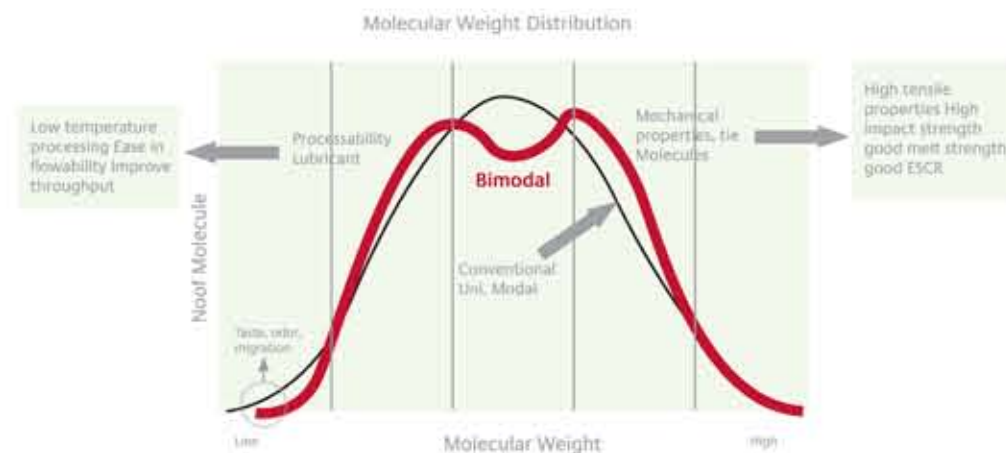
Behavior of pipes under internal pressure

The behavior of pressure pipes at elevated temperatures and under internal pressure over time is simulated by the internal pressure test. This test is carried out to predict the lifetime of pipes under field conditions. At stage I, the pipe is mainly subjected to mechanical overload. Here the failure is almost always ductile (plastic instability). At stage II, the curve's gradient increases. This curve, or knee, is sometimes referred to as the 'mechanical knee', and transitions of brittle failures are the most common types here. The main characteristic of stage III is that the failure time is virtually independent of the hoop stress. A second knee, called the 'chemical knee', indicates the chemical life of the material under load conditions. Failures at stage III are almost exclusively brittle. During normal pressure testing in high – temperature water, polyethylene exhibits failures only at stages I and II. Over a sufficiently long period of time, however, and at low stress levels, this material will also exhibit stage III failure.



THE MOVE towards MULTIMODAL HDPE

Multimodal HDPE opens up fresh opportunities in the form of a new generation of polyethylene. This new material, demonstrating a high resistance to slow crack growth and rapid crack propagation, represents a real alternative to traditional materials and is therefore being used increasingly in pipelines that supply drinking water and gas. The broad molecular mass distribution, typical of multimodal HDPE materials, is obtained via a two – stage polymerization process. The most important property gained is an optimal balance between toughness and flexibility.



SABIC PE 100 / PE 80 – quality built in

Quality is an inherent property of SABIC Multimodal HDPE pressure pipe. PE100 and PE80 are the preferred choice for the transport of drinking water from the reservoir to the consumer. PE100 and PE 80 are also used to safely transport natural gas of millions of homes. Both raw materials and pipes are frequently inspected to ensure that they comply with stringent regulations and internal quality standards.

The table shows SABIC bimodal HDPE Pressure & non pressure Pipe Grades from KSA assets:

Grade Name	MRS classification ISO 12162 & NSF Standard 14/61 for natural Listed by PPI	MWD	Melt Index ISO 1133 190 C/5 Kg g/10 min	Density ISO 1183 23 C Kg/m3	Application
SABIC HDPE P6006 Black	PE 100	Multimodal	0.22	959	Drinking water, gas & sewerage
SABIC HDPE P5510 Black	PE80	Multimodal	0.43	958	Drinking water, gas & sewerage
SABIC HDPE P6006N natural	PE4710	Multimodal	0.23	949	Drinking water, gas & sewerage
SABIC HDPE P5510N natural	PE3608	Multimodal	0.43	944	Drinking water, gas & sewerage
SABIC HDPE P5510NT natural	Non pressure	Multimodal	0.45	945	Corrugated pipe, Telecom & irrigation pipes

The table shows SABIC bimodal HDPE Pressure Pipe Grades from Europe assets:

Grade Name	MRS classification ISO 12162	MWD	Melt Index ISO 1133 190 C/5 Kg g/10 min	Density ISO 1183 23 C Kg/m3	Application
SABIC HDPE A 6060 R Black	PE 100	Multimodal	0.3	959	Drinking water, gas & sewerage
SABIC HDPE A 6060 R Blue	PE100	Multimodal	0.35	950	Drinking water
SABIC HDPE A 5061 R Black	PE80	Multimodal	0.5	958	Drinking water, gas & sewerage
SABIC MDPE A 4062 R Black	PE80	Multimodal	0.8	954	Drinking water, gas & sewerage
SABIC MDPE A 4062 R Yellow	PE80	Multimodal	0.8	945	Gas

