

FIRST EUROPEAN PIPE SURVEY OF EXISTING NETWORKS

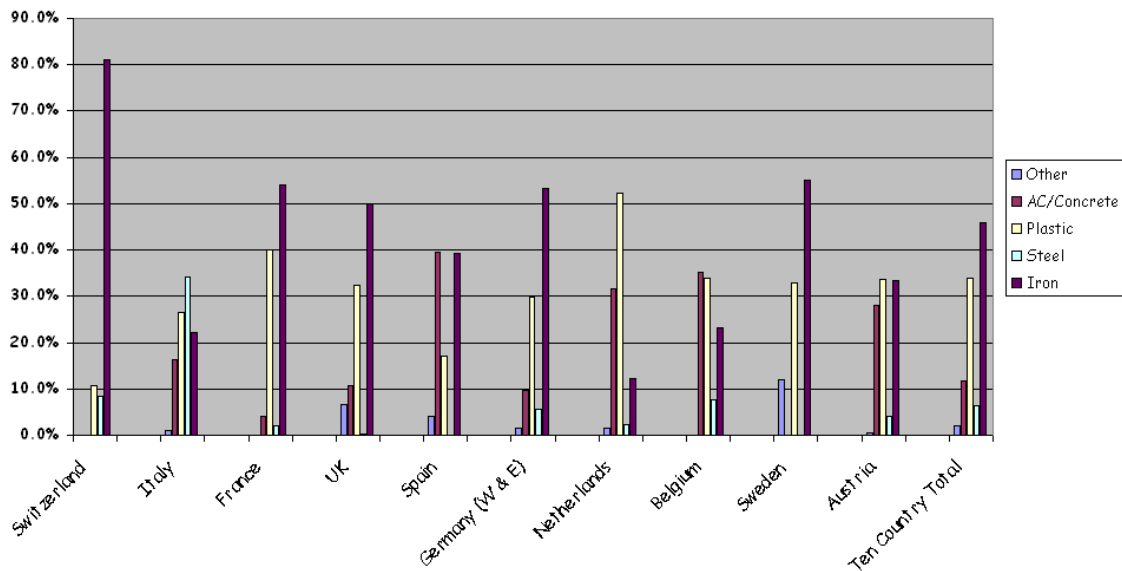
Since their commercial introduction in the fifties, plastic pipes have improved our quality of life in many ways - particularly in the field of public health and hygiene. A recent survey commissioned by European industry analysts suggests that further improvement is not only possible but also desirable.

Plastic pipes by the very nature of their concealment, lead a private existence. But their public presence has now been measured by a unique survey commissioned by The European Plastic Pipe & Fittings Association (TEPPFA). Data for this first ever European mapping of gas and water pipe networks were drawn from leading utility and energy firms across fourteen countries.

The survey covers an eighteen month period (2006/2007). Principle findings and implications are as follows:

Water league fatigue

Data was gathered by the TEPPFA study from water companies in ten countries. Analysis confirms that plastic pipes for water transportation are not everywhere! Of existing networks in ten European countries, cast iron is by far the dominant pipe material at 45%. League follower is then plastic at 34% and then trailing is AC/Concrete at 11.6% and steel at 6.4%.



% Kilometres of Installed water pipe networks (TEPPFA sources: see end footnote)

Over the last few years, water has become all the more precious particularly in Southern Europe. Given that plastic pipes are long lasting and leak free, their distribution is all the more key to sustainable development and mitigating climate change. So why has plastic conversion not been so prevalent especially when as much as 50% of water is being lost through European water networks?

Richard Graty, chairman of the TEPPFA committee that commissioned the report says that it outlines the conservative attitudes of the past. "All modern water utility companies in Europe now share a realisation that plastics offer long term performance. Most of these companies started to switch over to plastic pipes when they were first introduced in the mid nineteen fifties and when baby-boom urbanisation demanded a constant supply of fresh uncontaminated drinking water and excellent sanitation services."

"The study confirms that of the ten countries, only The Netherlands delivers water to households mainly via plastic pipes. The Dutch are masters at water management. Not a drop is lost through their faultless delivery systems. In the UK where plastics pipe materials account for 33 percent, the public pressure for water pressure and hence conversion to plastics is significant. In the UK, companies such as Thames Water and Yorkshire Water are engaged in large scale improvement schemes that rely for the most part on plastic pipes."

League table for plastic water pipes

Country **% plastic water pipes**
Per km installed

Netherlands	52
France	40
Belgium	34
Austria	33
Sweden	33
UK	33
Germany	30
Italy	26
Spain	17
Switzerland	11

(TEPPFA sources: see end footnote)

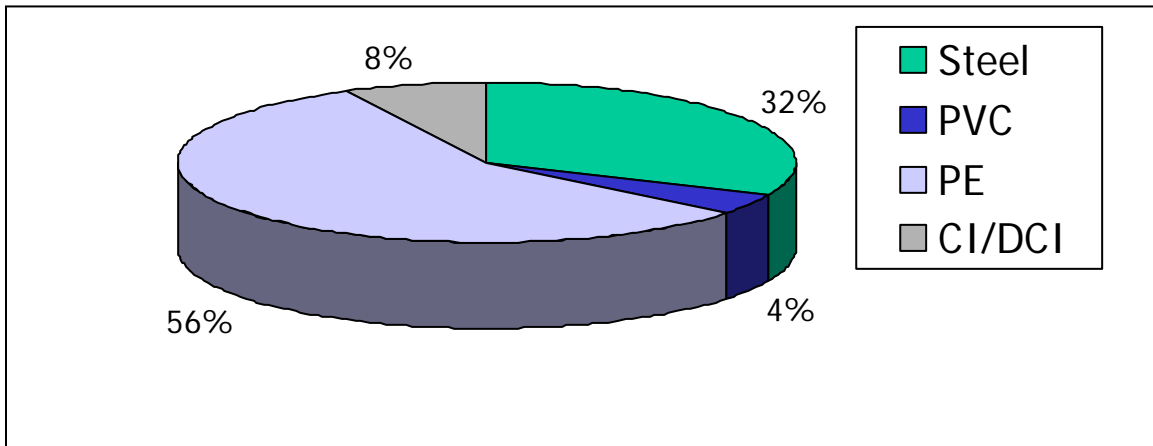
Richard Graty stresses that replacing old non plastic for new plastic pipes is an expensive business. Whereas the cost of the pipe will only account for about ten percent of the total investment, the largest slice of the project cake is eaten up by labour, handling and transport costs. "And finding new ways to harvest water may cost twice the price of fixing leaks. Since Switzerland is at the bottom of the Alps, it is no wonder that it is at the bottom of the league. It has abundant precipitation. But even with a predicted seven percent loss in water flowing from the Alps by 2050, Switzerland has a lot of catching up to do."

"The low league positions of Italy and Spain clearly beg for comment. Last year, newspaper headlines about antiquated pipelines were regularly prompted by serious droughts in these countries. Italian Professor Alessandro Marangoni has recently calculated the cost of doing nothing to fix these leaking pipes. The cost is staggering."

But at the heart of the issue is the quality of life component. "Water is no longer plentiful and we have to open the public conscience and thus the public purse to maintaining health and hygiene," notes Graty.

Material of choice for Gas

Using statistics collected from eleven countries, the TEPPFA study of the gas sector showed plastics and steel generally account for a respective ratio of 60:40 per kilometre of installed pipe. However, this pattern of absorption varies according to the required operating pressure systems. For example, whereas steel (87%) prevails for gas transmission lines with pressures well above five bar, the situation changes dramatically for distribution lines that typically operate below five bar. For 72% of these existing distribution lines, plastics remain the material of choice. They occupy a similar position for gas service lines that operate at pressures below one bar.



Gas Network Materials (Km's) (TEPPFA sources: see end footnote)

On the gas study Richard Graty comments: "Our suspicions have been confirmed. There is still a great potential for plastic pipe systems to gain a larger share particularly in Italy, France, UK and Germany."

"Spain as gas league topper has a long track record for continuously building and maintaining its gas delivery systems. German and Danish gas distribution companies were also quick to apply plastic pipe technology in the late fifties. The Netherlands is the only country in Europe to rely on PVC gas pipe delivery systems. Low pressures favour the use of these pipes."

Graty sees particular growth potential in plastic gas pipes in the home. "Domestic gas pipes have been subjected to stringent testing and review. Developments suggest that plastics could be an attractive domestic alternative to traditional pipe materials in Germany and possibly the UK."

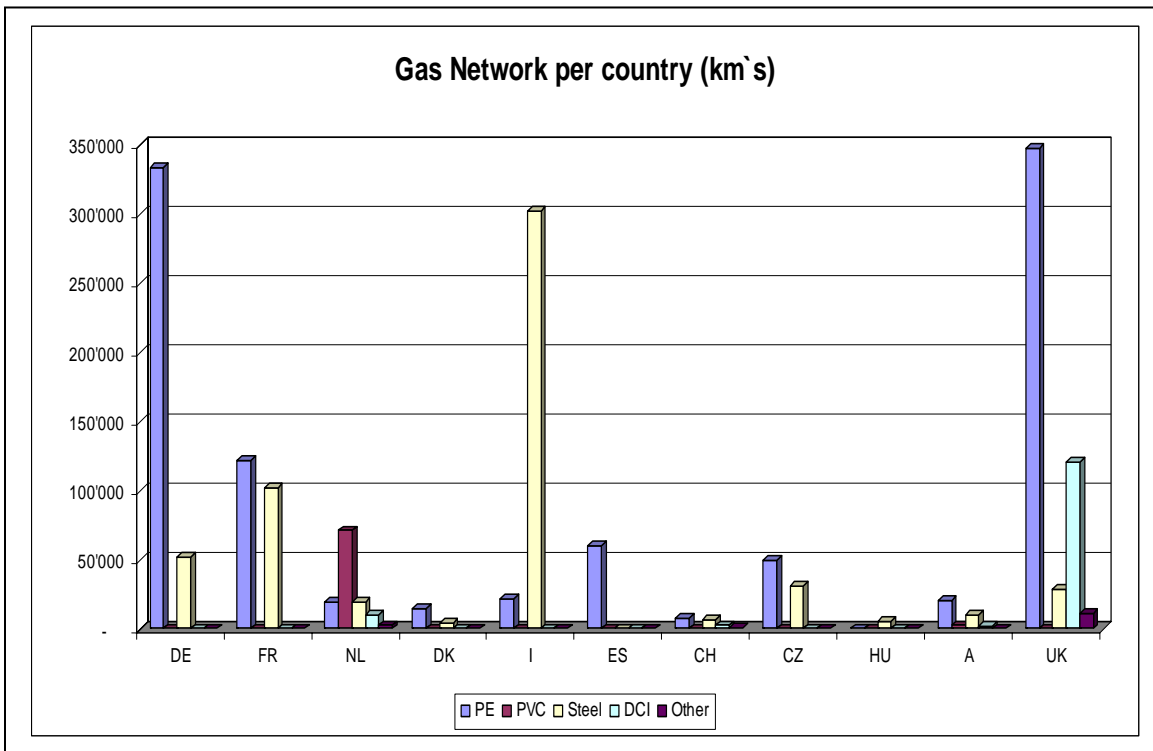
This view certainly comes from Hendrik Roebbers from Dutch Kiwa certification. "Due to the increasing prices of metallic materials, plastic pipes will become even more attractive in the near future." He says. "Experiences with the new flexible pipe systems are very positive."

League table for plastic gas pipes

Country **% plastic gas pipes
per km installed**

Spain	95%
Germany	86%
Denmark	79%
Netherlands	75%
UK	68%
Austria	66%
Czech Republic	62%
France	55%
Switzerland	46%
Italy	7%
Hungary	5%

(TEPPFA sources: see end footnote)



Gas Network Materials underlining growth potential for plastic pipes in Italy, France, UK and Germany
(TEPPFA sources: see end footnote)

The TEPPFA survey was assisted by national plastic pipe associations in respective European countries. For further information, please email Richard Graty at Richard.graty@gpsuk.com

FOOTNOTE

The TEPPFA European Pipe Survey was produced with collaboration with individual national plastic pipe associations and the following bodies and sources:

Water

DVGW (Germany)
Thames Water (UK)
Severn Trent Water (UK)
Anglain Water (UK)
KIWA (Netherlands)
Caen University (France)
Hydroplus (French Publication)
AEAS (Spain)
SVGW (Switzerland)
ÖVGW (Austria)
SWWA (Sweden)
AMI Consultants (Various)
Masons Year Book (Various)

Gas

French ministry, Gaz de France, AFG (France)
BGW 2004 (Netherlands & Germany)
PL Gasconference 2006 (Poland)
KOMGAS (Denmark)
Snam reti gas, Enel Gas, Italcogim Italgas (Italy)
Anuario del Gas (Spain)
SVGWSSIGE (Switzerland)
GAS, RWE (Czech Republic)
hungas, Ung. Energie Amt (Hungary)
ÖVGW (Austria)
National Grid, Wales & West, UU, Scotia Gas (UK)