KWD Market + Charts:

“Multilayer Pipes Worldwide 2010”

Author: Dipl.-Ing. Jutta Hix

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- Introduction to Multilayer Pipes (Page 23 - 32)
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KWD Market + Charts „Multilayer Pipes Worldwide 2010“

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Please find on the following pages the list of Contents and some examples of the market study.

Editorial Office and Distribution:

KWD-globalpipe publishing house
Dipl.-Ing. Jutta Hix
Luisenstrasse 6, D-58332 Schwelm, Germany

www.kwd-globalpipe.com
hix@kwd-online.de

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The Multilayer Pipe Market, tightly displayed: Manufacturer, Capacities, Market and Products

- 202 pages, therefrom 16 pages with charts and graphics
- 138 Manufacturer worldwide with Production capacities 2008 – 2010, pipe diameters and materials
- A detailed introduction into Multilayer Pipes: Definition, Materials, Fittings, manufacturing technology
- Historic development of the Multilayer Pipe and the market
- Up to date Certification lists of: AENOR, CSTB, (DIN-) DVGW, KIWA and SKZ
- 250 Companies in the Multilayer Pipe Market with address, Product Catalogue and Brands.

In 2008, the first world-wide KWD Multilayer market study was released by the late founder of our publishing house, Mr. Winfried Hamich (he sadly died in June 2009). We now proudly present the completely revised KWD market study “Multilayer Pipes worldwide 2010”.

To gather all the info, four persons have researched intensively for over 3 months, they have written to countless corporations, conducted many interviews and had many discussions, correlated and validated the info they received on capacity, material and pipe diameter, and interpreted certificates and statistics. Our contacts from all over the world have validated the results once more, revising data whenever it was deemed necessary. This corrected data was entered into the data base and once again it was verified for plausibility. The result of this effort is now in your hands: “Multilayer Pipe Worldwide 2010” is a survey, in which the data from each company listed that manufactures and sells multilayer pipes has been verified.

We are aware that there might be many more producers of multilayer pipes, if one believes the numbers manufacturers of pipe extruding systems report as having sold. From a Chinese multilayer pipe line manufacturer we know for example, that, since 2008, worldwide more than 300 systems were sold to manufacture multilayer pipes. We have, for the purpose of this survey only included those manufacturers, whose production could be validated by us.

Dipl.-Ing. Jutta Hix, Editor in Chief
KWD Market Study “Multilayer Pipes Worldwide 2010”

Update 2010-06

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**Multilayer Pipe Capacities in Asia / Pacific 2009**

**Number of Multilayer Pipe Manufacturers in Asia / Pacific 2009**

**The most important Multilayer Pipe Manufacturers in Asia / Pacific 2008-2010 (in million metres)**

[Graphs and tables showing data on multilayer pipe capacities and manufacturers in Asia and the Pacific region.]
Introduction to Multilayer Pipes

General definitions
For many pipe applications multi-layer designs are increasingly offered. Those pipes promise to deliver an optimized adaption to specific requirements by specifically designed functional layers. Particularly for indoor heating and plumbing installations, multi-layer designs have taken off on a victory lap over the past decade. Meanwhile a barely manageable number of layer and material combinations exist. Equally confusing is the nomenclature for multi-layer pipe ranging from fancy names like MT pipe or stabi pipe to designations of industry standards, for example ISO 21003.

Current industry standards classify two different design types:

M - Type: multi-layer metal pipe
This type of pipe comprises all design types with a metal middle layer regardless if the middle layer is welded or simply glued together with overlap. Thus, both PP-R pipe stabilized with non-welded aluminum foil, the so-called stabi pipe, as well as the well-known multi-layer composite pipe with welded aluminum middle layer fall into this category.

P - Type: multi-layer plastic pipe
P-type pipe are mainly multi-layer plastic pipe primarily for heating applications made of PE-RT or PE-X with an EVOH bonding layer.

Among others, the designations listed below can be found:
Mehrschicht- Verbundrohr = multi-layer composite pipe
Alu- Verbundrohr = aluminum-composite pipe
MP- Rohr = metal plastic pipe
PAP- Rohr = plastic-aluminum-plastic pipe
Verbundrohr = composite pipe

Main focus of the report
Main focus of this report is the multi-layer composite pipe, subsequently referred to as multi-layer pipe, with pipe walls made of two plastic outer layers and a middle layer of metal, usually aluminum. The metal layer has a straight bead and is permanently joined with the plastics layers by bonding agents. Multi-layer pipe with two or more plastic layers are not considered in this report nor are multi-layer designs with inner pipes made of copper or steel and one or more plastic layers.

Material combinations
To be better able to distinguish the vast number of material and layer combinations, the respective material combination is added to the term "multi-layer", for example PEX / Al / PE multi-layer pipe.
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Aalberts Industries N.V. has acquired 100% of the shares of Henco Industries

Aalberts Industries N.V. has acquired 100% of the shares of Henco Industries, one of the leading European producers of multilayer tube and fittings for inside building systems.

As an enhancement to Aalberts Industries’ substantive Flow Control portfolio, Henco provides a full range of complementary plastic systems which significantly strengthens Aalberts Industries’ market position. The acquisition creates for Europe a unique portfolio of Flow Control products and systems.

Henco, founded in 1992 by the Belgian entrepreneurial family Hendrickx, is among the market leaders focussed on the development and production of plastic multilayer systems. Since its foundation Henco has invested significantly in ‘state of the art’ production technologies for the automated produc-
Aluminium slitted Coils - Product Information

KWD Market Study “Multilayer Pipes worldwide 2010”

Multilayer Pipe Market 2008 - 2010: Aluminium slitted Coils - Product Information

Manufacturer of Aluminium Coils

- Aleris Aluminium Duffel BVBA, Belgium - Duffel, www.aleris.com
- Shanghai Hoda Aluminium Material Co., Ltd., China - Shanghai, www.hodaalu.com
- Southwest Aluminium (Group) Co., Ltd., China - Chongqing, www.swa.com.cn
- Southwest Aluminium (Group) Co., Ltd., China - Foshan, GuangDong, www.unionnonferrous.com

Aleris Rolled Prod. Europe: 3% price increase for some aluminium flat rolled Specialty Products

KWD-globalpipe, 2008-07-01, No.286. ( Aluminium) Aleris Rolled Products Europe announced a price increase of 3% on the total conversion price of coil and sheet delivered to the Specialty Product segments of Multi Layer Tubing and 5005 Anodized & Anodizing Quality. The price increase is in response to increased costs for energy, transport, materials and other items and is effective for all new orders and contracts booked on or after July 1, 2008, that are not covered by existing contractual agreements. Aleris Rolled Products Europe is a global leader in high-quality aluminium rolled products for numerous applications and has production facilities in Koblenz (Germany) and Duffel (Belgium), producing a wide range of high tech products for demanding industries such as the aircraft & aerospace industry, the automotive sector, the mould -, tool - and machine construction market, electro industry, building and household market. Aleris Rolled Products Europe is a business unit of Aleris International Inc. a global leader in aluminum rolled products and extrusions, aluminum recycling and specification alloy production. Headquartered in Beachwood, (Ohio, USA), Aleris operates 47 production facilities throughout the world, and employs approximately 8,800 employees. Contact: Eddy Caers, Director Sales Specialty Products , Tel. +32/476.22.11.03, Eddy.caers@aleris.com, www.aleris.com, www.aleris-europe.com.

Novelis: NOVALTUBE™- Compound tubes made by revolutionary production technology

KWD-globalpipe, 23.03.2010. (aluminium sheet products for multilayer pipes) One example of Novelis’ innovative strength is The New Aluminium, Novelis FUSION™, which is certainly one of the most important innovations in aluminium processing in the past 60 years. Differing aluminium alloys are cast into one ingot: This opens up completely new perspectives for future designs as ideal combinations of alloy properties are now possible. Novelis supplies compound tube coils according to customer’s specific requirements. Mechanical properties are determined depending on the use and processing of the material. The ideal material NOVALTUBE™ has been developed to meet excellent processing properties as, Good corrosion resistance, High stability and flexibility, Good welding properties, Great adhesive strength for plastic extrusion and High pressure resistance. NOVALTUBE™ ensures that the compound tubes remain stable in shape, both when bent as well as when straight; this facilitates their installation. For tubes the aluminium content means that there is only a slight thermal length variation, just like metal tubes. In addition, they become completely oxygen impermeable, which is indispensible, for example, when connecting radiators. Different aluminium alloys for specific requirements. NOVALTUBE™ 1050A and NOVALTUBE™ 1200. These alloys contain more than 99% aluminium. They can be easily welded, have an excellent corrosion resistance,
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Manufacturer of Multilayer Pipe Lines

- Maillefer – Dreistern /CH
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- KraussMaffei Berstorff /D
- Extrudex /D
- Chase Machinery /PRC
- Advance Tech /PRC
- THE /CH
- other Chinese and Russian companies

Battenfeld Extrusiostechnik: A unique modular system for multi-layer dies

KWD-globalpipe, 2008-10-07, No.293. (Extrusion equipment) With rising material and energy costs and high functionality standards for pipes, multi-layer pipes are more and more in demand. Optimal die technology is required to produce such pipes in top quality. Battenfeld Extrusionstechnik GmbH, Bad Oeynhausen is the only machine manufacturer worldwide offering a special modular system for multi-layer dies designed to allow custom-made adaptation to each individual product.

In 2006, about 14 million tons of plastic materials were consumed in pipe production. This figure is expected to rise by 30% to 18 million tons until 2010. The most frequently used material is PVC, with a share of 60%, followed by PE and PP and a great variety of other thermoplastic materials. With the increasing use of plastic pipes to distribute drinking water and other valuable resources, the demands on the pipes themselves are also becoming more
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Which is the most used material for under floor heating in Europe?

KWD-globalpipe, 2009-11-03. (under floor heating, PEX, PE-RT and ML-pipes). The answer is very clear, it is PEX. But if we have a look on the development of the material, PEX is losing market share while PE-RT is gaining. Multilayer pipes are the number three for radiant panel heating, but they are losing too. If we have a look on material usage in million metres by countries, PEX ist the most used material in Austria, Germany, Denmark, Spain, France, Finland, United Kingdom, Hungary and Sweden. PE-RT is most used for under floor heating in Belgium, Bulgaria, Greece, Norway, Netherlands and Poland. Multilayer is only in Switzerland the most used material for under floor heating. Please find more information on used materials for under floor heating, radiator connections and sanitary in our latest market study: KWD Market + Charts “Heating & Plumbing in Europe 2009”. Figures, Country information, Product information and a Directory of more than 4.000 companies of the European heating and sanitary industry. Please see also www.kwd-globalpipe.com.

Demand for pipe material declining in Europe; PE-RT market share slightly higher

kwd-globalpipe, 2009-10-09. The world-wide economic crisis is having an impact on pipe output rates, too. The continuous upward trend for under floor heating systems is slowing down. However, some trends are noticeable and highlighted in the most recently completed market report KWD Market + Charts “Heating & Plumbing 2009”. + + + Generally speaking, all pipe materials have lost ground but looking at market shares reveals certain tendencies: Besides PP-R gaining market share mainly in Eastern European countries due to its low price, PE-RT has gained ground. Thus, PE-RT is the primarily used material for under floor heating systems in the following 10 European countries: Belgium, Bulgaria, Czech Republic, Greece, Ireland, Norway, Netherlands, Poland, Romania and Slovakia. In Germany and Austria on the other hand, PE-X is the preferred choice for under floor heating, in Switzerland it is multi-layer pipe. Especially in Poland, PE-RT has seen tremendous growth rates. A Polish market participant argues as follows: “Definitely PE-RT pipe is most used for underfloor heating: Why? Because of the price of course. PE-RT pipes have similar (a little worse) working parameters than PE-X pipes but it’s an absolutely sufficient material for underfloor heating.” + + +
Certifications

Certifications for Multilayer Pipes and Pipe Systems

Cube Company /Germany explain the current situation of multilayer pipe standards and certifications...

1. Definitions in terms of standardization:
   - **Polyolefins-aluminum-composite pipes (M-Pipes, construction with 5 layers),** consisting of pressure loaded polymeric layers and at the minimum one pressure loaded metal layer. The wall thickness of the pipe must have min. 60% polymeric material. (e.g. PE-X/Al/PE-X or PE-RT/Al/PE-RT)
   - **Multilayer-plastic pipes (P-Pipes, construction with 3 or 5 layers),** with more than one pressure loaded polymeric layer. (e.g. PVC-C/PE-X)

2. Typical applications for systems with multilayer-composite pipes:
   - **Distribution of drinking water and gas**
     Underground pipelines from water- or gas supply to house connection.
   - **Water and gas installations**

3. Applicable standards
   - For certifications of multilayer composite pipe systems a large number of national and international standards are available (more than 35!) – shown in the following collection, which makes no claims of being complete:

   - **Australia**
     AS 4176 Polyethylene/Aluminum and Crosslinked Polyethylene/Aluminum Macro-Composite Pipe Systems for Pressure Applications
   - **Austria**
     Ö-Norm B5157 / 5159 Systems of composite plastic pipes for hot and cold water
   - **Canada**
     CSA B-138.9 Polyethylene/Aluminum/Polyethylene Composite Pressure Pipe System
   - **China**
     CJT 108-1999 Industrial standard PE/AL/PE composite pressure pipes
     GB/T2002 Industrial standard PE/AL/PE composite pressure pipes, aluminium overlapped welded
   - **Germany**
     DIN 16838 Multilayer-composite-pipes - polyolefins-aluminum-composite-pipes – general requirements
     DVGW W 542 Compound pipes in the drinking water installation; requirements and testing
     DVGW W 534 Pipe joints and pipe connectors in the drinking water installation.
   - **Iran**
     BHRC Certificate Sanitary hot and cold water applications, heating and cooling systems
   - **Netherlands**
     KIWA BRL K-536 Plastic piping systems of PE/AL composites for transport of cold and hot drinking water
     BRL-5607 Plastic piping systems of PE or PE/AL composites for heating installation
   - **Poland**
     Instal Composite pipes for hot water applications
   - **Spain**
     "Multilayer pipes and multilayer piping systems" – Update June 2010

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AENOR Certifications “Multilayer pipes and multilayer piping systems” – Update June 2010

Last Update: June 2010

Source: www.aenor.es


Listing of all distributors and manufacturers of multilayer pipes

Unifilta S.p.A.
Via Cepparola Sotto, 4
Vestone (BS), 25076
ITALY
Tel: +39 365 / 870 011
Fax: +39 365 / 870 060
www.unidelta.com
unifilta@unifilta.com

Categories / Product Program:
- fittings
- fittings: press fittings (axial and radial pressing)
- heat pumps
- manifolds
- pipes: composite pipes (PE-Xb / Al / ...)
- pipes: PE
- pipes: PE-RT
- pipes: PEX
- renewable energies:

Brands:
MultiFert (PE-RT / EVOH / PE-RT pipe)
UniTherm (PEX pipe)
TriTerm (PEX / EVOH pipe)
MultiTerm (PEX / EVOH / PEX pipe)
UniTherm Plus (PEX pipe)
Unisheath (PEX pipe)
CLIMA PLASTIC (heating and cooling system)
DELTA (PE-Xb / Al / PE-Xb multilayer pipe)

Example for the detailed listing on CD

Please find a detailed listing of all addresses of multilayer pipe manufacturers and distributors on CD.

It includes the following information:
- Company name
- address
- Tel. and Fax
- E-Mail and webaddress
- Categories / Product Program
- Brands
Orderslip
Prices + MwSt. in Germany / Orders from foreign countries only by PrePayung + shipping charges
Europe: 17 € by mail order, Rest of World 39 € by mail order

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<td>28 Countries, 4,000 Companies, CD + Print; in english language <strong>Standard:</strong> 920,-</td>
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<td>86 Seiten, farbige Graphiken, CD + Druck  in deutscher Sprache</td>
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Name: ___________________________ E-Mail: ___________________________

Date: ___________________________ Signature: _______________________

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June 2010