

# PLASTICS DRIVING URBAN RESOURCE EFFICIENCY



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Rising demand around the globe means increases pressure on the environment, and creates greater competition for our resources. Key natural resources such as raw materials and water have been used to fuel economic growth as though supplies were inexhaustible. This is not sustainable in the long term. Specially designed plastics products can offer suitable solutions for the building sector.

The importance of managing the natural resources that underpin our economy more efficiently is very clear. Pressures on resources are constantly increasing, and a failure to tackle the issue could turn into a disaster in the longer term.

## ACTIVE PLAYERS IN A GLOBAL CONTEXT

Aliaxis Group acknowledges the increasing importance of environmental issues and adheres to sustainable development principles: to meet the needs of the present without compromising the ability of future generations to meet their own needs.

In that context, sustainable development also means industrial progress along with scientific ecology based on scientific criteria. Irrational assumptions must be avoided and reliable and transparent communication must be promoted.

Aliaxis Group is a major player in one specific sector: plastics fluids handling systems for building. The organisation is well aware of the global threats to natural resources: if the actual trend continues, by 2050 we will need the equivalent of more than two planets to sustain us, according to *Roadmap to a Resource Efficient Europe* (European Commission, 2011).

In the building sector in Europe, for example, the aggregated impacts of housing and infrastructure account for around 15-30 per cent of all environmental pressure on consumption. Housing

and infrastructure contribute approximately 2.5 tonnes of CO<sub>2</sub> equivalent of greenhouse gases (GHG) per European per year. Close to 56 per cent of these GHG emissions are associated with heating and hot water for private households. The construction of buildings and infrastructure contributes another 30 per cent to total emissions.

On the other hand, buildings are one of the most long-lived products. This confers a tremendous advantage: every decision made now to improve the environmental footprint of our buildings will bring benefits for decades to come.

A building was considered for years as a passive infrastructure, consuming natural resources and a producer of CO<sub>2</sub>, grey water etc. If economist Jeremy Rifkin's predictions come true, sustainable and intelligent buildings will become one of the main pillars of the third industrial revolution. To make this dream project possible, we need

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innovation at all levels (products, systems, buildings, grids, neighbourhoods and cities) and we need reliable and shared assessment systems for evaluating this innovation.

### **IMPROVING BUILDINGS' FOOTPRINT**

This transformation will need a playing field where innovation and resource efficiency are rewarded. It will create economic opportunities and improved security of supply through product redesign, sustainable management of environmental resources, greater reuse, recycling and substitution of materials and resource savings.

Life-cycle assessment dissemination at the construction level should increasingly be considered rather than just the initial costs, including construction and demolition waste.

### **PERPETUAL INNOVATION**

Aliaxis considers research and development (R&D) to be a key pillar of its strategy and a critical resource both in maintaining the Group's activities and in supporting its organic growth. The Group's R&D organisation consists of a total of 200 employees working in eight major centres of excellence and nine product development teams. In 2012, Aliaxis invested more than €18 million in R&D.

The corporate research centre specialises in various applied research programmes covering topics of strategic importance. These include the development and modification of materials, long-term performance and durability studies on materials and products, material and process modelling as well as the evaluation of new processing and jointing technologies. In 2012 the team's expertise was extended to cover water treatment technologies to support the development of small water treatment units.

*An example: Durapipe UK – The Shard.* The Shard in London is a 72-storey multi-use building which is 310m tall. The project required a dual contained pipework system to cater for the softened water system and specified Durapipe's innovative Guardian system.

As the purpose of the pipework is to transport chemically dosed water, corrosion resistance is a key parameter. And in this area, due to high level research and development activities, the Durapipe products can offer a better alternative than more traditional pipe work systems.

### **LIFE-CYCLE THINKING**

Accurate information, based on the life-cycle impacts and costs of resource use, is needed to help guide

consumption decisions. Consumers can save costs by avoiding waste themselves, and buying products that last, or that can be easily repaired or recycled.

The Group decided to continue its proactive life-cycle approach for all products in order to address environmental issues from the initial design stage, through production and finally to end of life optimisation.

The Group is committed to provide environmental information about its products during their entire life cycle, and has adopted the use of Environmental Product Declarations (EPDs). The objective is to support the actual trends observed around the globe as EPDs are drawn up in accordance with international standards and are based on a life-cycle assessment. In many developed countries the market demand for sustainable construction is increasing. In Europe, this situation is already in place: INIES (France), IBU (Germany), MRPI (Netherlands), BRE (UK). Along with use phase and end of life phase scenarios, these EPDs provide the core environmental data required to assess the environmental performance of buildings regardless of the methodology (French system HQE, DGNB in Germany, BREEAM in the UK...).

Another example is the new version of the US system LEED. The new version will give priority to water savings in water consumption, and to life-cycle analysis which was not taken into account in the previous requirements.

This call for transparency and scientific assessment, in order to help customers and policy-makers in their decision making processes, require a strong involvement from manufacturers. Our objective is to communicate the environmental performance (and sanitary performances in some cases) in accordance with well-known and well-accepted standards and technical frameworks, in order to have the same relevance, honesty and reliability as there are in technical or financial performances reports.

## **WATER EFFICIENCY**

Across the planet, water efficiency is at the top of the agenda. It is a priority as many countries face challenging situations with their water networks (fresh and waste). For example, 20-40 per cent of Europe's water is wasted, and water efficiency could be improved by 40 per cent through technological improvements alone (reuse of waste water, and reduction of leakage in fresh water infrastructure).

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It is part of the Aliaxis Group's core business to provide quick, easy to install and reliable solutions to renew old and inefficient networks. As shown in USA with IPEX, new materials (PE) and technologies (trenchless) allow the repair of large networks without disturbing urban areas with huge public works.

The same idea explains the booming activity of the small waste water treatment units (PureStation®), both in Europe (Glynwed for example) and South America (Durman). These small units are designed to treat household waste water and black water from residences not linked to the network (in non-collective sanitation areas). The ecological differences with traditional treatment systems are substantial: comfortable environment for the users (no noise or unpleasant odours); high quality organic treatment of effluents; compact solutions suited to small areas of land, that do not encroach on gardens; low maintenance, and the possibility to reuse water with drip irrigation.

## **WASTE AS A RESOURCE**

Sustainable city authorities need easy-to-implement solutions, at best prices with reliable environmental performances, from production, through installation to the end of life phase of the product. Optimising material use, reuse and recycling construction and demolition waste are two effective ways to improve the overall environmental performance of a building product.

In North-America, IPEX's PVC Enviro-Tite (also known as Ecolotub®) is another well-known success in the sewage segment. This pipe is manufactured using co-extrusion technology, the inner layer of which consists of up to 100 per cent recycled resin, without downgrading the technical performances.

In fact, Enviro-Tite has a very high corrosion-proof performance as it is immune to corrosion from aggressive soils and galvanic action. In addition, H<sub>2</sub>S (hydrogen sulphide) and other aggressive chemicals, common in urban sanitary sewage, have no effect. In addition, equipped with the Enviro-Tite joints, the system eliminates all kinds of water losses.

In Europe, a practical alternative to concrete or clay products, the large diameter Quantum range is manufactured in high density polyethylene (HDPE), which delivers a number of technical and environmental advantages. Extremely strong and durable, the lightweight HDPE product is easier to transport, handle and install than traditional materials – resulting in quicker and more profitable contracts.

The Quantum range also delivers strong environmental performance as it contains 70 per cent recycled material derived from post-consumer waste, such as plastic drinks bottles, and post-industrial waste.

This latest addition to the Quantum range is particularly suitable for road and rail applications, but it also offers an ideal solution for a wide range of large-volume installations such as airports, landfill, agricultural and sports fields.

### EXCHANGE OF BEST PRACTICES

Aliaxis' environmental efforts are to be found in the production of an increasing number of products whose functions contribute to environment protection, such as pumps for solar plants (Friatec), which will help to benefit from the upcoming increase in investments in renewable energies for urban grids.

To be able to achieve our goals, efficient exchange of best practices or ideas is one key parameter of success within a worldwide industrial group. As an example, Aliaxis Group stimulated the technical and market knowledge transfer between one of its European manufactories and its South-American companies (Durman). Based on the high technical and marketing successes of its siphonic roof

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drainage, Akasison, an exchange was organised. Now, Durman is the first company in Latin America to offer this solution, which is mainly used in warehouses, commercial centres and industrial facilities with roof areas of over 10,000 sq metres.

Akasison in Latin America offers additional points for LEED construction (Leadership in Energy & Environmental Design) as the product is partially manufactured out of recycled compound: T-PAR. This allows the alliance of innovations in design with a sustainable solution. Durman now has a number of designers dedicated to the Akasison design in order to support other projects in the Latin American region.

In South America (Chile), Vinilit was proud to sponsor and to promote efficient water solutions to shareholders during the 'Water Week Latinamerica' ([www.waterweekla.com](http://www.waterweekla.com)). During the third week of March 2013, this important conference allowed us to discuss the water challenges that face Chile and Latin-America. The exhibition gathered water specialists and authorities to analyse the trend of water management and water care.

In Cincinnati, Ohio, USA, the Aliaxis Group spoke at SPE-ANTEC® – the Society of Plastics Engineers Annual Technical Conference – in April 2013. The conference organisers asked the Group to speak about Europe's successful communication of environmental performance through EPDs. This presentation, as with many other activities during the week, was an excellent occasion to exchange best practices between specialists.

Globally, the involvement of industries in key organisations, as sectoral technical associations, green building councils and national building environmental schemes, is one compulsory step to ensure that all the innovation forces commit to effectively realising the needed transformation for sustainable development.

Taking into account the challenging situation with regard to natural resources, it is now time for action. Along with a number of other industries, Aliaxis Group will keep this high on the agenda – and is eager to put its convictions into practice in each country where the company is located and involved. ■

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