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WATER REUSE

Kemira Position Paper

This paper looks at the importance of water reuse for the European Union, and highlights Kemira's knowledge and credentials in water treatment. We are dedicated to water reuse, and want to partner with European institutions and stakeholders to address this topic.

Water reuse is a part of integrated water management, and is technically possible to achieve already today, but harmonized EU level business/regulatory drivers are lacking. To ensure public health and environmental safety, we must standardize the quality of reused water, but not the technology to achieve it. The EU must facilitate innovation in water reuse, while considering the origin and destination of reused water – in short, the right quality for the right purposes.

Introduction

Water is essential for human life, agriculture and a number of crucial European industries and their production processes. Reusing water will ensure it is used in a more efficient way, preventing finite water supplies from being depleted and ease shortages in water-stressed regions. Promoting water reuse will be a clear step towards achieving a zero-waste, circular economy.

Water reuse is already an integral part of water management, but the practice is being hampered by the lack of EU wide economic and harmonized regulatory drivers. How can the right regulatory environment be created to ensure that water reuse becomes an accepted and commonly used option in agriculture, industry and municipalities? Kemira welcomes that the European Commission is tackling this important issue, through the recent public consultation on water reuse, and looks forward to a strong European measure to encourage water reuse.

Kemira is a European company committed to research, knowledge and improving the quality of life. During our 90 year history, we have gained a deep knowledge of different water treatment applications. Kemira is now the technology and market leader in chemical raw and waste water, and sludge treatment solutions. We are investigating new water treatment techniques and 10% of our revenue is expected to be linked to innovation by 2016.

The importance of water reuse to the Economy, Environment and Society

Water shortages are common in the EU. Even central European countries with relatively high rainfall experience water shortages due to overconsumption in economically developed and densely populated regions. Where fresh water is plentiful, this water should be used as the first option. We should also remember that a lot of water is indirectly reused already: like in the case of the river Rhine where water is withdrawn, treated, used, treated and discharged back to the river many times.

However, where the total cost of water reuse is lower than other options, also taking into account the environmental and societal externalities, then it should be pursued. Water reuse makes sense economically and environmentally, as it increases resource efficiency - it requires less energy to treat water for non-potable purposes than to drinking water quality. Water reuse also prevents fresh drinking water being used in applications where lower quality water would be appropriate and reduces the probability of expensive and disruptive water shortages. In addition water reuse can also help to decrease the amount of nutrients and

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8.12.2014

other impurities discharged into the environment. In broad social terms, water reuse can ensure the safeguarding of existing water supplies and manage the imbalance between water demand and supply.

Water reuse is a central component of integrated water management. Poor implementation of the Water Framework Directive (2000/60/EC) and Urban Waste Water Treatment Directive (91/271/EEC) has often led to water reuse being ignored. The AQUAREC project correctly identified the potential for increased water reuse in the EU.

Encouraging high standards for water reuse

Currently the price of reused water is too high to encourage its uptake, while the price of freshwater is too low. EU wide standards could create economies of scale and may reduce compliance costs. Currently, different national standards increase compliance and monitoring costs, which are passed on to the water user.

Furthermore, when no economic drivers exist – i.e. the investment cost of reuse plants and related infrastructure can be high – regulation is needed to ensure water reuse. There is also a need for proper pricing mechanisms for reused water. There are also currently no EU wide or globally accepted quality standards for water reuse, which should exist to define what quality of water can be used in which applications.

Standardize the quality of reused water - not the technology

To avoid creating a barrier to innovation, any standards developed must focus on the quality of the re-used water delivered, rather than the technology for the reuse. Particularly since we do not know what kind of technologies we will have in 20–30 years' time, regulation must not inhibit potential technological development. France and Italy are examples of countries where limited flexibility on treatment technologies limits the uptake of water reuse. Any CEN/ISO standard should avoid these mistakes.

Standards must also take into account the origin and destination of the reused water. Depending on the source of the raw water, standards must allow for a selection of technologies and reuse applications. The bottom line is that standards are essential to maintain public health and environmental safety. Standards also need to be strict to create confidence amongst the public that reused water is safe to be used.

EU wide innovative business, pricing and funding models for water reuse are needed

The high cost of implementing the solutions required to treat waste water creates a barrier to water reuse. Technologies enabling water reuse exist today, but the business, pricing and funding models for water reuse investments are lacking. Capital investment is needed to construct reuse plants and the associated infrastructure, which will run to many billions of Euros.

Chemistry always has a role in water treatment and reuse

Water can be treated to different degrees to ensure adequate quality for different purposes – for example for use in flushing toilets or for drinking. In most cases where chemical treatment is used, alone or in combination with other water treatment technologies, it has the lowest carbon footprint of all commercially available water treatment technologies. Therefore, when justified, water reuse applications permitted under EU law must allow for the use of chemicals.

8.12.2014

Chemical water treatment has been used for many years, and is a proven, established technology, where the effects and impact are known in detail. In fact, most “non-chemical” technologies require some amount of chemicals/chemistry to be efficient (like scale inhibitors for membranes). Chemistry happens everywhere all the time, so it is best to control/manage the chemical reactions with chemistry.

Ensuring sustainable growth

Water reuse represents green jobs, employment creation and a contribution to European competitiveness and growth: Kemira alone has 4,450 employees. There are over 1,500 waste water treatment companies located all over Europe, and over 136,000 small and medium-sized entities (SMEs) are directly involved in the water-related value chain.

Kemira is using a number of materials classified as industrial by-product or recycled material as raw material in its production of water treatment chemicals. What is considered as a “by-product” from various other industries is a raw material for us. In 2013, 23% of all raw materials used by Kemira were recycled materials from external partners.