Research on Material and System for Residential Water Purification

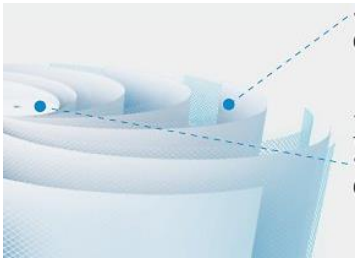
Environmental Technology Institute Coway, 코웨이 환경기술연구소
Coway R&D Center, Seoul National University Research Park, Seoul, Korea

Sanghyeon Kang, 강상현,
Director of Research Division, Nanomem@coway.co.kr

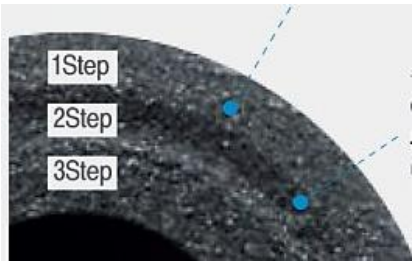
Descriptions of Research Interests

- High-flux membrane for residential water purification
- Activated carbon with high surface area
- Selective adsorption/separation of ions
- Electro-chemically water purification
- Advanced materials & technologies for next-generation water purification
- Anti-scale and flushing technique
- Sanitation technique
- Water softening - ion exchange

RO membrane



Activated carbon filter



Electrostatic nanofiber

Applications

Water purifier

Tankless RO

Small

Ice

Business use

Water softener

Skin care

Research Fields 1 Material research **2** Energy-efficiency system **3** Environmental analysis
Keywords Water purifier, Residential reverse osmosis (RO), Polymeric membrane, Activated carbon, Ion exchange membrane, Electro-deionization (EDI)

Research on the Removal Performance of the Emerging contaminants

Environmental Technology Institute Coway, 코웨이 환경기술연구소
Coway R&D Center, Seoul National University Research Park, Seoul, Korea

Sanghyeon Kang, 강상현,
Director of Research Division, Nanomem@coway.co.kr

Emerging Contaminant

- ~35% of all municipal wells contaminated with enteric viruses (Abbaszadegan et al, 2003/2012)
- Various emerging compounds reported in surface waters, ground waters and/or drinking water. (Water Research, Volume 44, Issue 2)
- “Tap Water Can Be Unhealthy but Still Legal.” (The New York Times, an article, 2009)

Issue of Emerging contaminant

Microcystine

Class of toxins produced by certain freshwater blue-green algae

Nitrosamines

Most nitrosamines are carcinogenic.
Use : manufacture of some cosmetics, pesticides, and in most rubber products

Radioactive substance

Radioactive substances are atoms that decay naturally. They can give off alpha particles, beta particles and gamma radiation.

Virus

A virus is a small infectious agent that replicates only inside the living cells of an organism.

Analysis technology

Organic Analysis

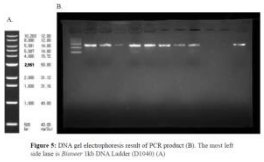
Chromatography / Mass spectrum

Inorganic Analysis

ICP-OES / ICP-MS

Biological Analysis

Gel electrophoresis



Remove the Emerging contaminant : Filtration Spectrum