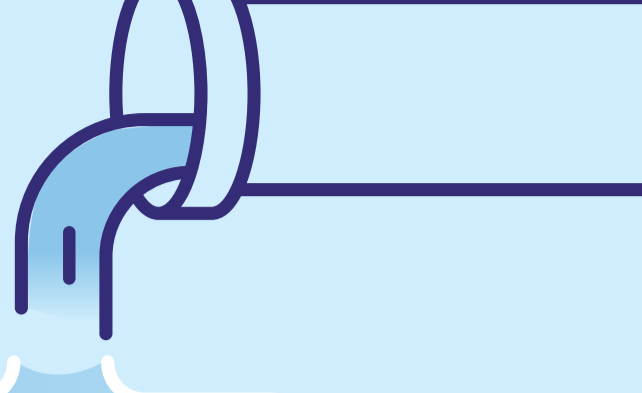


A Roadmap to Healthier Materials for Drinking Water Systems

What material strategies should be explored for drinking water systems?

Roadmap: From source to sink



Source

Address contaminants in water supply from solvents, pesticides, plastics and more



Distribution



Prevent Bisphenol A exposure from plastics used for tanks, pipes and water systems.

Lead-free fixtures and pipes

Your hot/cold water system

Trivalent chromium finishes on tapware.

Halt use of hydrofluorocarbons for refrigeration

Lead-free tapware



Source

Forever chemicals in drinking water sources

Per- and polyfluoroalkyl substances (PFAS)

A University of New South Wales study has found high levels of forever chemicals in surface and groundwater around the world, with Australia as one of several hotspots.

Strategies:

- Reduce exposure risk to forever chemicals in materials.
- Subject to further testing, sub-micron filter specifications could be conducive to filtering out harmful particles.



Distribution

Any material that comes into contact with water eventually releases some of its constituent parts into the water.



Risks:

- Lead in plumbing fixtures, tapware, and pipes.
- PVC pipes releasing bisphenol A (BPA) and phthalates.



Strategies:

- BPA should not be found in plastics used in tanks or other parts that are submerged in water.
- Specify lead-free compliant plumbing products.
- Plumbing products made of copper alloy that have more than 0.25% lead prohibited in drinking water systems as of 1 May 2026 (Plumbing Code of Australia 2022, Clause A5G4).



Your hot/cold drinking water system



Exposure to hexavalent chromium (chromium-6), commonly used in chromium plating of tapware, is known to be toxic to human health and the environment.

Strategies:

- Alternative finishing methods: trivalent chromium plating
- Low toxicity
- Resistant to corrosion and scratches

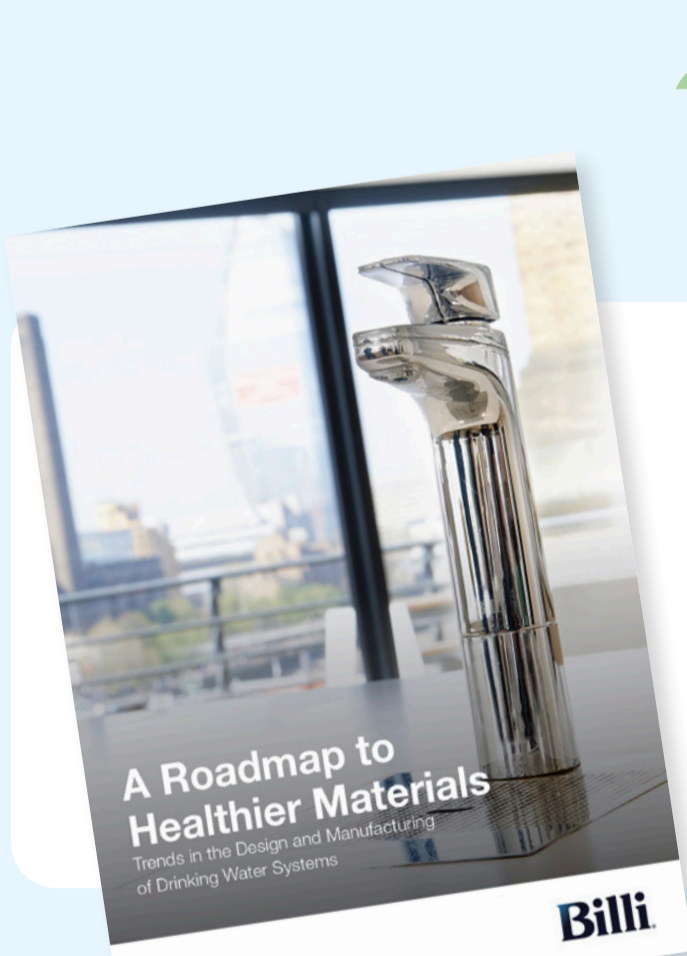
Many drinking water systems with chillers still use synthetic hydrofluorocarbons (HFCs) with high Global Warming Potential (GWP) in their refrigerants.

Strategies:

- Replace HFCs with high GWP with low-GWP alternatives
- Compare:
 - R22 has a GWP of **1,810**
 - R290 has a GWP of **3**

The Kigali Amendment to the Montreal Protocol of 2019

- Phasing down of HFCs globally by 85% by 2050.
- Global HFC emissions phase-down to prevent 105 billion tonnes CO2 equivalent, and avoid 0.5°C global average warming, by year 2100



A Roadmap to Healthier Materials

Trends in the Design and Manufacturing of Drinking Water Systems

[▶ DOWNLOAD](#)

How Billi is shaping material health outcomes

Driven by a strong research and development team and a commitment to improving user health and quality of life, Billi supplies a range of instant boiling and chilled water dispensers that meet strict material health requirements that are continuously developing at a national and international level.

- Billi products do not contain any exposure risk to forever chemicals in their materials.
- There is no BPA in components of Billi systems that are submerged in water.
- Billi water filters remove lead and heavy metals, chlorine and organic chemicals, parasites and bacteria, and other particles.
- Certified lead-free components.
- Working with Phoenix Tapware, Billi, has already started to use trivalent chromium plating, a more environmentally friendly substitute for hexavalent chromium.
- Billi uses R290 refrigerant as a sustainable cooling solution.

Product certifications

- Environmental Product Declarations (EPD) under EN 15804
- Global Greentag certification and LCARate Gold Program recognition
- Watermark certified products