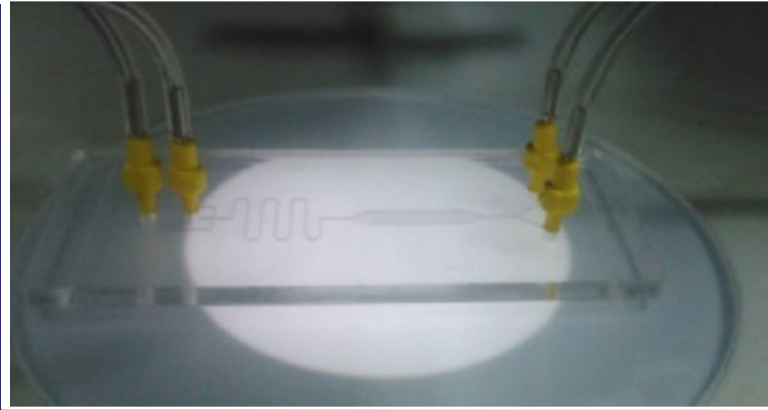


**GRANTED****(IN526000)**

## Continuous flow microfluidic device for rapid heavy metal ion detection in water samples



### NEED

Toxic metals in drinking water lead to cancer, nerve damage, and developmental issues. Standard lab-based tests take hours and require bulky equipment. What if heavy metal contamination was spotted early—right where it occurs, without complex infrastructure?

### TECHNOLOGY OVERVIEW

A microfluidic device enables on-site detection of metal ions in water using a planar chip with serpentine mixing, detection, and separation zones. The transparent detection chamber supports visual analysis. Designed using PDMS or glass, it delivers precision in fluid handling at controlled flow rates.

### TECHNOLOGY KEY FEATURES

Planar microfluidic layout with defined zones for mixing, detection, and separation. Made from PDMS, silicon, or glass. Operates at 6–1200 ml/h flow rate. Transparent chamber enables in-situ visual monitoring.

[Read more here](#)

### MARKET ANALYSIS

Global water testing market projected to reach \$9.6B by 2033, growing at 6.4% CAGR (Allied Market Research, 2023). India's water quality testing market growing at 8.7% CAGR. Key drivers include groundwater contamination, decentralized water supply, and stricter drinking water standards.

### Target Industries

Water Testing Device Manufacturers and/or Portable Sensor Technology Developers and/or Environmental Monitoring, Agri-Tech, and Smart Infrastructure Enterprises seeking field-deployable, low-footprint solutions.

### AT A GLANCE

- SDG 3 (Good Health and Well-being), SDG 6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production)

Technology is available for licensing/ co-development.

Reach out to Prof. Deepak Chitkara, Coordinator, BITS Technology Enabling Centre,

BITS Pilani Contact Details: [tec.bits@pilani.bits-pilani.ac.in](mailto:tec.bits@pilani.bits-pilani.ac.in), 91 1596-255913