Novel Process for Removal of Halogenated Hydrocarbons

Opportunity
Halogenated hydrocarbons are widely used in flame retardants, electronics, pharmaceuticals and solvents. The presence of these materials in waste streams continues to be a significant environmental problem. Traditional treatment methods require extensive energy, create toxic by-products or are incompatible with air or water.

Researchers at the University of Guelph have developed a novel method to efficiently remove a variety of these toxic compounds from waste streams at low cost through converting the halogenated hydrocarbons into non-halogenated materials.

Applications and Advantages
• Solution-based treatment that is compatible with air, water and organic solvents
• Reducing agent produces salt for easy removal
• Reducing agent is cost effective and easy to manufacture
• Solution-based reducing agent facilitates easy handling and transportation
• Reaction occurs at or slightly above 20°C
• Demonstrated to be effective for treatment of bromobenzene, chlorobenzene, 1-bromo butane, CCl4, CBr4, and dichloromethane

Keywords
halogenated hydrocarbons, reducing agent, waste water treatment, environmental

R-X + Agent-H → R-H + Agent-X

R-X: hydrogenated hydrocarbon (Cl or Br)
Agent: unique reducing agent