



# LEED Pilot Credit Library

---

## Pilot Credit 2: PBT Source Reduction: Dioxins and Halogenated Organic Compounds

This credit is available for pilot testing by the following LEED project types:

- New Construction
- Core and Shell
- Schools
- Commercial Interiors

### Intent

To reduce the release of persistent bioaccumulative toxic chemicals (PBTs) associated with the life cycle of building materials.

### Requirements

- Use materials manufactured without added halogenated organic compounds<sup>1</sup> for at least 75% (by cost) of the material totals in a minimum of three of the following four groups:
  - Exterior components (including at a minimum, roof membranes, waterproofing membranes, window and door frames, siding).
  - Interior finishes (including at a minimum, flooring, base, ceiling tiles, wall coverings, and window treatments).
  - Piping, conduit and electrical boxes.
  - Building-installed electrical cable and wire jacketing.
- Halogenated organic compounds covered in this credit include the following:
  - All plastics containing chlorine or fluorine including:
    - Chlorinated polyethylene (CPE)
    - Chlorinated polyvinyl chloride (CPVC)
    - Chlorosulfonated polyethylene (CSPE)
    - Polychloroprene (CR or chloroprene rubber, also brand name Neoprene)
    - Polyvinyl chloride (PVC)
    - Fluorinated ethylene propylene (FEP)
  - All brominated or halogenated flame retardants (BFRs and HFRs) containing bromine, chlorine, or fluorine including:
    - PBDEs (polybrominated diphenyl ether), including Deca-BDE (Decabromodiphenyl ether),
    - Tetrabromobisphenol-A (TBBPA)
    - Hexabromocyclododecane (HBCD)
    - Tris(2-chloroisopropyl) phosphate (TCPP),
    - Tris(2-chloroethyl)phosphate (TCEP)
    - Dechlorane Plus
- Compounds that constitute less than five percent of the product by weight, are exempt from complying with the credit requirements, with the exception of halogenated



# LEED Pilot Credit Library

---

flame retardants (HFRs), including, but not limited to, Polybrominated Diphenyl Ethers (PBDEs) which have no minimum threshold.

## **Potential Technologies & Strategies**

While compounds representing less than 5% of the product weight are not required to comply with the credit requirements (with the exception of HFRs), specification and procurement of halogen-free minor parts is encouraged when meet or exceed performance requirements.

Consider materials free of added chlorine or other halogens in all applications which meet or exceed performance requirements. Options of materials with reduced PBTs include, but are not limited to, TPO, FPO, EPDM, and ABB or SBS modified bitumen for roof membranes; natural linoleum, rubber, or alternate polymers for flooring and surfacing; natural fibers, polyethylene, polyester and paint for wall covering; polyethylene for wire & cable jacketing; wood, fiberglass, HDPE, and aluminum with thermal breaks for windows; steel, HDPE and fiberglass for conduit; and copper, steel, concrete, clay, polypropylene and HDPE for piping. Cast iron pipe should be avoided based on air quality concerns associated with manufacturing practices (see TSAC PVC report).

Confirm that halogenated flame retardants are not added to alternative plastic products. The fire retardant attributes of halogenated compounds should be replaced with inherently fire retardant design or alternative materials appropriate to the fire requirements of the product.

<sup>1</sup>Halogenated organic compounds (or halocarbons) addressed by this credit are made up of a halogen element (specifically chlorine, bromine or fluorine) and carbon. These compounds are targeted due to their persistence and propensity to dioxin formation. Halogen salts, such as sodium chloride, which are formed with metals instead of carbon have different environmental and health performance characteristics and are not under the purview of this credit.