



Molex, LLC.

Product Compliance

## Molex and Low-Halogen

There has been a significant increase in interest in low-halogen electronics. Although there is no current legislation that bans ALL halogens and halogenated compounds from electrical and electronic products, a number of companies are pursuing this initiative. As a supplier of components (connectors and connector-related products) to these companies, Molex understands the impact of such a ban to be significant from both a technical and business viewpoint.

With respect to connectors and connector-related products, the impact of this low-halogen initiative revolves around the use of chlorinated flame retardants and predominantly around the use of brominated flame retardants (BFRs) in the polymeric materials used in connector housings and PVC used in cables. Although legislations, such as EU RoHS Directive (2011/65/EU) prohibits the use of specific brominated flame retardants (PBB, PBDE) and will restrict the use of specific phthalates (DEHP, BBP, DBP, DIBP) that could be used in PVC materials; the use of other brominated flame retardants and other phthalates is not prohibited.

### Achieving Low-Halogen Status

Three options exist for achieving low-halogen connector housings and connector-related products:

1. Specify a resin that is inherently flame-retardant (may not be cost-effective)
2. Specify a resin that uses an alternative, non-halogenated flame retardant (may not be cost-effective due to necessary innovations in non-halogenated flame retardants)
3. If the application does not require flame resistance, specify a resin that does not have a flame retardant

Some alternatives exist for PVC, as well. However, they may not be cost-effective and flexibility and other properties may be compromised. Alternatives may include: Polyethylene, Fluorinated polymers (FEP, ETFE, PVDF), Ethylene propylene diene elastomer (EPDM), Rubbers, and Polyurethane.

From the business standpoint, any change of materials could require a significant re-tooling and re-qualification effort that would likely include capital investment and increased product cost. As a result, each situation must be considered and justified on a case-by-case basis.

Molex is committed to meeting legislative and customer environmental requirements. We welcome the opportunity to work with our customers to both enhance their business opportunities and to improve the environment for everyone.

To obtain Low-Halogen compliance statuses, please visit [Molex online compliance tool](#). For additional information regarding Molex's environmental initiatives please visit [www.molex.com](http://www.molex.com) → Company Information → Product Stewardship.