




Bromine Science and Environmental Forum
Who we are and what we do





“Bromine applications serve to
protect human life, for example in
flame retardants and pharmaceuticals.”

Our focus

BSEF sponsors independent scientific assessment of bromine products and their applications, which include flame retardants, pharmaceuticals, biocides and chemicals. In this way, the Forum seeks to ensure that scientific information on its products is advanced and more widely understood by the public, regulatory and scientific communities.

BSEF has helped sponsor highly esteemed scientific institutes to further the scientific of the recyclability of plastics containing brominated flame retardants.

- GfA and the University of Erlangen in Germany conducted studies which demonstrate that plastics (in this case HIPS) containing brominated flame retardants (Deca-

BDE) are fully recyclable, with the flame retardant able to withstand at least five recycling cycles and the recycling meeting German worker health and safety standards.

- Multek study in Maastricht of the Comparison of Halogen Free Base Materials with those containing Halogens which measured product technical performance and environmental impact.

BSEF works with downstream customers to develop product stewardship program and support training and education to ensure safe use and protection of health and environment (including via management systems such as Responsible Care, ISO 14000 or EMAS).



BSEF holds Technical Workshops, Round-Table discussions and annual Seminars aimed at informing and exchanging views with stakeholders. Events held in 1999-2000 covered subjects such as:

- Maximising E&E Recycling in the European Market, Seminar, (Seoul, Taipei and Tokyo, November 2000)
- Sustainable Management of Plastics with Bromine, Technical Workshop (Tokyo, November 1999)
- Polybrominated diphenyl ethers (PBDEs), International Scientific Workshop, (Ijmuiden, The Netherlands, June 2000)

BSEF seeks to further the understanding of the role bromine chemicals play in providing consumers with safer products (e.g. clean water and increased fire safety in the home and office). Brominated flame retardants provide a significant safety margin for consumers and have on many many occasions been demonstrated

to help save lives. By reducing the incidence of fires brominated flame retardants have also been shown to reduce significantly a product's environmental emissions over it's life cycle.

The Swedish National Testing and Research Institute recently completed a life-cycle assessment (LCA) which found that over the lifetime of a television set, there are less emissions to the environment from a TV set containing brominated flame retardants in the outer casing, than a TV set without such flame retardant protection.

Asia Pacific

BSEF's Asia Pacific program involves regular seminars and permanent support to Asia Pacific stakeholders. Contact www.bsef/asiapacific.com for details of BSEF's Asia Pacific seminars.



What bromine is:

The first known use of a substance containing bromine was in ancient Rome, where a chemical produced naturally by marine mussels was extracted to produce purple dye. The cost of the extraction process was such that purple garments could only be afforded by the very rich, and thus the purple became known as "royal purple".

Bromine was not discovered as a chemical element until 1826, when the French chemist Antoine Balard isolated it from chlorine. Bromine in its elemental form is a highly volatile reddish-brown liquid at room temperature. However, bromine is never found in its elemental form naturally, but in compounds with other substances, known as **bromides**. It is these bromides which are used to produce commercial brominated products.

In the time since bromine was first discovered, various bromine compounds have been put to important use:

- Water Purification
- Agriculture
- Cars – past and future
- Healthcare
- Photography
- Brominated flame retardants.

www.bsef.com

The BSEF website (www.bsef.com) provides extensive scientific information on bromine and bromine products. BSEF's presence in the EU, the US and Asia-Pacific ensures that up-to-date relevant information can be made quickly available through this site e.g. the latest developments on EU proposals such as those on Waste Electrical and Electronic Equipment.



BSEF Members:



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Great Lakes Chemical Corporation

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TOSOH

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For more information about the fire safety benefits of brominated flame retardants, additional information on environmental issues and to find out about bromine and its applications please visit our website at www.bsef.com or contact:



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