

The Voluntary Emissions Control Action Programme

The 2017 European progress report of the bromine industry's stewardship programme.

VECAP is coordinated by BSEF, the international bromine production organisation.

Find out more about VECAP at www.vecap.info.



VECAP IN A NUTSHELL

WHAT

The Voluntary Emissions Control Action Programme (VECAP) is a pioneering product stewardship scheme for the management of chemicals throughout the value chain that is run under the principles of Responsible Care¹.

Initially, VECAP only applied to the brominated flame retardant Deca-BDE. In 2004, the programme was expanded to include TBBPA and HBCD and in 2013 also EBP. Recognising the significant impact the VECAP programme had in helping producers and downstream users to manage chemicals responsibly and in an environmentally sound manner, in 2015 the programme took an additional step forward, and decided to extend its application to all powder brominated flame retardants (BFRs)² produced by VECAP member companies. The programme works to ensure the environmentally responsible management of chemicals in all elements of the value chain, by reducing the potential for emissions of chemicals during the production and manufacturing process.

WHO

The bromine based flame retardant industry voluntarily developed VECAP to take responsibility for the management of flame retardants at the production and manufacturing stage.

VECAP was established by three of the leading global producers of flame retardants – all members³ of the BSEF, the International Bromine Council⁴ – together with the UK Textile Finishers association. The programme is coordinated by BSEF.

¹ Responsible Care® is the global chemical industry's unique initiative to improve health, environmental performance, enhance security, and to communicate with stakeholders about products and processes.

² There are more than 200 different types of flame retardants which act to delay the spread of fire. TBBPA and HBCD are mainly used in plastics, textile applications, electronics, clothing and furniture.

³ Albemarle, Lanxess, ICL-IP.

⁴ BSEF is the international bromine production organisation promoting the benefits of bromine and bromine technologies for society and economy as well as commissioning science on bromine and bromine-based solutions.



WHERE

VECAP is a globally recognised product stewardship scheme, with more and more users in Europe and worldwide embracing the core values of the programme.

Individual VECAP member companies have promoted and implemented VECAP in Europe, North America, Mexico, China, Japan, Singapore, Thailand, Indonesia, South Korea and Taiwan. In all these countries users show their commitment to the scheme by participating in the programme, responding to the survey questionnaire that underpins the progress reports, sharing experiences and implementing the best practice recommendations.

WHY

VECAP is founded on the commitment of the brominated flame retardant industry to sustainably manage flame retardants within the value chain.

The programme has been tailored to provide support and guidelines to participating companies on how to control and reduce the potential for emissions of chemicals into the environment for the production phase of the value chain. The simple-to-implement best practices⁵ help producers and downstream users to control, reduce and continuously improve their potential emissions of flame retardants to the environment. Even though industry practices for processing all types of chemicals often differ between applications, VECAP best practices have demonstrated effectiveness across these widely disperse use patterns.

⁵ For more information on VECAP best practices, please see the last chapter of this brochure, or visit <https://www.vecap.info/publications-2/>

2 VECAP REPORTING METHOD HOW DOES IT WORK?



As part of the industry’s commitment to track progress, participating users and producers receive an annual questionnaire to fill in and report back on the handling of the volume of the relevant brominated flame retardants handled during the year. Since 2016, the reporting method is based on a scorecard system, rated from **GOLD** to **BRONZE**, which reveals how the VECAP best practices were applied.

Strengthening their commitment to the sustainable management of chemicals throughout the value chain, VECAP member companies extended the application of VECAP best practices to all powder brominated flame retardants produced – including proprietary and company specific substances. In line with this expansion in the remit of the programme, the VECAP reporting methodology has been adapted following competition and antitrust rules, which require the maintenance of supplier anonymity.

As such, reporting for the volume surveyed in 2017 also focused on the total percentage of volume sold that has been addressed using VECAP best practices.

The VECAP survey tool

In order to have an accurate understanding of the practices applied at every potential emission point, the VECAP survey tool covers every step of the user’s manufacturing process.

Users are required to carefully fill in the questionnaire for the VECAP team to be able to identify critical points, and to continuously develop best practices to successfully achieve zero or near-zero potential emissions while handling and treating chemicals.

The assessment of the successful implementation of the VECAP best practices is then based on several parameters from the survey:

5 parameters that cover those elements within the manufacturing process for which potential emissions to the environment have been calculated based on independent quantitative analyses of these emissions in the past.

These are the critical sources of potential emissions which VECAP aims to reduce, namely the presence of:

- Air filters
- Waste water
- Filter dust disposal
- Solid waste disposal
- Sludge disposal from waste water treatment

Rewarding Commitment

Based on their performance with implementing the VECAP best practices across the different parameters, participating users and producers are assigned a status to recognise their commitment.

AWARD	COMPLIANCE WITH		
	5 PARAMETERS FOR CRITICAL SOURCES	7 GENERICALLY RECOGNISED BEST PRACTICES	3 QUESTIONS FOR POTENTIAL EMISSION POINTS
GOLD	✓	✓	✓
SILVER	✓	●	○
BRONZE	●	○	○

Those that meet **all parameters** are granted **GOLD** status. **SILVER** status is given to those that meet all 5 parameters related to the critical sources for potential emissions and demonstrate awareness of the 7 parameters related to the generically recognised best practices. Finally, **BRONZE** status is granted to participating companies who do not entirely comply with the 5 parameters related to the core critical sources for potential emissions.

The **BRONZE** status reflects users and producers who have been introduced to VECAP best practices and are encouraged to accomplish greater compliance in the coming years.

The VECAP member companies are committed to increasing participation and awareness among all existing and new users on a yearly basis. The team is also committed to the continuous improvement of the programme with the development of new best practice recommendations based on experience and evolution in manufacturing processes.



GOLD



SILVER



BRONZE

7 parameters cover those elements within the manufacturing process for which potential emissions to the environment could occur but have not been calculated. Such best practices are generally recognised as applicable to every plant, regardless of whether VECAP is in place.

- These include:
- Cleaning of working area or equipment
 - Use of waste water treatment systems
 - Disposal of waste water to appropriate treatment facilities
 - Practices around disposal through incineration
 - Secured chemical landfill of empty packaging
 - Floor swipes that may contain BFRs
 - Any other contaminated Personal Protective Equipment (PPE)

3 questions cover points within the manufacturing process for which potential emissions to the environment could occur but have not been calculated.

- For example:
- The disposal of Personal Protective Equipment (PPE) and of other contaminated materials
 - Checking of inventory
 - Record of broken packaging

These best practices have been added to VECAP as the programme evolved.

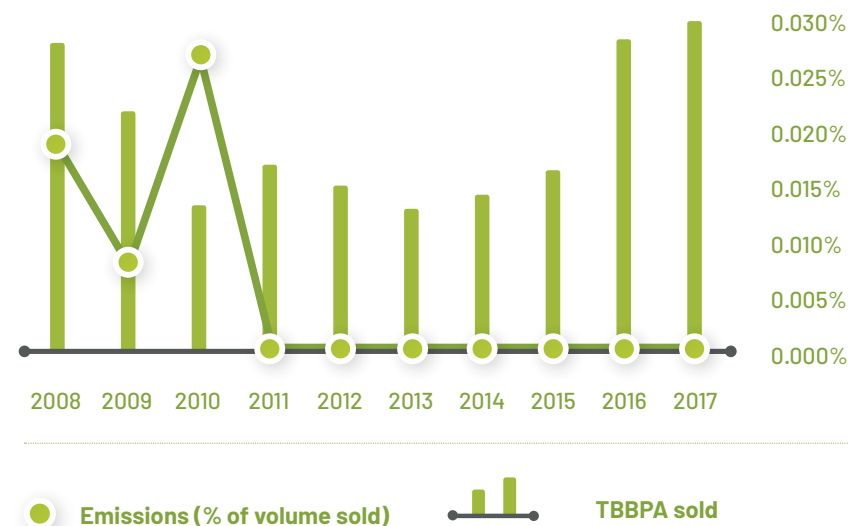
HOW WE DID THIS YEAR

2017 European Progress Report

Since its launch in 2004, the VECAP product stewardship programme has achieved impressive results for the substances covered by the programme in Europe thanks to the commitment of VECAP member companies to responsibly manage potential emissions to the environment throughout their value chain.

Their engagement led to substantial decrease in potential emissions of flame retardants covered by the programme throughout the years, as in the case of TBBPA. A complete overview of the programmes performance over the years can be found in the Publications section of the VECAP website⁶.

Summary of potential emissions TBBPA in Europe (2008 = index year)



⁶ <https://www.vecap.info/publications-2/>

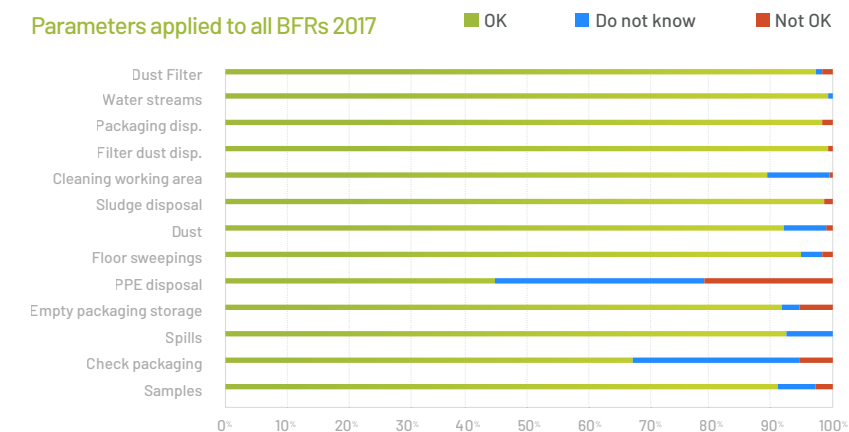
2017 marks the third year of reporting of all solid BFRs. The results of the European Progress Report show the successful implementation of VECAP best practices across the region. The 2017 survey shows that the volume of BFRs covered by programme has remained stable, compared to the previous reporting period, covering **90%** of total BFRs sold by the founding member companies in 2016.

As a matter of fact, **71.7%** of the total volume of BFRs commonly sold in 2016 was handled with all VECAP best practices and was assigned Gold status, contributing to an increase of **45%** in comparison to the previous reporting period. A further **11.5%** of the total volume sold met the criteria for Silver status. Over **83%** of the all BFRs commonly sold were handled correctly, with VECAP best practices implemented at the most crucial points to reduce potential emissions to the environment, showing a slight decrease compared to the preceding year due to some new users applying VECAP best practices for the first time. **6.3%** of the volume covered of all BFRs sold was assigned Bronze status, with only **10.5%** of the volume sold in 2016 not being accounted for.

2017 was also marked the first year of comparable data for HBCD replacement with a slight decrease in the volume covered by the programme due to new customers joining the programme. The survey showed however that **86.8%** of HBCD replacement was handled to Gold standard, marking a **20%** increase compared to last year. While HBCD was phased out in Europe during the course of 2016, BSEF members remained committed to implementing VECAP best practices up until sales were discontinued.

The 2017 results showed that **94%** of total volume sold of TBBPA was covered by the programme, of which **92.8%** was handled to the Gold standard of implementing VECAP best practices, registering a further increase of up to **5.2%** compared to 2016 results. No volume was handled to a Silver standard, and a minimal **0.9%** was granted Bronze status, with only **6.2%** unaccounted for.

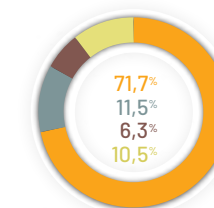
Parameters applied to all BFRs 2017



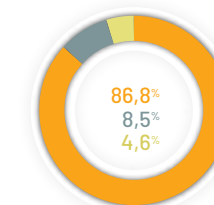
Percentage based on the volume covered by the programme, meaning 90% of the volume sold of all BFRs

All BFRs 2017 (Status based on volumes sold in 2016)

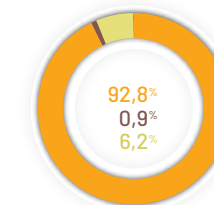
COVERED BY THE PROGRAMME 90%
NOT ACCOUNTED 10%



All Flame Retardants



HBCD Replacement



TBBPA

