

Questions and Answers: SAYTEX® 8010 (DBDPE) and Canada

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SAYTEX® 8010 is a popular flame retardant used in a wide variety of products such as but not limited to electronics, wire and cable, textiles, and enclosures to increase fire safety. This chemical product is also known as decabromodiphenyl ethane, DBDPE, or EBP. The Environment and Climate Change Canada (ECCC) has proposed that DBDPE be added to a regulatory list called *Prohibition of Certain Toxic Substances Regulations, 2012* which would prohibit its manufacture, use, sale, offer for sale, and import as well as products and manufactured items containing DBDPE. This was proposed in the Final Risk Assessment, which is a recommendation, not an action plan, and will be proposed in the ECCC's upcoming Risk Management Report. Albemarle has compiled this list of questions and answers to assist customers and others in our value chain in navigating this regulatory challenge.

What applications utilize SAYTEX® 8010?

SAYTEX® 8010 is one of the most versatile flame retardants on the market. It is used in a variety of applications such as electronic enclosures, electronics, electrical components, wire and cable, and textiles. You likely encounter a product that uses DBDPE daily. Many electronics, appliances, and vehicles imported into Canada likely have DBDPE.

Without products like SAYTEX® 8010, plastic compounds have no flammability resistance and can ignite leading to extreme fire hazards to end users as well as first responders. Flame retardants protect businesses, homes, vehicles as well as people from devices with electrical loads and flammable materials. SAYTEX® 8010 is a functional additive which preserves human life.

What is the ECCC?

ECCC (Environment and Climate Change Canada) is a department of the Government of Canada responsible for coordinating environmental policies and programs, as well as preserving and enhancing the natural environment and renewable resources.

What is the proposed legislation by the ECCC regarding DBDPE?

The ECCC's Risk Assessment proposes to "amend the *Prohibition of Certain Toxic Substances Regulations, 2012* to include the substance DBDPE and products containing DBDPE. This would prohibit the manufacture, import, use, sale and offer for sale of DBDPE, as well as products and manufactured items containing DBDPE. The proposed action would target all manufacturers, importers, and users of the substance DBDPE and products containing DBDPE (Canada, 2019)."

Is SAYTEX® 8010 harmful to humans or the environment?

No. Albemarle is avid about product stewardship and has conducted extensive toxicology research on SAYTEX® 8010. SAYTEX® 8010 is acutely nontoxic. When used as intended, it provides the opportunity to choose fire protection without harmful effects to human health or the environment.

What research has been conducted on SAYTEX[®] 8010?

SAYTEX[®] 8010 is one of the most thoroughly researched flame retardants available. This includes research to assess its environmental impact, toxicity, degradation and stability, and its exceptional performance as a plastic additive. We are confident in these studies and will make them available upon request.

Why is DBDPE being added to the Canadian Prohibition of Certain Toxic Substances Regulations?

The final Screening Assessment Report for DBDPE concluded the concern is not with DBDPE itself, but with their belief that the potential photodegradation byproducts of DBDPE may present hazards to the environment. Albemarle believes this conclusion is based on a flawed comparison to decabromodiphenyl ether (decaBDE) through computer modeling and is not supported by direct science. For example, the National Academy of Sciences put decaBDE in a completely different subclass of chemicals than DBDPE. This further proves that decaBDE and DBDPE should not be generalized to behave the same. Despite our best efforts to present scientific evidence to ECCC, this regulation is progressing.

Is photodegradation a concern regarding SAYTEX[®] 8010?

The lifecycle analysis for DBDPE does not indicate that photodegradation is a major concern. Although testing has shown that it can degrade in dilute mixtures when exposed to intense UV light, these conditions do not reflect actual product use. In polymer compounds for applications that require UV resistance, light stabilizers are utilized to provide effective protection. DBDPE shows good compatibility with such stabilizers.

Is Albemarle working with ECCC to address their photodegradation concerns?

In addition to the significant number of scientific studies available on DBDPE, Albemarle has shared further experimental results addressing ECCC's specific photodegradation concerns of DBDPE. We have offered to collaborate with ECCC as these studies progress. The experimental findings have shown that no degradation byproducts were formed that would be detrimental to health or the environment.

Are products that contain SAYTEX[®] 8010 recyclable?

Yes, plastic compounds that contain SAYTEX[®] 8010 can be recycled and contribute to a circular economy. SAYTEX[®] 8010 is formulated to withstand multiple mechanical recycling processes and showcases excellent thermal stability.

Is SAYTEX[®] 8010 degradation a concern during the product lifecycle?

No, although certain studies have shown that DBDPE degradation occurs relatively quickly in dilute solvent mixtures, these studies have little relevance. They do not reflect the actual product use as a polymer additive in which DBDPE is within a polymer and disposed of via recycling or a landfill where it would not be exposed extensively to UV light. When used as intended, there are negligible influences on DBDPE stability, from manufacture to product use to end-of-life stages of the lifecycle.

When does this regulation take effect if it is passed?

The proposed amendment to *Prohibition of Certain Toxic Substances Regulations, 2012* is scheduled for publication December 2021 – March 2022. There will be a 75-day response period directly after for industry members to share concerns. We anticipate the final amendment will occur the following December 2022 – March 2023.

How should I prepare? Is there a substitute?

Until more detailed information is released by the ECCC regarding restrictions or prohibition of DBDPE, potentially impacted manufacturers may continue to use SAYTEX® 8010. Certain applications using SAYTEX® 8010 may not have an available substitute. For applications that do have substitutes, there may be challenges with insufficient supply to meet manufacturing demands.

Much work has been performed over the years to identify alternative flame retardants for DBDPE, but nothing has been found to perform similarly to DBDPE in providing a full balance of the properties. These properties include thermal stability, recyclability, low water solubility, compatibility with polymers (e.g., polyolefins and styrenics), and flame retardant properties.

What is the cost of replacement?

If a suitable alternative is identified, there may be significant costs associated with implementing this substitute, including research and development, safety and regulatory compliance testing, prototype development, performance testing of chemical and physical properties, shelf-life testing, extended life testing, and retooling and reconfiguring manufacturing equipment. Alternative flame retardants will likely not provide a drop-in replacement for all applications. It is difficult to assess the full costs at this time, but the time and effort to implement viable alternatives are expected to be very significant.

How can I get involved?

If you have any questions regarding the science or safety of DBDPE, please reach out to Albemarle. Additionally, ECCC is open to listening to industry member concerns and why it is critical to your products. Do not hesitate to reach out to ECCC to defend DBDPE, a safe and effective polymer additive.

Safety is Albemarle's top priority, and we believe that there is no need for anyone to have to choose between fire protection and risking life and/or property. We will continue to share updates with you as it develops.

Sources

Canada, E. a. (2019). *Certain Organic Flame Retardants Grouping Risk Management Approach For Benzene, 1,1'-(1,2-ethanediyl)bis [2,3,4,5,6-pentabromo Decabromodiphenyl ethane (DBDPE)*. Government of Canada.