

# British Columbia

## Smoke and Carbon Monoxide Alarm Stewardship Plan

2017 – 2021



**For more information:**

Mark Kurschner  
**Product Care Association**  
105 West Third Ave  
Vancouver, BC  
V5Y 1E6

604-592-2972 x201  
mark@productcare.org  
[www.regeneration.ca](http://www.regeneration.ca)



## **Executive Summary**

Smoke and carbon monoxide (CO) alarms were initially obligated under the B.C. Recycling Regulation, B.C. Reg. 449/2004 (the “Regulation”) in 2011. In response to the Regulation, Product Care Association, in collaboration with the Canadian Hardware and Housewares Manufactures Association and industry members, developed, implemented and operated the current AlarmRecycle stewardship plan. The original stewardship plan was approved by The BC Ministry of Environment for the period 2011 to 2016.

This stewardship plan has been developed by Product Care Association on behalf of the major brand owners of smoke and CO alarms sold in British Columbia through retail and/or electrical wholesaler channels. It has been drafted pursuant to the requirements of the Regulation and covers the period 2017 to 2021. This stewardship plan describes the collection and management system for end-of-life residential-use smoke and CO alarms as well as communication initiatives to further build on the successes of the current plan.

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## **1. Introduction**

Product Care Association has worked collaboratively with the Canadian Hardware and Housewares Manufactures Association and industry members to develop, implement and operate the 2011 to 2016 AlarmRecycle stewardship plan. The original AlarmRecycle stewardship plan was approved on August 17, 2011 and commenced operation on October 1, 2011. As of August 2015, the program successfully diverted a total of 131,256 alarms from landfill.

Pursuant to the requirements of section 6 of the B.C. Recycling Regulation, B.C. Reg. 449/2004 (the “Regulation”), this stewardship plan has been developed by Product Care Association on behalf of the major brand owners of smoke and carbon monoxide (CO) alarms sold in British Columbia through retail and/or electrical wholesaler channels.

This stewardship plan covers the years 2017 to 2021.

## **2. Product Care Association**

The B.C. Smoke and CO Alarms Program (“AlarmRecycle”) is operated and managed by Product Care Association (“PCA”). PCA is a federally incorporated, not-for-profit product stewardship association formed in response to stewardship regulations and is governed by a multi-sector industry board of directors.

PCA was formed in 2001 as the result of the merger of the B.C. Paint and Product Care Association and the Consumer Product Care Associations.

PCA manages AlarmRecycle on behalf of the producers of program products (as defined under the Regulation) who are members of PCA. In joining PCA, each producer has appointed Product Care as its agent to carry out the duties of the producer imposed by the Recycling Regulation, pursuant to section 2(2) of the Regulation. Program members include manufacturers, brand owners, distributors, first importers and retailers. Please refer to Appendix B for a list of program members.

## **3. Program Products**

### **3.1. Program Products**

AlarmRecycle collects and manages the following products.

## **Smoke Alarms**

Smoke alarms designed for residential-use, as defined by the CAN/ULC-S531 standard<sup>1</sup>, are included in the program. Smoke alarms detect smoke and issue a visible or audible signal to householders to warn of the presence of smoke. As the smoke detection and alarm functions are combined in a single, stand-alone unit, the products are referred to collectively as “smoke alarms”, though the term “smoke detector” is commonly used by the public.

Smoke alarms are powered by a battery and/or hardwired to a building’s electrical system. They are typically housed in a disk-shaped plastic enclosure and attached to a ceiling or wall. Smoke alarms can be categorized according to the following five categories:

1. Ionization smoke alarms
2. Photoelectric smoke alarms
3. Combination ionization and photoelectric smoke alarms
4. Combination ionization smoke and CO alarms
5. Combination photoelectric smoke and CO alarms

Although fire chiefs recommend households use both ionization and photoelectric type alarms, ionization units represent the bulk of sales in British Columbia. All five types of smoke alarms are included in the program.

## **Carbon Monoxide Alarms**

Carbon monoxide (CO) alarms designed for residential use, as defined by the CAN/CSA 6.19 standard, are included in the program. CO alarms detect dangerous levels of CO and issue a visible or audible signal to occupants to warn of the presence of CO. As the CO detector and alarm functions are combined in a single, stand-alone unit, the products are referred to collectively as “CO alarms”, though the term “CO detector” is commonly used by the public. CO alarms are powered by a battery, plugged into an electrical receptacle and/or hardwired to a building’s electrical system. They are typically housed in a rectangular or disc-shaped plastic enclosure and attached to a ceiling or wall.

## **Orphan Products**

The program includes products manufactured by an existing producer as well as orphan products (i.e. those that are no longer in production or which the manufacturer is no longer producing). Orphan products are accepted by the program if their function is the same as products in the program.

## **Batteries**

The intent of the program is to responsibly collect and manage smoke and CO alarms. In British Columbia, a stewardship program already exists for the management of batteries and all collected batteries are managed responsibly.

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<sup>1</sup> Underwriters Laboratory of Canada (ULC) Standards develops and publishes standards and specifications for specific product types, including those having a bearing on fire safety. Fire alarms installed in dwelling units must conform to the CAN/ULC-S531-02 standard.

## **3.2. Non-Program Products**

Units that perform only a smoke and/or CO alarm detection (i.e. they do not serve as a smoke or CO alarm) and are linked to a building-wide monitoring or alarm system, such as those defined by the CAN/ULC-S529 standard, are not generally for residential use and are outside the scope of this program. These types of products are typically installed in commercial buildings as part of an integrated monitoring and alarm system.

## **4. Product Management**

### **4.1. Product Sales**

#### **British Columbia Market**

Smoke and CO alarms are marketed to the Canadian market at large, with British Columbia continuing to represent approximately 13 percent. The products are typically sold to consumers, or to builders or building managers, by hardware stores, department stores, pharmacies and many other retailers, many of which are national in scope. Products are also sold directly to building contractors through electrical wholesalers, for use in home construction.

Sales of smoke and CO alarms are considered to be relatively stable. The B.C. Fire Code was amended in March of 2010 to require smoke alarms in all dwelling units, including private homes. Prior to that date, smoke alarms were only required in existing hotels and public buildings, but were not required in existing dwelling units such as private homes. This requirement may still result in moderate sales increases as awareness grows.

The National Building Code from 2010 was adopted in B.C. in 2013 and now requires hardwired smoke alarms with battery backup in all bedrooms in addition to every level and CO alarms outside all sleeping areas. As a result, some industry manufacturers have indicated that combination smoke alarms are the fastest growing category of alarms.

The B.C. smoke and CO alarm market is primarily served by three brand owners. In consideration of the small number of manufacturers selling these products into the B.C. market, the Program will continue to not publish aggregated sales data publicly as with other stewardship programs, in order to protect confidential segment share information.

### **4.2. Collection Rate**

#### **Available for Collection**

The quantity of program products available for collection in a given year is a function of the number of units sold in the previous years, the recommended usage period, and the actual decisions made by

consumers as to when to remove or replace a smoke or CO alarm. While sales estimates are generally available, it is more difficult to determine the average life expectancy of smoke and CO alarms, which may vary due to a number of factors.

The relevant standard agencies recommend replacing smoke alarms after ten years and CO alarms after five to seven years, due to the build-up of dust and other contaminants on the alarm sensor. Since 2007, these standard agencies have required manufacturers to place a sticker on their products reminding consumers when their alarms should be replaced. These recommendations are also reinforced by fire chiefs and fire safety organizations. Despite these recommendations, it is unknown how often homeowners actually replace their units.

**Measuring Collection Rates**

There are two approaches to measuring collection rates: capture rates and recovery rates. A recovery rate compares the amount of materials collected to the amount of material sold over the same time period. In contrast, capture rate represents the amount of materials collected as a function of the amount of materials available to collect. Collection and sales data is typically published alongside the recovery rate in order to provide context for a percentage based recovery rate. While the Regulation requires that a program recovery rate be established and reported, the unique nature of the smoke and CO alarm market in B.C. precludes this option as a performance measure.

The program will continue to use the total number of program products collected and managed annually as a performance measurement tool. Collection rates, expressed as number of units collected on an annual basis, will be summarized in the program’s annual reports and reported at a regional and provincial level.

AlarmRecycle participated in the 2013 Metro Vancouver institutional, commercial and industrial (ICI) waste composition study and 2014 Sunshine Coast Regional District pilot waste composition study. AlarmRecycle will continue to participate in waste composition studies in partnership with other stewardship organizations and regional governments, where feasible.

**Collection Rate Targets**

At the end of 2012, the program had collected approximately 21,326 units, which was used as the collection rate baseline for the current plan. The program set a 5 percent target annual increase from the 2012 baseline in the number of units collected. Table 1 provides a summary of collection targets set under the current stewardship plan for 2012 to 2016, as well as actual units collected for 2012 to 2014.

**Table 1: Collection Targets and Actual Units Collected 2012 – 2016**

	<b>Baseline</b>	<b>Collection Targets</b>			
<b>Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Units Collected Target</b>		23,100	24,255	25,468	26,741
<b>Actual Units Collected</b>	21,326	32,460	44,253		

For 2017 to 2019, the program will target an annual increase of 5 to 8 percent in collections using 2014 units collected (i.e., 44,253) as the baseline. This accounts for expected continued growth over the next few years. After 2019, it is expected that collections rates will begin to level-out. From 2020 to 2021, the program will target an annual increase of 3 to 5 percent in collections over the 2014 baseline. Table 2 provides a summary of collection targets for 2017 to 2021.

**Table 2: Collection Targets 2017 – 2021**

	<b>Baseline</b>	<b>Collection Targets</b>				
<b>Year</b>	<b>2014</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>Units Collected Target</b>	24,255	45,581 – 47,793	46,908 – 51,333	48,236 – 54,874	49,563 – 56,201	50,891 – 57,529
<b>Actual Units Collected</b>	44,253					

## 5. Program Operations

### 5.1. Collection System

The program employs a system of permanent year-round collection locations to provide reasonable accessibility to consumers. The program does not directly own or manage collection sites but contracts with interested organizations that can provide a collection location. Current collection facilities include fire safety organizations, fire halls, retailers, recycling organizations (both non-profit and for-profit), local government recycling centres or transfer stations and retailers.

As of September 30, 2015, AlarmRecycle had 186 contracted collection sites located throughout the province. At the end of 2013, the program had an accessibility standard of 95.8 percent.

By the end of 2020, the program will target an accessibility standard of a minimum of 95 percent of the provincial population having access to a collection point, where “access” is defined as a 30 minute or less drive to a collection site in urban areas (urban communities with a population of 4,000 or more) and a 45 minute or less drive to a collection site in rural areas (rural communities with a population of 4,000 or more). The 95 percent target provides accommodation for potential changes in the number of collection sites. Accessibility studies will be completed in the first and last years of the program plan.

#### **Processing and Tracking**

The program will continue to utilize licenced recyclers for the processing of smoke and CO alarms. The program will maintain use of a tracking system to track the smoke and CO alarms from the point of

collection to the processor. Information on disposition of commodities by the processor will be provided in the program's annual reports.

## **5.2. Product Life Cycle and Pollution Prevention Hierarchy**

The program will strive to manage waste materials according to the pollution prevention hierarchy.

### **Reduce and Redesign**

While the principal purpose of smoke and CO alarms is safety, the industry continues to take into account environmental considerations. The smoke and CO alarm industry maintains efforts to reduce the environmental impact of their products. Ionization foil stamping technology ensures less waste and precious metals are produced in this stage of the manufacturing process. The amount of plastic and other materials in a typical smoke alarm continue to decrease while the use of recyclable materials in product packaging increase. For example, some manufacturers now create alarms with 75 to 80 percent recyclable materials. Finally, there is a continued trend in the industry away from 9 volt towards 3 volt alarms to reduce the number of batteries required for product operation.

Manufacturers regularly review the design of their products for functionality, sustainability and impact on the environment, ensuring compliance with environmental requirements. In addition, some manufacturers are looking into implementing best practice environmental standards from one region across all products sold to different countries, rather than just implementing the standards in the country that mandates them. An example of a best practice environmental standard is the RoHS (Restriction of Hazardous Substances) initiative in Europe, which restricts the use of certain hazardous materials found in electrical and electronic products.

The program will continue to report on industry initiatives that reduce the environmental impact and improve the recyclability of their products as applicable.

### **Reuse and Repair**

Given the requirement that new smoke and CO alarms be certified for safety purposes and the absolute importance that program products function properly in the case of an emergency, the repair or reuse of returned products or product components is not considered viable.

### **Recycle, Recover and Dispose**

It is the program's intention to recycle as many components of returned products as possible, subject to economic conditions, such as fluctuations in demand and commodity prices.

The program will continue to ensure all materials contained within smoke and CO alarms are managed according to the requirements of all federal and provincial regulations. This information will be tracked and reported in the program's annual reports.

## 6. Consumer Awareness

Product Care Association will draw on industry best practices and previous program experience to deliver a strategy that makes use of compelling, impactful marketing and communications tactics.

Tactics may include:

### Advertising

- **Online Advertising**
  - Search Engine Marketing (SEM) through relevant keywords
  - Impression Retargeting – delivering relevant content based on user’s search habits
  - Display advertising (big box, banner, expandable, etc.) on relevant third-party sites
- **Print Advertising**
  - Including relevant mass market and industry publications, municipal calendars
- **Broadcast Advertising**
  - Radio spots for broad reaching messages
- **Direct Mail**
  - Distribution of branded program informational materials to selected and targeted groups or segments

### Information Resources

- **Point of Sale (PoS) and Point of Return (PoR) Materials**
  - Materials such as program posters and brochures for existing retailers and collection sites will be made readily available, free of charge
- **Program Website**
  - The program will continue to operate dedicated website to make program information easily available for all audiences through the use of:
    - Geographically searchable Collection Site finder
    - Collection site hours and operations
    - Program accepted product lists
- **Toll-free Number**
  - The program will continue to operate a toll-free customer service to answer queries

### Partnerships

PCA will leverage positive working relationships with key existing and new industry partners in order to advance program awareness and use. Partnerships may include:

- Fire halls and city departments across British Columbia
- School districts, school principals and regional superintendents
- Stewardship industry groups such as the Recycling Council of British Columbia (who operate the RCBC Hotline and Recyclepedia search tools), and the Stewardship Association of British Columbia (who operate the BC Recycles information resource, [bcrecycles.ca](http://bcrecycles.ca))

### Community Events

The program may pursue a presence at relevant third-party events to raise awareness and, where appropriate, provide product collection services.

### **Social Media**

The program will continue to employ its social media channels (including, but not limited to, Facebook, Twitter, LinkedIn and Instagram) to drive program awareness and stimulate audience engagement.

### **Consumer Awareness Targets**

To measure the performance of the communication strategy, the program proposes to conduct a consumer awareness survey every two years. In 2015, the program conducted a consumer awareness survey and found that 49 percent of British Columbians were aware of a program to recycle smoke and CO alarms. The program is targeting a four percent increase in consumer awareness above 2015 levels by 2021 (53 percent).

## **7. Administration**

### **Environmental Handling Fees**

AlarmRecycle is funded by membership fees, known as environmental handling fees (EHFs), remitted to Product Care by its members based on the volume of sales of smoke and CO alarms in British Columbia. EHFs are not a government tax and no part of the fee is remitted to the government. The EHF rates are set by PCA's board of directors, which includes representatives from various industry sectors. In some cases, retailers recover the fees from consumers as a separate, visible EHF applied at point of sale or a fee incorporated directly into the cost of the product. Program revenues are used to fund the operation of the program, including education, collection system, administration, transport, recycling and disposal of collected products as well as a reserve fund. Table 3 illustrates the EHFs for program products effective since October 1, 2011. Fees may be subject to change in the future.

**Table 3: Environmental Handling Fees as of October 1, 2011**

<b>Unit Type</b>	<b>EHF</b>
Smoke Alarms and Combination Smoke/CO Alarms	\$1.20
Carbon Monoxide (CO) Alarms	\$0.60

### **Reserve Fund**

As part of its risk management system, the program intends to maintain and build a reserve fund. The reserve fund will stabilize program funding in the case of unexpected collection volume increases, fluctuations in operating costs or reduced revenue due to economic or other factors.

### **Dispute Resolution**

The Program will contract with all suppliers and service providers to the program by the use of commercial agreements. Any disputes arising from collection or processing contracts would be resolved using normal commercial legal procedures.



## 8. Performance Measures and Targets

Performance measures and targets are summarized in Table 4 below.

**Table 4: Summary of Performance Measures and Targets**

Performance Measures	Targets
<b>Collection Rate:</b>	
Total number of units of smoke and CO alarms collected annually in British Columbia.	<p><b>2017 – 2019:</b> AlarmRecycle will target an annual increase of 5 to 8 percent in collections using 2014 as the baseline as defined under section 4.2</p> <p><b>2020 – 2021:</b> AlarmRecycle will target an annual increase of 3 to 5 percent in collections over the 2014 baseline as defined under section 4.2</p>
<b>Collection System and Accessibility:</b>	
Percent of population with access to a collection site	Minimum of 95 percent of the population with access to a collection site by the end of 2021 as defined under section 5.1
<b>Consumer Awareness:</b>	
Percent of population aware of the program	AlarmRecycle will conduct a consumer awareness survey every two years. The program will target a minimum of 53 percent of the population aware of the program by the end of 2021 as defined under section 6.