

# British Columbia Smoke and Carbon Monoxide Alarm Stewardship Plan



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**Product Care**

## Executive Summary

This stewardship plan has been developed by Product Care Association and the Canadian Hardware and Housewares Manufacturers Association (CHHMA), 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. It has been drafted pursuant to the requirements of the B.C. Recycling Regulation, B.C. Reg. 449/2004 (the “Regulation”). A preliminary version of plan was used for consultation in February and March, 2011 and the plan has been revised based on this process. Consultation themes have been summarized and outlined in Appendix A.

The intent of the program described in this draft plan is to establish and operate a collection system across B.C. to collect end-of-life residential-use smoke and carbon monoxide (CO) alarms. Collected alarms will be transported to appropriate facilities for recycling and other management options. The plan includes a description of the communication efforts that will ensure public awareness of the program and to inform consumers on how to dispose of their end-of-life smoke and CO alarms.

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## 1. Introduction

This draft stewardship plan has been developed by Product Care Association and the Canadian Hardware and Housewares Manufacturers Association (CHHMA), 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. It has been drafted pursuant to the requirements of the B.C. Recycling Regulation, B.C. Reg. 449/2004 (the “Regulation”).

Upon approval of the program plan by the B.C. Ministry of the Environment, program plan implementation will begin, including:

- Registration of producers
- Implementation of the collection network and communication strategy

## 2. Program Members

Product Care Association will manage this program on behalf of the producers of program products who become members of Product Care for this program. In joining the Product Care program, each producer will appoint Product Care as its agency to carry out the duties of the producer imposed by the Recycling Regulation, pursuant to section 2(2) of the Regulation.

Program members may include manufacturers, brand owners, distributors, first importers and retailers. Three smoke and CO alarm brand owners, who collectively represent the majority of smoke and CO alarm sales in British Columbia, have been involved in the development of this plan and will become members of Product Care. These companies are listed in Appendix B. All producers of program products will be invited to participate in the program.

## 3. Program Products

### 3.1 Included 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-

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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.

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 photo-electric type detectors, ionization units represent the bulk of sales in British Columbia. All five types of smoke alarms will be 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. Orphan products (those that are no longer in production or which the manufacturer is no longer producing) will be accepted by the program if their function was the same as products in the program.

**Batteries:**

Where products contain primary or rechargeable batteries, consumers will be encouraged to remove them from the products in accordance with the manufacturer’s instructions and managed according to the requirements of the British Columbia Ministry of Environment and the Call2Recycle battery stewardship program. Batteries that are not designed to be removed will be accepted with the product. The program will work with Call2Recycle to coordinate the management of returned batteries.

### 3.2 Excluded Products

Units that perform only a smoke and/or CO detector function 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. Some of these products may be required to be part of a product stewardship plan by July 1, 2012, pursuant to the Regulation.

## 4. Current Market

### **British Columbia Market:**

There are several brand owners in the British Columbia smoke and CO alarm market but it is primarily served by three brand owners. Smoke and CO alarms are marketed to the Canadian market at large, with British Columbia representing approximately 13%. 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.

While the quantity of smoke and CO alarms sold in B.C. increased over the last decade, sales are now considered to be relatively stable. The BC 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. As awareness of this new requirement grows, smoke alarms sales may increase moderately in the future.

In consideration of the small number of manufacturers selling these products into the B.C. market, aggregated sales data will not be made publicly available as is done with other stewardship programs, in order to protect confidential segment share information.

### **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.

The number of units available for collection in B.C. in a given year has not been estimated at this time as there are no comparative programs to base estimates upon.

## 5. Planned Operations

### 5.1 Collection System

The program will employ a system of permanent year-round collection locations to provide reasonable accessibility to consumers. The program will not directly own or manage collection sites but will contract with interested organizations that can provide a collection location. Facilities actively being considered as collection sites include fire safety organizations, fire halls, retailers, recycling organizations (both non-profit and for profit), local government recycling centres or transfer stations and other associations or businesses. The collection network will be developed through the implementation period taking into account facilities available, proximity to population, ease of access and cost effectiveness.

The program will target a minimum of 40 depots by the end of 2011, distributed across the province. The program will aim to increase this number to 60 depots by the end of 2012. By the end of 2013, the program will target an accessibility standard of a minimum of 90% of the provincial population having access to a collection point, where “access” is defined as a 30 minute drive or less to a collection point for those living in urban/urban centres of 150,000 or more and a 45 minute drive or less for those living in communities greater than 4,000 people.

If the program is not able to meet this target by the end of 2013, the program will implement a mail-in option for British Columbians living in underserved areas of the province. In this approach, the program would provide a shipping container and prepaid courier waybill to consumers living in applicable areas who request one via phone or internet. The product would be mailed directly to an approved processor or consolidation point free of charge.

There will be no charge to drop off or mail in program products.

#### **Transportation and Collection Containers:**

It is the intention of the program to contract out for the services of transportation from collection sites and/or consolidation points to processors. Program products will be collected and transported using collection containers that fulfil environmental, safety and transportation requirements. Collection container options are being reviewed in consultation with potential collection sites, transporters and couriers.

### 5.2 Processing and Tracking

The program intends to negotiate contracts for the processing of program products and will consider available service providers based on a number of factors including location, capacity, processing methods and downstream vendors. A tracking system will be developed to track the smoke and CO alarms from the point of collection to final destination. Information on the final material use will be provided in the annual reports.

## 5.3 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 has taken into account environmental considerations. Efforts have been made by the smoke and CO alarm industry to reduce the environmental impact of their products. New 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 has also decreased substantially over the past two decades while the use of recycled materials in product packaging has increased. Finally, there is a general 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 these products for functionality, sustainability and impact on the environment. The program will report on initiatives of individual producers that reduce the environmental impact and improve the recyclability of their products.

### **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 at this time.

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

It is the program's intention to recycle as many components of the returned products as possible. Given extremely limited markets for common materials, such as flame retardant-infused mixed plastics, and the small volumes expected to be collected, recycling options may be limited.

The program will ensure all materials contained within smoke and CO alarms are managed according to the requirements of all federal and provincial regulations. The final use of materials will be considered when selecting processors. This information will be tracked and reported in the program's annual reports. Availability of options to move materials up the hierarchy will be regularly monitored.

## 5.4 Consumer Awareness

The Regulation requires that the plan makes adequate provision for informing consumers of the program, the location of collection facilities, how to manage products in a safe manner as well as the environmental and economic benefits of participating in the program. The strategy will be modified over time in response to the effectiveness of the program.

### **Key Messages:**

It is important that consumers are aware of the importance of returning smoke and CO alarms, where to return them and appropriate handling techniques. Specific information will be provided on:

- The particular products included in the program
- Return options and handling procedures
- Applicable fees and how they are used

With an increasing number of stewardship programs available for electric and electronic products, the program will work with the other stewardship programs to try to limit consumer confusion and to develop communication synergies between programs.

#### **Communication Methods:**

The Program will use a number of methods to create consumer awareness of the program. These include:

- **Website** - The program website will have information on what items can be returned and how to return them. A Google Map based depot finder will be available, if collection sites are used. It will also include a print-ready brochure and a system for reordering consumer information materials produced by the program.
- **Recycling Hotline** 1 800 667 4321 or 604 RECYCLE– The program will participate in the Recycling Council of British Columbia (RCBC) recycling hotline service. Consumers can contact RCBC operators during business hours and obtain information about return options for program products.
- **RCBC Recyclepedia** – The program will provide RCBC with updated lists of collection sites and/or mail in options for inclusion in their online search system, which informs consumers of their return options.
- **Point of Return** – Any participating collection depots will be provided with program signage to display and counter cards to distribute to consumers.

#### **Partnerships:**

The program will work towards partnering with organizations interested in collaborating to promote the program. Collaboration strategies will be developed through discussions with potential partners. Some possible avenues are:

- **Fire Safety Organizations and Fire Halls** - The program will explore options to work with organizations that promote the use of program products to determine if and how information on program return could be incorporated into their communication strategies.
- **Other Stewardship Programs** – Given the low volume of programs products expected to be collected in this program, opportunities to combine communication efforts with existing stewardship programs will be explored.
- **Retailers**– Point of sale materials could include shelf-talkers, counter cards, consumer brochures and/or program posters, provided at no cost to retailers.
- **Municipal and Regional District Partnerships** – The program will seek opportunities to partner with local governments to inform householders of the availability of the program.

#### **Consumer Awareness Targets:**

To measure the performance of the communication strategy, the program proposes to conduct a consumer awareness survey after the first complete calendar year (2012) of program operation to

create a baseline of consumer awareness. The program will target a baseline of 25% consumer awareness of the program during this survey. Surveys will then be conducted every two years, targeting a total annual increase of 5% of the population that is aware of the program. These targets, therefore, represent 35% consumer awareness levels by the end of 2014 and 45% consumer awareness levels by the end of 2016.

## 5.5 Administration

### **Program Budget:**

The program will be managed and funded by members of the program by fees on the sale of new program products in British Columbia. Fees may be passed on by the members to their customers, either as visible fees or by incorporating the cost directly into the price of the product. The fees will be set using estimates for program costs and product sales units. Fees may be adjusted in the future to address surpluses or deficits, but all fees will be used for program purposes.

### **Reserve Fund:**

As part of its risk management system, the program intends to build and maintain 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.

## 6. Performance Measures and Targets

### **Collection System and Accessibility:**

Collection system and accessibility targets are described in section 5.1 above and summarized in Table 1 below.

### **Consumer Awareness:**

Consumer awareness targets are described in section 5.4 above and summarized in Table 1 below.

### **Collection 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. A recovery rate compares the amount of materials collected to the amount of material sold over the same time period. Collection and sales data is typically published alongside the recovery rate in order to provide context for a percentage based recovery rate.

Given the small number of manufacturers of these products selling into the B.C. market, aggregated sales data cannot be made publicly available as with other stewardship programs. To do so would permit estimates of the sales data of individual companies, which is confidential business information. A

simple percentage recovery rate would not provide a meaningful measure of program performance without the context of the number sold in the same period.

For these reasons, it is proposed that the total number of program products collected and managed annually is the best available performance measurement tool. Collection rates, expressed as number of units collected on an annual basis, will be summarized in the program’s annual reports. The number of units collected will be provided for each regional district as well as the provincial total.

By the end of 2012 a full year of collection data will be available. The program will then undertake a study (using tools such as waste audits and consumer surveys) to estimate the number of units and disposal practices for program products “unaccounted” by the program. This study will provide a theoretical and estimated “available for collection” number for the program.

The program will file an amended program plan with the Ministry of Environment containing updated collection rate targets, by April 1, 2013.

**Table 1 – Summary of Performance Measures and Targets:**

Performance Measures	Targets
<b>Collection System and Accessibility:</b>	
Number of collection sites	40 by end of 2011, 60 by end of 2012
Percent of population with access to a collection site	90% of population by end of 2013
<b>Consumer Awareness:</b>	
Percent of population aware of the program	25% of population by end of 2012, 35% of the population by end of 2014, 45% of the population by end of 2016
<b>Collection Rate:</b>	
Total number of units of smoke and CO alarms collected annually, BC total	Targets to be set during the first quarter of 2013 after baseline has been established and “unaccounted” study conducted in 2012
Total number of units of smoke and CO alarms collected annually, by Regional District	n/a – Targets will be based on whole province and not individual RDs

## 7. Stakeholder Consultation

A consultation process was held in February and March, 2011 as a prerequisite to the filing of this plan. The consultations included:

- Web based consultation using the [www.productcare.org](http://www.productcare.org) website
- Email communication to stakeholders and notification through the RCBC member advisory service, as well as other organizations
- Regional consultations held in Vancouver on March 16, 2011
- A web-based conference call on March 17, 2011
- Written submission provided by stakeholders
- Commitment to send link to final approved plan to all participants (via email)

Consultation themes have been summarized and outlined in Appendix A.

## Appendix A – Summary of Consultations

Feedback received at the consultation events and via email is summarized in the table below. The left-hand column outlines the specific question or comment and the right-hand column outlines the applicable response.

<b>Concern:*</b>	<b>Response:</b>
<b>Program Members:</b>	
Are all program products sold in BC captured by the three brand owners that have drafted this plan? (1)	Research to date indicates that these three brand owners represent that vast majority of program product sales in the province. Efforts will be taken to ensure additional brand owners, if they exist, are participating fully in this program.
<b>Program Products:</b>	
The program should accept broken and damaged smoke alarms from the public. (7)	The program will research and develop a policy on broken smoke alarms.
Are building wide smoke detection systems, such as those in newer residential homes, included in this program? (1) What if a consumer brings back a non-program smoke alarm? (1)	Building wide detection, monitoring and alarm systems are not included in this program, and are expected to be included in the next phase of products in the Recycling Regulation. These units typically include control boxes and other materials beyond the scope of this program. Only stand alone units that perform both an alarm and a detection function will be accepted. Individuals with non-program products will be directed to the Recycling Council of BC for alternative disposal options.
The program should included associated packaging. (1)	The BC Recycling Regulation does not require the inclusion of product packaging for this product category. It is expected that consumers would recycle/dispose of their packaging through other programs available in their community.
<b>Collection System:</b>	
Are there any health and safety risks associated with collecting this material at	The amount of radiation in close proximity to an intact and approved ionization smoke alarm is less than other

<p>a depot? (3) Risks should be compared to the Worker Compensation Board’s limits. (1)</p>	<p>consumer products such as colour televisions. The collection system will be designed to ensure that it does not pose a health and safety risk to workers and the public. Risk factors will remain below limits that groups such as the Canadian Nuclear Safety Commission and the Workers Compensation Board deem acceptable.</p>
<p>How will collection points be compensated for collecting program products? (3) Collection points should be fairly compensated for their services and the program should not rely on voluntary partners. (1)</p>	<p>The program will need to make business arrangements with various service providers to achieve a province-wide collection system. Each service provider will join the program voluntarily and as a willing partner. Compensation will be arranged between the program and service providers, including collection points, as required.</p>
<p>Every retail store that sells program products should be required to accept them for return. (1)</p>	<p>Return-to-retail is a collection model being actively explored for this program. Retail locations selling program products in BC will be encouraged to act as collection points for the program. Ultimately, the program is not able to require retailers to participate in this way.</p>
<p>How will the program products be transported from collection points? (1)</p>	<p>Program products will be transported in containers/ boxes appropriate in size and design to ensure the safe and efficient collection of the products. Collection points will be provided with these materials free of charge. The program will work to develop options that work for the collection points participating in the program.</p>
<p>Regional Districts should be compensated for managing program products that end up in regional landfills. (1)</p>	<p>The program’s aim is to establish and fund an accessible collection network for program products and a communication strategy to inform consumers of the program. Efforts will be made to ensure program products are not being landfilled, but the operation and funding of regional landfills is beyond the purview of this program.</p>
<p>The public wants “one stop shops” so that all the materials they have can be dropped off in one location. (1)</p>	<p>The program will explore opportunities to partner with collection points that are already accepting a wide range of products and materials from the public to ensure public convenience.</p>
<p>Will there be limits on how many program products a consumer can drop off at once? (1)</p>	<p>Acceptable limits will be developed in collaboration with collection partners. It is expected that most consumers would not have a number beyond the scope of the proposed collection system. Alternative arrangements will</p>

	be considered for those with a large number of program products.
An adequate number of drop-off facilities are required in rural communities. Service levels should be based on population centres. (2)	The program aims to provide reasonable levels of access to all British Columbians, including those living in rural communities.
<b>Product Life Cycle:</b>	
Improved design of packaging is a logical first step in reducing the environmental impact of these products. (1)	The program will report on efforts made by manufacturers to improve the environmental design of their packaging, as applicable.
<b>Processing:</b>	
How will the program products be recycled, including batteries and circuit boards? (2)	The program is committed to managing all materials as high on the waste reduction hierarchy as possible. Discussions with potential processors are ongoing. The program's annual reports will provide relevant data on how the materials are being managed.
Can smoke alarms be legally incinerated in BC? (1)	Research to date suggests that smoke alarms can be incinerated in BC if they are photoelectric style alarms and, for ionization alarms, if the ionization unit has first been removed.
<b>Consumer Awareness:</b>	
Point-of-sale promotional materials should be required to be displayed at any retail store selling program products. (1)	The program will work with retail partners to assist in the promotion of the program, including the display of point-of-sale materials. Ultimately, the program is not able to require retailers to participate in this way.
Incentives like deposits and coupons should be used to boost return rates. (1)	While specific incentives like deposits and coupons are not being considered at this time, the program will monitor return rates over time and adjust its strategy accordingly.
Stickers placed on the packaging of program products could be used to advertise the program. (1)	There are practical challenges associated with placing stickers on the packaging of every program product sold in the province, but the program will consider this option as the communication strategy is developed.
The plan should include a commitment to advertising the program in	The program will consider these options as the

newspapers (2) and partner with Metro Vancouver Recycles (1).	communication strategy is developed.
The program should not rely on voluntary partners (regional districts, fire halls etc.) to advertise the program. (1)	The program will partner with organizations and companies that have an interest in assisting in the promotion of the program. These partnerships remain voluntary for outside parties and will not represent the entirety of the program's communication strategy.
<b>Performance Measures:</b>	
More details are required on when the program will conduct consumer awareness surveys. (1)	A timeline for consumer awareness surveys and specific annual targets has been added to the program plan.
Waste composition studies/audits should be used to track program performance. (2)	The program will begin discussions with regional districts and other stewardship agencies to find synergies that could be explored in relation to waste audits.
The number of units collected annually should be compared to the number of demo/renovation permits in that year. This would put the number of units collected in context and could be used by stakeholders to gage the program's performance. (1)	The program will study how this option could be used to assist in measuring the performance of the program.

\*Number in brackets refers to the number of times the issue was raised

## Appendix B – Brand Owners Involved to Date

The following brand owners have been involved in the drafting of this plan, and have expressed intent to participate in this program:

First Alert Canada

Garrison (Canadian Tire Corporation)

Kidde Canada