

An evaluation of the safe handling and recovery of post-consumer aerosol cans in South Africa



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Research Interpretation and Limitations Disclaimer

This 2026 study comprises both quantitative and qualitative research undertaken across SA's post-consumer aerosol collection and recycling value chain, including interviews with 38 Buy-Back Centres (BBCs) and 272 waste pickers / reclaimers. The sample sizes and distribution were designed to be statistically representative of the identified study populations at the time of research and provide a robust indication of prevailing practices, perceptions, behaviours, and material flows within the sector.

In the qualitative component of the study, thematic saturation was observed during the interview process, with recurring themes and response patterns emerging consistently across participants and geographic locations. This suggests that the principal issues, experiences, and operational practices relating to aerosol collection, handling, sale, processing, and recycling were adequately captured within the scope of the research.

Notwithstanding the above, the findings should be interpreted with appropriate academic and professional caution. As with all survey-based and interview-based research, the results reflect the conditions, knowledge, practices, and perspectives of participants at the time of data collection and are subject to the inherent limitations of self-reported information, contextual variability, and potential response bias. Furthermore, while the sample is considered representative of the populations studied, the findings should not be construed as an exhaustive assessment of every participant, facility, process, or circumstance within the South African post-consumer aerosol recovery and recycling value chain.

The research is intended to provide evidence-based insights into industry practices and stakeholder experiences rather than serve as a definitive assessment of regulatory compliance, operational safety performance, or risk management practices at individual facilities. Readers are therefore encouraged to consider the findings alongside applicable legislation, technical standards, safety requirements, and other relevant sources of evidence.

Particular attention should be given to the hazardous nature of post-consumer aerosol containers. Aerosol packaging constitutes a pressurised vessel that may contain residual flammable propellants and product residues. Consequently, observations and findings contained in this report should not be interpreted as endorsing any specific handling, storage, transport, processing, or recycling practice unless such practices are independently verified against applicable health, safety, environmental, and regulatory requirements.

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List of Abbreviations

Abbreviations	Definition
BBC	Buy-Back Centre
DFFE	Department of Forestry, Fisheries and the Environment
EPR	Extended Producer Responsibility
HSE	Health, Safety and Environment
n	Number of respondents (sample size)
NGO	Non-Governmental Organisation
NVivo	Qualitative Analysis Software
PPE	Personal Protective Equipment
PRO	Producer Responsibility Organisation
RQ	Research Question
SA	South Africa
SPSS	Statistical Package for the Social Sciences

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Abstract

The safe handling and recovery of post-consumer aluminium and steel aerosol cans is an important component of South Africa's (SA's) circular economy and Extended Producer Responsibility (EPR) framework. While aerosol cans are fully recyclable, residual propellants and chemical contents present unique safety risks throughout the recycling value chain if they are handled incorrectly. Waste pickers / reclaimers and Buy-Back Centres (BBCs) represent the two primary interfaces in the post-consumer recovery system, making their knowledge, practices, and operational challenges critical to improving both worker safety and material recovery.

To provide an evidence-based understanding of these issues, MetPac-SA conducted two complementary national surveys involving 272 waste pickers / reclaimers and 38 BBCs. Together, the surveys examine awareness of aerosol-related hazards, collection and handling practices, use of Personal Protective Equipment (PPE), operational challenges, market dynamics, and support requirements. The findings provide valuable insights into the strengths and weaknesses of current recovery practices while identifying practical interventions that can improve safety, increase recycling efficiency, and strengthen the recovery of aluminium and steel aerosol packaging.

Chapters 3 and 4 of this report present the key findings and recommendations from the BBC and Waste Picker surveys independently. While each chapter focuses on a distinct stakeholder group, Chapter 5 integrates the findings to provide a comprehensive understanding of the post-consumer aerosol can recovery value chain. Collectively, the results establish an evidence-based foundation for coordinated interventions by industry, government and other stakeholders to promote safer handling practices, enhance market participation, strengthen recovery systems, and support SA's circular economy and EPR objectives.

Keywords: Post-consumer aluminium and steel aerosol cans, Buy-Back Centres, waste pickers / reclaimers, informal recycling sector, recycling practices, Extended Producer Responsibility (EPR)

Chapter 1 - Introduction

The transition towards a circular economy has increased the importance of recovering post-consumer packaging materials as valuable secondary resources rather than disposing of them as waste. Metal packaging, particularly aluminium and steel, plays a significant role in sustainable resource management because both materials can be recycled repeatedly without significant loss of quality. While established recovery systems exist for products such as aluminium beverage cans and steel food cans, post-consumer aerosol cans present unique challenges due to the potential presence of residual pressurised gases, flammable propellants and chemical residues. These characteristics create occupational health and safety risks throughout the collection, transportation, storage and recycling process if aerosol cans are handled incorrectly. Consequently, improving the safe recovery of post-consumer aerosol cans has become an important consideration for industry, policymakers and PROs seeking to strengthen SA's circular economy and meet the objectives of the EPR Regulations.

SA's recycling system relies heavily on the informal sector, particularly waste pickers / reclaimers, who recover recyclable materials from streets, households, businesses, public spaces and landfill sites before selling them to Buy-Back Centres (BBCs). These BBCs serve as the primary interface between informal collectors and the formal recycling industry by purchasing, sorting, storing and consolidating recyclable materials for onward processing by aggregators and recyclers. Together, waste pickers / reclaimers and BBCs constitute a critical component of the country's post-consumer metal packaging recovery system, contributing significantly to landfill diversion, resource conservation, job creation and socio-economic development. The recovery of post-consumer aluminium and steel aerosol cans presents unique safety and operational challenges. Despite the critical role of waste pickers / reclaimers and BBCs in SA's recycling value chain, there is little empirical evidence on aerosol handling practices, risk awareness and the factors influencing aerosol safe recovery. This research addresses this gap by evaluating current practices and providing evidence-based recommendations to improve aerosol safety, increase recovery, and support SA's circular economy and EPR objectives.

Unlike conventional metal packaging, aerosol cans require careful handling because containers that appear empty may still contain residual pressure or hazardous substances. Unsafe practices such as puncturing, crushing, exposure to heat or inappropriate storage may result in gas releases, chemical exposure, fires or explosions. These risks are particularly relevant within SA's informal recycling environment, where collection and handling practices are influenced by variable infrastructure, limited access PPE, inconsistent training and fluctuating market conditions. Furthermore, differences in buyer acceptance, material prices and downstream market demand may influence whether aerosol cans remain within the recycling stream or are diverted to landfill, creating both environmental and economic implications. Understanding these operational realities is therefore essential for developing practical interventions that improve both safety and recycling performance.

Although international guidance exists for the safe management of aerosol containers, there is a lack of locally generated evidence describing current awareness, handling practices, operational challenges and support needs within SA's recycling value chain. In particular, little empirical information is available on the interaction between waste pickers, buy-back centres and downstream recyclers regarding the collection and management of post-consumer aerosol cans. This knowledge gap limits the ability of industry stakeholders, government and PROs to design targeted awareness campaigns, training programmes, operational guidelines and market interventions that address the realities of the informal recycling sector.

This study addresses this gap by investigating the awareness, collection, handling, storage, trading practices, safety risks and support requirements of waste pickers/reclaimers and buy-back centres involved in the recovery of post-consumer aluminium and steel aerosol cans across seven provinces in SA. Using a mixed methods research approach, the study combines quantitative survey data with qualitative responses obtained through structured face-to-face interviews and electronic questionnaires to provide a comprehensive understanding of current practices. By examining both stakeholder groups within the same recovery system, the study provides an integrated assessment of how aerosol cans move through the informal recycling value chain and identifies opportunities for improving safety, operational efficiency and material recovery.

The findings contribute to the growing body of knowledge on sustainable post-consumer packaging recovery while providing practical evidence to support the implementation of SA's EPR framework. More specifically, the study identifies priority areas for safety training, operational guidance, PPE provision, market development and stakeholder collaboration to improve the safe handling and recycling of aluminium and steel aerosol cans. The outcomes are intended to assist PROs, recyclers, BBCs, municipalities, policymakers and other industry stakeholders in developing evidence-based interventions that strengthen occupational safety, increase recycling rates and promote a more resilient and inclusive circular economy for metal packaging in SA.

The next chapter will present the technical details that underpin the research methodology.

Chapter 2 - Research Methodology

2.1 Introduction

This chapter describes the research methodology adopted to investigate the safe handling, collection and recycling of post-consumer aluminium and steel aerosol cans within SA's informal recycling sector. The methodology was designed to generate reliable evidence on current awareness, collection and handling practices, operational challenges, safety risks and support requirements among two key stakeholder groups, namely BBCs and waste pickers/reclaimers. These stakeholders play a critical role in the recovery of post-consumer packaging and are central to the effectiveness of SA's circular economy and EPR system.

A mixed methods research design was adopted, integrating quantitative and qualitative approaches to provide both measurable evidence and contextual insights. Quantitative data were collected using structured survey questions, while qualitative data were obtained through open-ended interview questions that allowed respondents to describe their experiences, perceptions and recommendations in greater detail. This methodological approach enabled the study to quantify prevailing trends while also capturing the operational realities encountered by participants within the recycling value chain.

Primary data were collected across seven South African provinces using a combination of face-to-face interviews and electronic survey instruments. Structured questionnaires were administered during physical field visits to BBCs and waste pickers / reclaimers, with respondents also given the option of completing an online version of the questionnaire where appropriate. This combination of data collection methods improved accessibility, increased participation and ensured that respondents from geographically dispersed locations could be included in the study.

The study comprised two complementary surveys. The BBC survey obtained 38 valid responses from an estimated national population of approximately 300 paper and packaging related BBCs, while the waste picker / reclaimer survey obtained 272 valid responses from an estimated national population of approximately 60 000 waste pickers / reclaimers. Although the sample sizes represent a relatively small proportion of the respective populations, they provide valuable insights into the operational practices, safety awareness and support needs of key participants in SA's informal recycling system. The findings therefore provide evidence to inform the development of practical interventions; training programmes and policy recommendations aimed at improving the safe collection, handling and recovery of post-consumer aerosol cans.

The remainder of this chapter presents the research philosophy, research design, target population and sampling strategy, data collection procedures, research instrument development, ethical considerations, data preparation and analysis techniques, and measures implemented to ensure the validity and

reliability of the study. Collectively, these methodological components provide a transparent framework for evaluating the credibility and trustworthiness of the research findings.

2.2 Research Problem

Although BBCs and waste pickers / reclaimers are central to the recovery of post-consumer aerosol cans, limited structured evidence exists on their awareness, handling practices, operational challenges, market experiences and support needs. This knowledge gap limits the development of evidence-based safety interventions and recycling strategies.

2.3 Research Aim

To assess awareness, collection, handling, trading practices, safety risks and support needs of waste pickers / reclaimers and BBCs regarding the safe recovery and recycling of post-consumer aluminium and steel aerosol cans in SA.

2.4 Research Objectives

- i. Describe the respondent and operational profile of participating waste pickers/reclaimers and BBCs.
- ii. Assess awareness of aerosol can materials and associated safety hazards.
- iii. Examine current collection, handling, storage, sorting and trading practices.
- iv. Investigate operational experiences, including buyer acceptance, rejection, incidents and market influences.
- v. Identify challenges, risks and support requirements to improve safe aerosol recovery and recycling.

2.5 Research Questions

Table 1 presents the research questions that guided the study and aligned directly with the five sections of the research instrument. Collectively, the questions were designed to examine the operational profile, awareness, collection and handling practices, operational experiences, and support requirements of waste pickers/reclaimers and Buy-Back Centres (BBCs) regarding the safe recovery of post-consumer aluminium and steel aerosol cans. The research questions provided the framework for data collection, analysis and the development of evidence-based recommendations to improve aerosol safety and metal circularity in SA.

Table 1: Research questions.

Research Instrument Section	Section Descriptor	Research Question Identification	Research Question
A	Respondent Profile and Operational Context	RQ1	What is the respondent and operational profile of participating waste pickers/reclaimers and buy-back centres?
B	Awareness of Aerosol Cans	RQ2	What is the current level of awareness regarding aerosol can materials and associated safety risks?
C	Collection and Handling Practices	RQ3	How are post-consumer aerosol cans collected, handled, stored, sorted and traded?
D	Operational Practices	RQ4	How do operational practices, buyer acceptance, market conditions and handling experiences influence aerosol recovery?
E	Challenges, Risks and Support Requirements	RQ5	What challenges, risks and support requirements should guide future interventions?

2.6 Methodological Overview

Table 2 provides an overview of the research methodology adopted to investigate the safe collection, handling and recovery of post-consumer aluminium and steel aerosol cans in SA. It summarises the research design, study population, data collection methods, analytical approach and quality considerations used to ensure the reliability, validity and transparency of the research process. Collectively, these methodological components provided a robust framework for generating credible evidence to inform the development of an evidence-based strategic action plan.

Table 2: Research methodology overview.

Component	Description
Research design	Mixed methods (quantitative structured survey with qualitative open-ended responses).
Study geographical areas	Seven provinces of SA.
Research target audience	BBC owners/managers/employees and waste pickers/reclaimers.
Sample and estimated population size	38 BBCs (estimated population ≈300), 272 waste pickers/reclaimers (estimated population ≈60 000).
Data collection	Structured face-to-face interviews and electronic questionnaires.
Research instrument structure five sections	Section A: Respondent Profile and Operational Context Section B: Awareness of Aerosol Cans Section C: Collection and Handling Practices Section D: Safe Working Practices Section E: Challenges, Risks and Support Needs
Analysis software	Quantitative Analysis: IBM SPSS Statistics Version 30. Qualitative Analysis: NVivo Version 15
Analysis approach	Frequencies, percentages, multiple-response summaries, mean rank summaries for ranked rejection reasons, cross-tabulation and thematic coding of open-ended suggestions
Percentage base	Single-response percentages are valid percentages. Multiple-response percentages are reported as percent of all respondents; therefore, totals may exceed 100%.
Trend reporting note	Cross-tabulations are used only to describe practical patterns in the survey. The results are interpreted as directional trends because the respondent base is small, and several categories contain few BBCs.

2.7 Data Preparation

Survey responses were screened for completeness, duplicate records and coding consistency before analysis. Categorical variables were coded numerically and multiple-response items converted into binary variables. Open-ended responses were grouped through thematic coding. Missingness was largely confined to aerosol training items because few respondents had received formal training. Training-source responses were interpreted cautiously where respondents selected information sources despite indicating no formal training; consequently, the direct training question was treated as the primary measure.

2.8 Research Instrument and Data Quality

Table 3 summarises the characteristics of the two research instruments and the measures used to assess data quality. It provides a comparison of the survey datasets, including sample size, questionnaire structure, variables analysed, data limitations and overall suitability for descriptive operational analysis. Together, these indicators demonstrate that both datasets were appropriate for generating reliable evidence to support the study's objectives and subsequent strategic recommendations. The BBC survey included 38 respondents and measured 112 variables across five questionnaire sections, while the waste picker survey involved a substantially larger sample of 272 respondents and measured 127 variables across five sections. Both instruments incorporated open-ended questions, enabling respondents to provide contextual information and practical insights beyond the structured responses. This strengthened the interpretation of operational practices, experiences and challenges relating to aerosol collection and handling.

The main limitation of the BBC survey was missing information regarding the sources of training received by respondents. In the waste picker survey, the primary limitation concerned the interpretation and classification of training sources, which may have introduced some inconsistency into the responses. These limitations should therefore be considered when interpreting findings relating specifically to training and awareness. Nevertheless, the sample coverage, structured questionnaire design, number of variables and inclusion of qualitative responses provide an adequate evidence base for comparing practices, identifying operational trends and informing the development of practical recommendations. Both datasets were therefore considered suitable for descriptive analysis, while avoiding unsupported generalisation to the entire national BBC and waste picker populations.

Table 3: Research instrument and data quality.

Quality Indicator	BBC Survey	Waste Picker Survey
BBCs / Waste pickers interviewed	38	272
Questionnaire sections	Five	Five
Variables	112	127
Open-ended responses	Yes	Yes
Main limitation	Training-source missingness	Training-source interpretation
Overall suitability	Descriptive operational analysis	Descriptive operational analysis

2.9 Data Triangulation and Validation

The research findings were validated through data triangulation by comparing the results of two complementary national surveys involving Buy-Back Centres (BBCs) and waste pickers/reclaimers across seven South African provinces. Although each survey examined different stakeholder groups within the post-consumer aerosol value chain, both were developed using a common mixed-methods research framework and investigated comparable themes, including awareness, collection and handling practices, operational experiences, safety risks and support requirements.

Triangulating the findings from these two stakeholder groups enabled the consistency and credibility of the research outcomes to be assessed. Areas of agreement between BBCs and waste pickers strengthened confidence that the identified practices, challenges and safety risks were representative of broader operational conditions within the aerosol recovery system. Where differences emerged, these were interpreted as reflecting the distinct operational roles and experiences of the two stakeholder groups, providing valuable insight into communication gaps, inconsistent handling practices, market dynamics and barriers affecting the recovery of post-consumer aerosols.

The integration of evidence from both surveys provided a comprehensive understanding of the aerosol recovery value chain, from collection by waste pickers to aggregation and trading through BBCs. This complementary perspective enhanced the validity of the research by reducing reliance on a single stakeholder group and ensuring that the proposed recommendations reflected the experiences of the primary participants involved in post-consumer aerosol recovery.

The triangulated findings therefore provide a robust evidence base for the development of a strategic action plan aimed at optimising the safe collection, handling, storage, processing and melting of post-consumer aluminium and steel aerosol cans. By validating common themes across the two national studies, the proposed strategy is better positioned to strengthen occupational safety, improve operational

consistency, increase material recovery and support metal packaging circularity within SA's EPR framework.

2.10 Chapter Summary

This integrated research methodology combines evidence from two complementary stakeholder groups using a common research framework. The approach is appropriate for identifying operational trends, safety gaps and intervention priorities to support safer recovery and recycling of post-consumer aluminium and steel aerosol cans.

The following chapter discusses the findings of the national BBC survey, providing an analysis, interpretation, and recommendations for the safe handling of aerosols.

Chapter 3 - National Buy-Back Centre Survey

3.1 Introduction

Post-consumer aerosol cans form part of the recyclable metal packaging stream, but they may also introduce specific safety risks when they are not empty, when they contain residual propellant or chemicals, or when they are punctured, crushed, stored or transported incorrectly. BBCs are an important interface between waste picker / reclaimer, households, businesses, aggregators and downstream metal recyclers and their practices affect both recycling recovery and worker safety.

The BBC survey was designed to understand current practices, awareness, operational constraints and support needs relating to aluminium and steel aerosol cans. The results are intended to support practical interventions that improve safe handling and strengthen recyclable metal packaging recovery systems.

The introduction establishes BBCs as a central point in the aerosol recovery chain. These BBCs connect waste picker / reclaimer, households, businesses and downstream recyclers, which means their practices influence both safety and recovery. The section also shows why aerosols require specific attention, given that aerosols may still contain pressure, gas or chemicals even after consumer use. The problem is therefore not only whether cans are recycled, but whether they are handled safely on the way to recycling. This framing supports a practical report focused on current behaviour and intervention needs. It also positions the study as a valuable resource for informing post-consumer aerosol collection and handling strategy development, rather than serving solely as a documentation exercise.

3.2 Presentation of Results

3.2.1 Research Instrument Section A: Respondent Profile and Operational Context

This section summarises the profile of participating BBCs and provides context for interpreting the results. The sample was distributed across seven provinces and included BBCs of different sizes, experience levels and aerosol can exposure profiles. Table 4 presents the respondent and operational profile.

Table 4: Respondent and operational profile.

Variable	Category	n	%
Respondent Type	BBC Owner/Manager	31	81.6
	BBCs Employee	7	18.4
Location: Province	Gauteng	7	18.4
	Limpopo	7	18.4
	Free state	6	15.8
	Northwest	6	15.8
	Mpumalanga	5	13.2
	Eastern Cape	4	10.5
	KZN	3	7.9
How long have you been in the recycling business?	More than 10 years	23	60.5
	1–5 years	8	21.1
	6–10 years	7	18.4
Approximately how often does your BBC receive aerosol cans?	Daily	22	57.9
	Occasionally	8	21.1
	Never	4	10.5
	Weekly	4	10.5
Approximately how many people work at this BBC?	More than 10	18	47.4
	1–5	10	26.3
	6–10	10	26.3
Approximately how many aerosol cans does your BBC receive in a normal week?	1–100	13	34.2
	101–500	9	23.7
	Not sure	7	18.4
	None	5	13.2
	More than 500	4	10.5

Figure 1 presents the provincial distribution of participating BBCs. Respondents were well distributed across seven provinces, with Gauteng and Limpopo recording the highest representation (18.4% each).

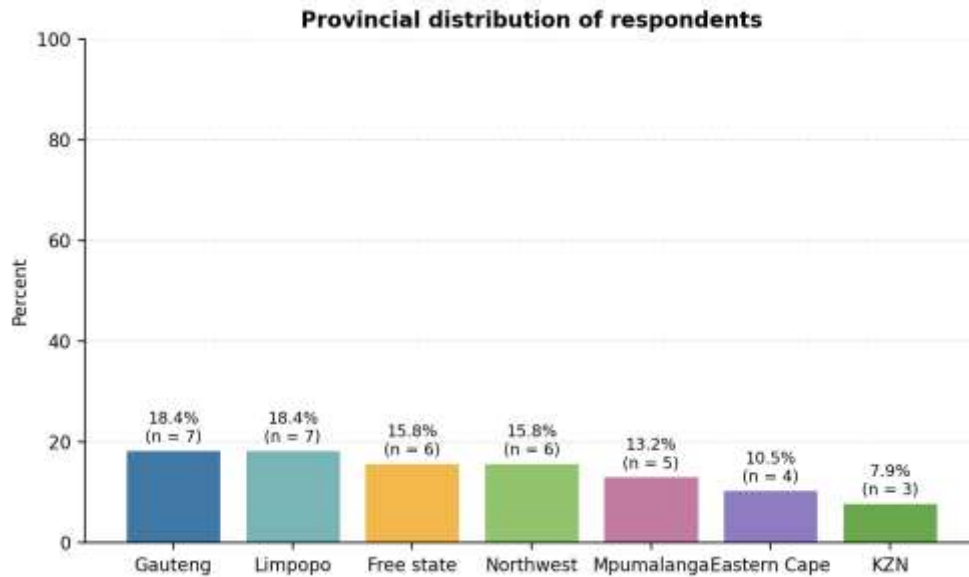


Figure 1: Provincial distribution of participating BBCs.

Figure 2 presents the length of time in the recycling business. Most respondents (60.5%; n = 23) had more than 10 years of recycling experience, indicating a highly experienced respondent group.

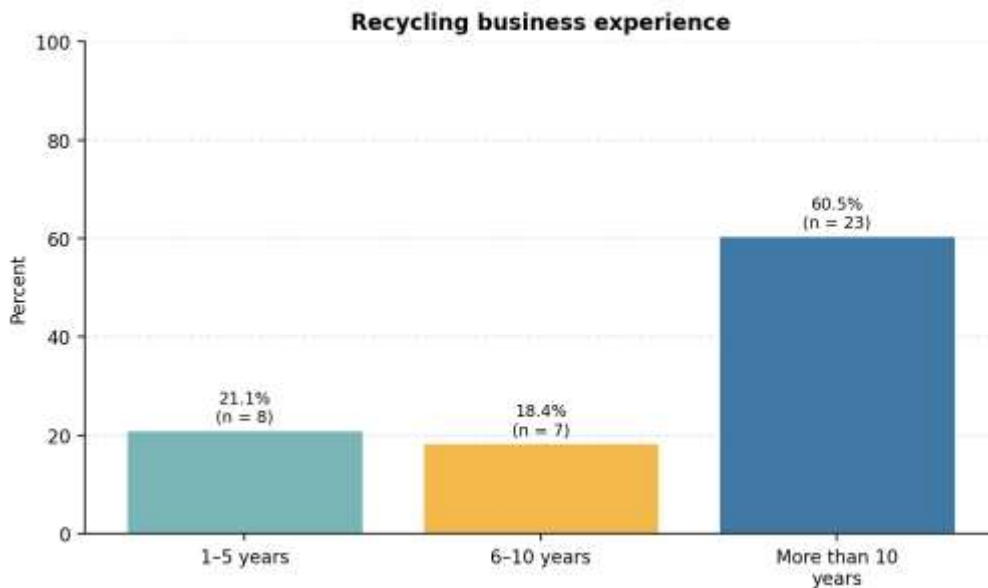


Figure 2: Length of time in the recycling business.

Figure 3 presents the types of recyclable materials predominantly purchased by BBCs. Aluminium used beverage cans (97.4%) were the most accepted recyclable material, followed by paper/cardboard (89.5%) and plastics (84.2%). Aluminium (78.9%) and steel (60.5%) aerosol cans were also widely accepted by participating BBCs.

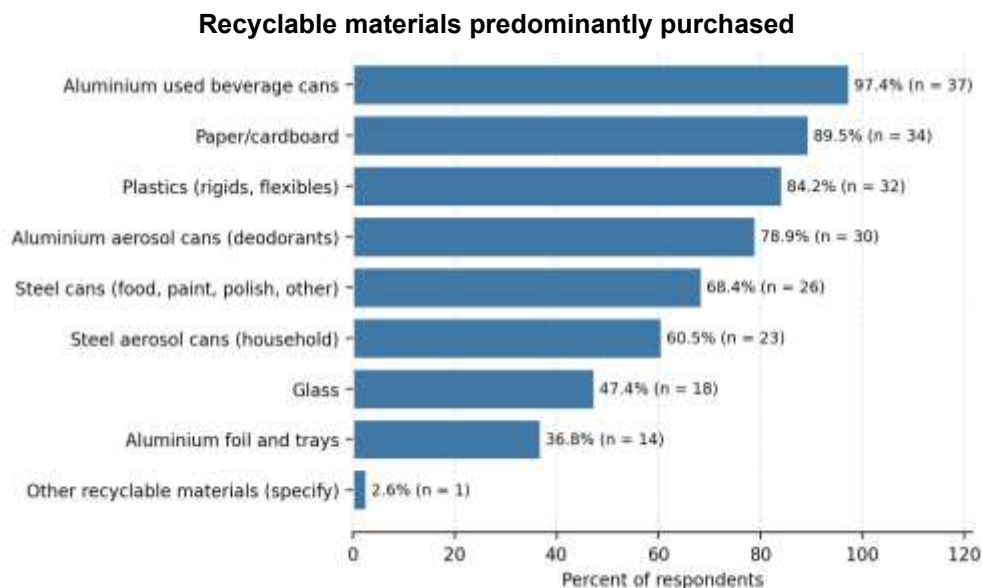


Figure 3: Recyclable materials predominantly purchased by BBCs.

Figure 4 presents the main sources from which BBCs buy material. Waste pickers/reclaimers were the primary source of recyclable materials (89.5%), followed by households (65.8%) and businesses (60.5%).

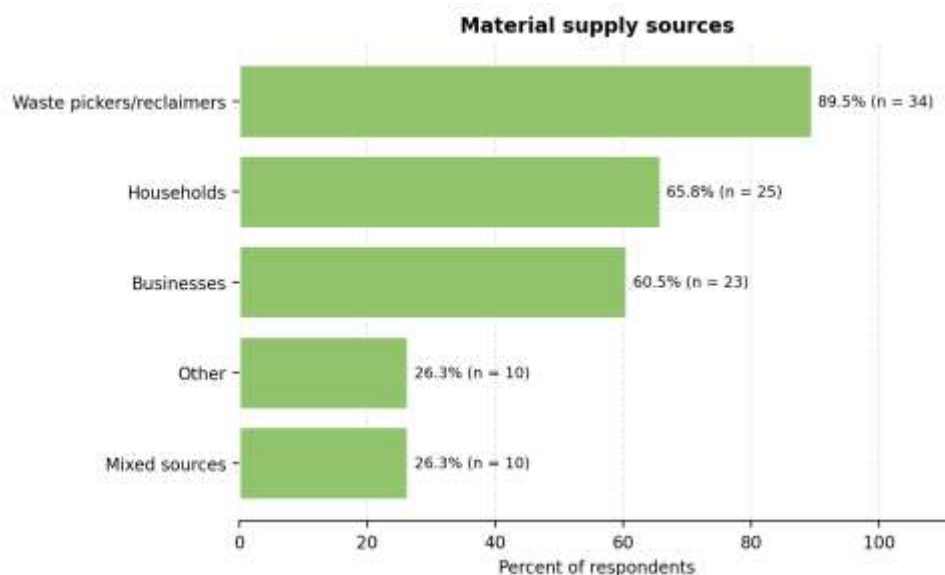


Figure 4: Main sources from which BBCs buy material.

Figure 5 presents how often BBCs receive aerosol cans. Most BBCs (57.9%) reported receiving aerosol cans daily, indicating a regular and consistent flow of post-consumer aerosol cans into the recycling value chain.

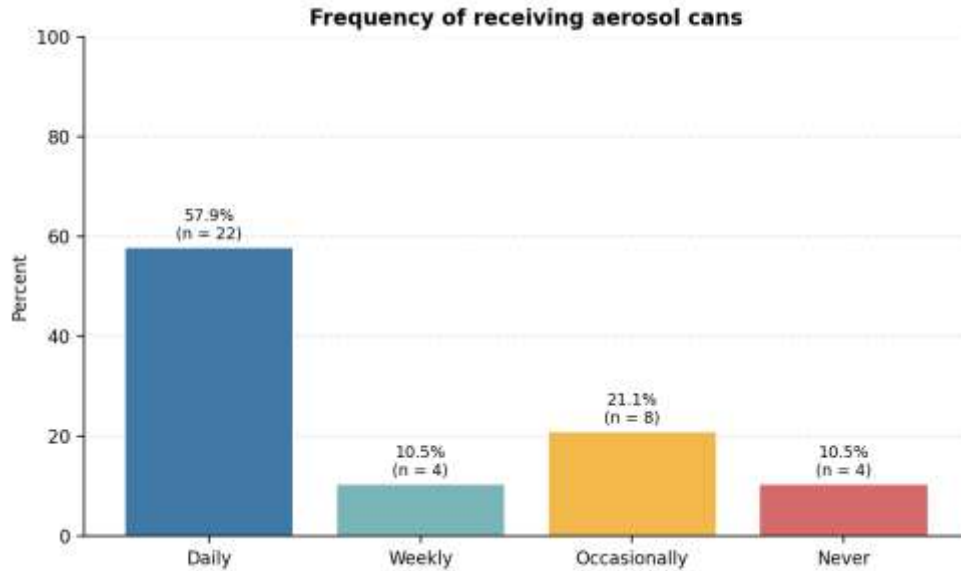


Figure 5: How often BBCs receive aerosol cans.

Figure 6 presents the reported weekly quantity of aerosol cans received. Most BBCs (34.2%) received between 1 and 100 aerosol cans per week, while 23.7% received 101–500 cans, indicating regular recovery volumes.

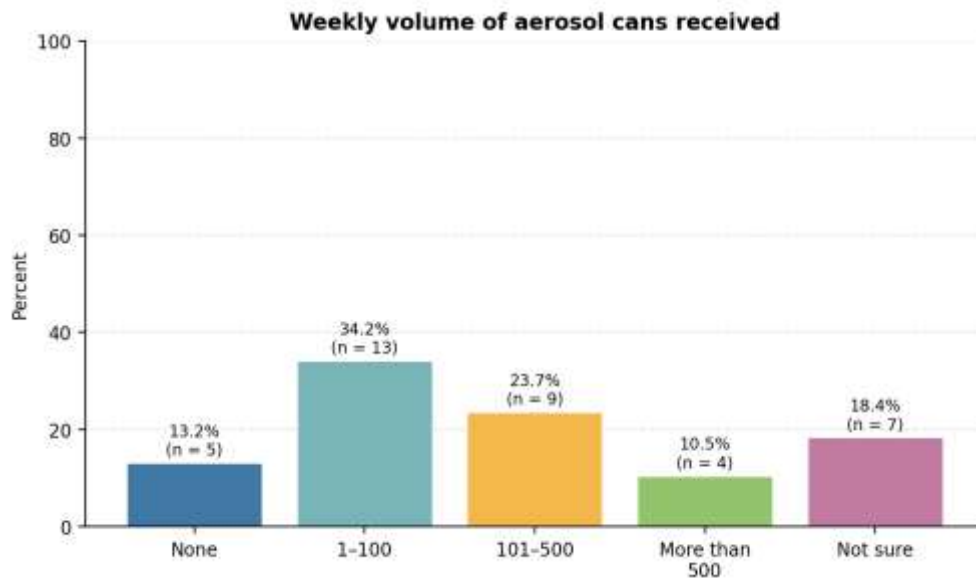


Figure 6: Reported weekly volume of aerosol cans received.

The respondent profile was strongly owner/manager based, which strengthens the operational relevance of the findings because most responses were provided by individuals with decision-making authority. The BBCs were also experienced: more than half had been in the recycling business for over 10 years. In operational terms, aerosol cans were not a marginal material stream for the sample. More than half of BBCs received aerosol cans daily, and about one-third reported receiving 1-100 aerosol cans in a normal week. Table 5 presents the recyclable materials mainly bought by participating BBCs.

Table 5: Recyclable materials mainly bought by participating BBCs.

Option	n	% Respondents
Aluminium used beverage cans	37	97.4
Paper/cardboard	34	89.5
Plastics (rigids, flexibles)	32	84.2
Aluminium aerosol cans (deodorants)	30	78.9
Steel cans (food, paint, polish, other)	26	68.4
Steel aerosol cans (household)	23	60.5
Glass	18	47.4
Aluminium foil and trays	14	36.8
Other recyclable materials (specify)	1	2.6

Table 6 presents the main sources from which participating BBCs obtain recyclable materials. Understanding these supply channels provides insight into the structure of the post-consumer recycling value chain and identifies the key stakeholders contributing to material recovery. The findings also highlight the critical role of waste pickers/reclaimers in supporting SA's metal recycling ecosystem and circular economy.

Table 6: Main sources from which participating BBCs buy material.

Option	n	% Respondents
Waste pickers/reclaimers	34	89.5
Households	25	65.8
Businesses	23	60.5
Mixed sources	10	26.3
Other	10	26.3

Section A Summary - Respondent Profile and Operational Context: The respondent and operational profile indicates that the participating BBCs are well established and representative of active recycling operations across seven South African provinces. Most respondents were owners or managers, ensuring that the findings reflect operational and strategic decision-making perspectives. The BBCs demonstrated considerable industry experience, with most having operated in the recycling sector for more than a decade. Figures 1 and 2 illustrate the geographical distribution and experience of participating BBCs, while Figure 5 and Figure 6 show that aerosol cans form part of the routine material stream handled by many BBCs. More than half of the BBCs reported receiving aerosol cans daily, with most processing between 1 and 100 aerosol cans per week, confirming that aerosols are a regular component of recycling operations rather than an occasional waste stream.

The materials and supply-source profiles further demonstrate the broad operational scope of participating BBCs. Figures 3 and 4, together with Tables 7 and 8, show that aluminium beverage cans, paper and cardboard, plastics, aluminium aerosol cans and steel cans are among the most purchased recyclable materials. Waste pickers / reclaimers constitute the primary source of recyclable materials, followed by households and businesses, highlighting the important role of the informal sector within SA's recycling value chain. The close integration between BBCs and upstream material suppliers suggests that initiatives to improve aerosol collection, safe handling and awareness should target both BBC operators and waste picker / reclaimer. Overall, Section A establishes a credible operational baseline for interpreting the subsequent findings on aerosol handling practices, safety measures and support needs.

3.2.2 Research Instrument Section B: Awareness of Aerosol Cans

Section B assessed whether BBCs buy aerosol cans, whether they understand the materials and risks involved, whether training or rules are in place, and whether staff are perceived as confident in safe handling.

Table 7 presents Section B single-response results: Awareness of aerosol cans.

Table 7: Section B single-response results: Awareness of aerosol cans.

Question	Response	n		%
How often do you buy aerosol cans?	Regularly	23		60.5
	Sometimes	8		21.1
	Never	7		18.4
Aerosol cans are dangerous because they may still contain pressurised gas or chemicals.	Yes	36		94.7
	No	1		2.6
	Not sure	1		2.6
Have you ever received any training or information regarding safe handling of aerosol cans?	No	36		97.3
	Yes	1		2.7
Do you have any written or informal rules at your BBC for handling aerosol cans?	No	29		76.3
	Yes	9		23.7
How confident are you that staff at your BBC know how to handle aerosol cans safely?	A little confident	14		36.8
	Not confident	12		31.6
	Confident	10		26.3
	Very confident	2		5.3

Table 8 presents the multiple-response results for the reasons why participating BBCs do not accept post-consumer aerosol cans. The findings provide insight into the operational, economic and safety factors that influence aerosol acceptance and highlight potential barriers to increasing collection and recycling. Understanding these reasons is important for identifying interventions that can improve market participation, enhance safety and strengthen metal circularity within SA's recycling value chain.

Table 8: Section B multiple-response results: reasons for not accepting aerosols.

Option	n	% Respondents
Not applicable	25	65.8
The price is too low	8	21.1
Other reason for not accepting aerosol cans (specify)	4	10.5
There is no buyer for them	4	10.5
They are not empty	3	7.9
They may still contain gas or chemicals	2	5.3
They are too dangerous to store	0	0.0

Table 9 presents section B respondent's knowledge of aerosol can substrates (Multiple Responses).

Table 9: Section B Respondent's knowledge of aerosol can substrates (Multiple Responses).

Option	n	% Respondents
Aluminium	37	97.4
Steel	33	86.8
Not sure	1	2.6

Table 10 presents section B multiple-response results: training or information sources.

Table 10: Section B multiple-response results: training or information sources.

Option	n	% Respondents
BBC	1	2.6
Recycling company	1	2.6
Aerosol Manufacturers Association	0	0.0
Municipality	0	0.0
Non-Government Organisation	0	0.0
Other training/information source (specify)	0	0.0

Table 11 presents Section B multiple-response results: staff knowledge areas.

Table 11: Section B multiple-response results: staff knowledge areas.

Option	n	% Respondents
Number of respondents aware that aerosol cans may still contain residual gas when appearing empty	26	68.4
Puncturing can be dangerous	22	57.9
Crushing can be dangerous	20	52.6
They should be kept away from heat or flames	18	47.4
Not sure	8	21.1
Some buyers only accept empty cans	6	15.8

Figure 7 presents the training, rules and risk recognition indicators. Most BBCs (94.7%) recognised the risks associated with pressurised aerosol cans, although only 23.7% had written or informal handling rules, highlighting an opportunity to strengthen operational guidance.

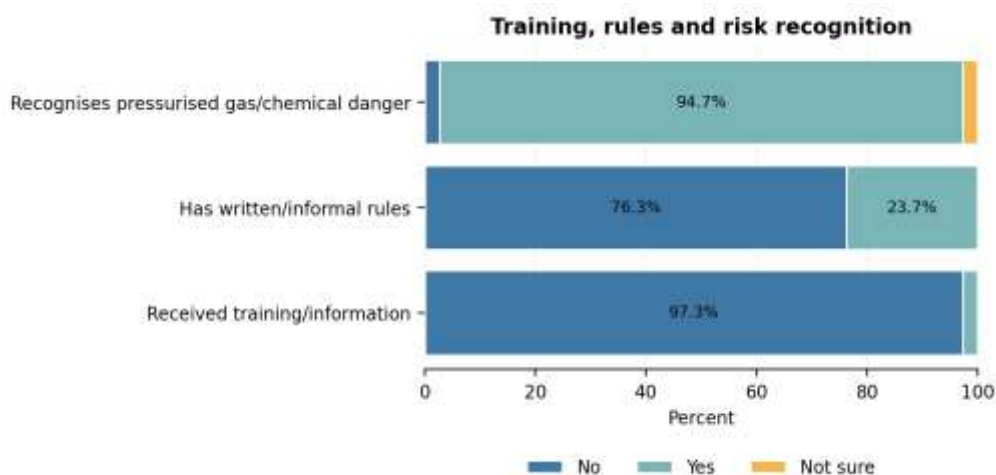
*Figure 7: Training, rules and risk recognition indicators.*

Figure 8 presents the staff knowledge areas relating to aerosol cans. Most respondents understood that aerosol cans may remain pressurised even when appearing empty (68.4%), although knowledge of other safe handling practices was less consistent, indicating a need for targeted awareness and training.

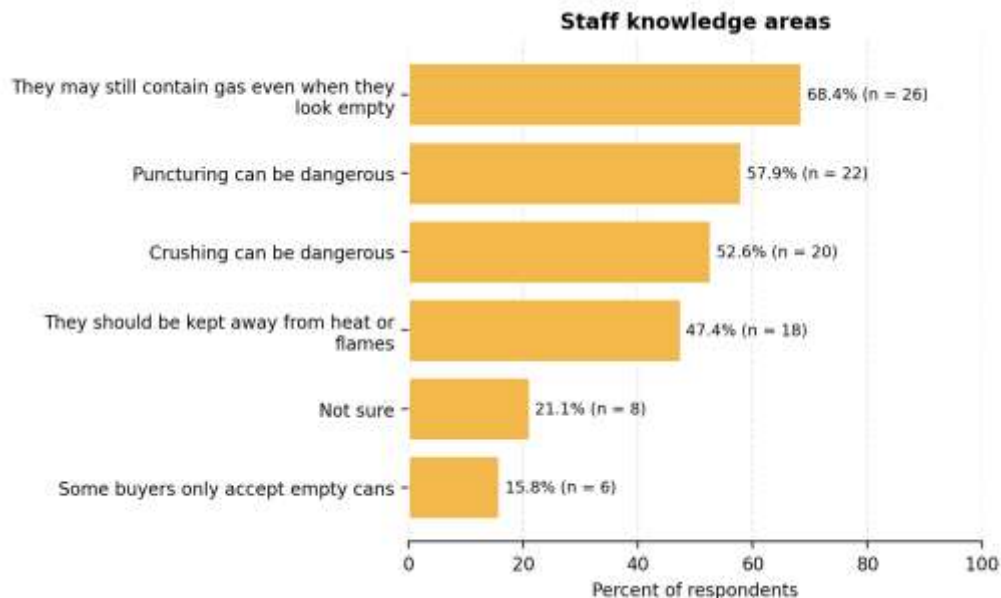


Figure 8: Staff knowledge areas relating to aerosol cans.

Figure 9 presents the staff confidence in safe aerosol handling. Confidence in safely handling aerosol cans was generally low, with 68.4% of respondents reporting that staff were either not confident or only a little confident, highlighting the need for additional training and guidance.

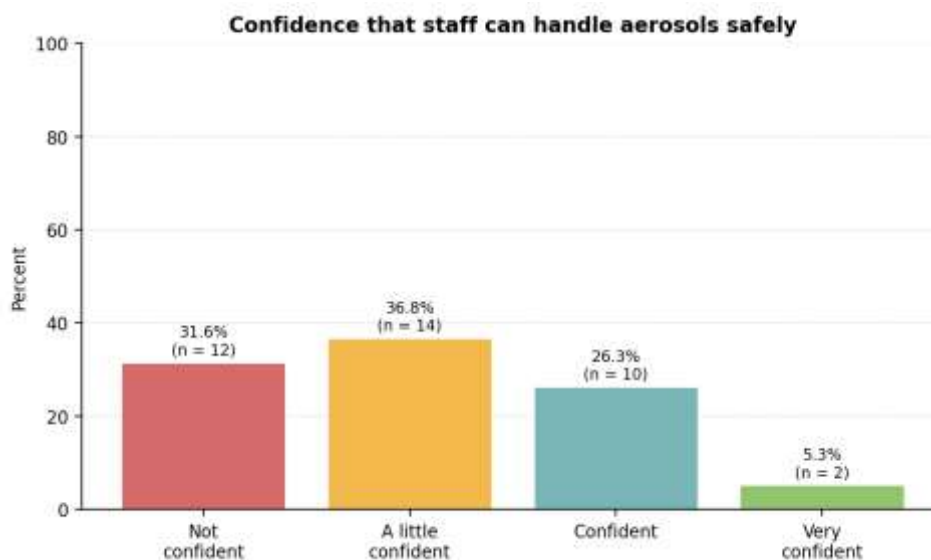


Figure 9: Staff confidence in safe aerosol handling.

Section B Summary - Awareness of Aerosol Cans: The findings from Section B tables and figures demonstrate a clear disparity between awareness of aerosol can hazards and the operational systems needed to manage those risks effectively. Most participating BBCs reported purchasing aerosol cans regularly or occasionally, reflecting their routine exposure to these products. Almost all respondents recognised that aerosol cans may still contain pressurised gas or hazardous chemicals and correctly identified aluminium and steel as the primary aerosol can substrates. Despite this high level of risk awareness, figures 7 and 9 and the accompanying tables reveal that formal preparedness remains very limited. Only one respondent reported having received any training or information on the safe handling of aerosol cans, fewer than one-quarter of BBCs had written or informal handling rules, and most respondents described staff as either not confident or only a little confident in handling aerosol cans safely.

The results also show that operational barriers to aerosol acceptance were driven primarily by economic and market considerations rather than safety concerns. Where aerosol cans were not accepted, respondents most cited low prices or the absence of buyers, while relatively few identified residual gas, chemicals or storage risks as the main reason. Staff knowledge was strongest regarding the potential for apparently empty aerosol cans to remain pressurised and the dangers associated with puncturing or crushing cans, although fewer respondents recognised the importance of keeping aerosol cans away from heat and flames. Overall, Section B highlights that while awareness of aerosol-related hazards is widespread, this awareness has not translated into structured workplace practices.

Section B shows the strongest gap in the report: high awareness but weak system readiness. Almost all respondents recognised the pressurised gas or chemical risk, but almost none had received safe-handling training. Most BBCs also had no written or informal rules for handling aerosols. Staff confidence was limited, with many BBCs reporting that staff were either not confident or only a little confident. This shows that awareness has not yet become structured practice. The section supports an immediate need for training, rules and simple workplace guidance.

3.2.3 Research Instrument Section C: Collection and Handling Practices

Section C focussed on whether BBCs accept aluminium and steel aerosol cans, how they buy and handle them, whether PPE is provided, and how aerosol cans are checked, stored and sorted before resale.

Table 12 presents Section C single-response results: Collection and handling practices.

Table 12: Section C single-response results: Collection and handling practices.

Question	Response	n	%
Do you accept aluminium aerosol cans at your BBC?	Yes	27	71.1
	No	6	15.8
	Only if empty	5	13.2
Do you accept steel aerosol cans at your BBC?	Yes	22	57.9
	No	11	28.9
	Only if empty	5	13.2
Do you provide Personal Protective Equipment (PPE) for handling aerosols?	Yes	21	55.3
	No	17	44.7
Puncturing aerosol cans (making a hole in them) can be dangerous.	Yes	28	73.7
	Not sure	7	18.4
	No	3	7.9
How often are aerosol cans checked for emptiness before being accepted or stored?	Always	25	65.8
	Not applicable	7	18.4
	Never	3	7.9
	Sometimes	3	7.9
How are aerosol cans usually stored before resale?	Separately from other metal items	12	31.6
	With other metal items	11	28.9
	Not stored on site	6	15.8
	In an open area	5	13.2
	In a covered area	3	7.9

Question	Response	n	%
	Other (Specify)	1	2.6
Do staff sort aluminium and steel aerosol cans separately?	Always	24	63.2
	Not sure	5	13.2
	Sometimes	5	13.2
	Never	4	10.5

Table 13 presents multiple-response results describing how participating BBCs purchase post-consumer aerosol cans. The findings provide insight into current procurement and material-sorting practices, highlighting the extent to which aerosols are purchased separately, combined with other metal packaging or not accepted at all. These practices have important implications for safe handling, downstream processing efficiency and the optimisation of metal circularity within SA's recycling value chain.

Table 13: Section C multiple-response results: purchases of aerosol cans.

Option	n	% Respondents
Buy aerosols with other metal cans	19	50.0
Buy aerosols separately from other recyclables	18	47.4
Buy steel aerosol mixed with higher grade steel	10	26.3
Buy steel and aluminium aerosols together	10	26.3
Do not buy aerosols	6	15.8

Table 14 presents Section C multiple-response results: buying / handling practices.

Table 14: Section C multiple-response results: buying / handling practices.

Option	n	% Respondents
Dismantle and separate components of aerosols	25	65.8
Check if they are empty	14	36.8
Other buying/handling practice (specify)	9	23.7
Crush them	8	21.1
Puncture them	6	15.8

Table 15: Section C multiple-response results: PPE provided.

Table 15: Section C multiple-response results: PPE provided.

Option	n	% Respondents
Gloves	23	60.5
Overalls	19	50.0
Safety boots	19	50.0
Not applicable	15	39.5
Masks	11	28.9
Eye protection	8	21.1
Other PPE provided (specify)	3	7.9

Figure 10 presents the acceptance of aluminium and steel aerosol cans. BBCs were more likely to accept aluminium aerosol cans (71.1%) than steel aerosol cans (57.9%), with steel cans more frequently accepted only if empty or not accepted at all.

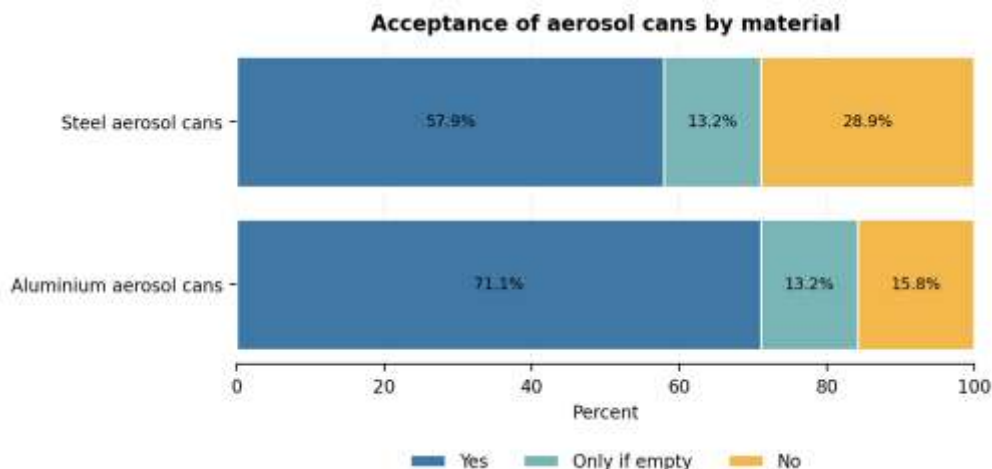


Figure 10: Acceptance of aluminium and steel aerosol cans.

Figure 11 presents the buying and handling practices used for aerosol cans. Most BBCs reported dismantling and separating aerosol can components (65.8%), while fewer checked whether cans were empty (36.8%), highlighting variation in handling practices.

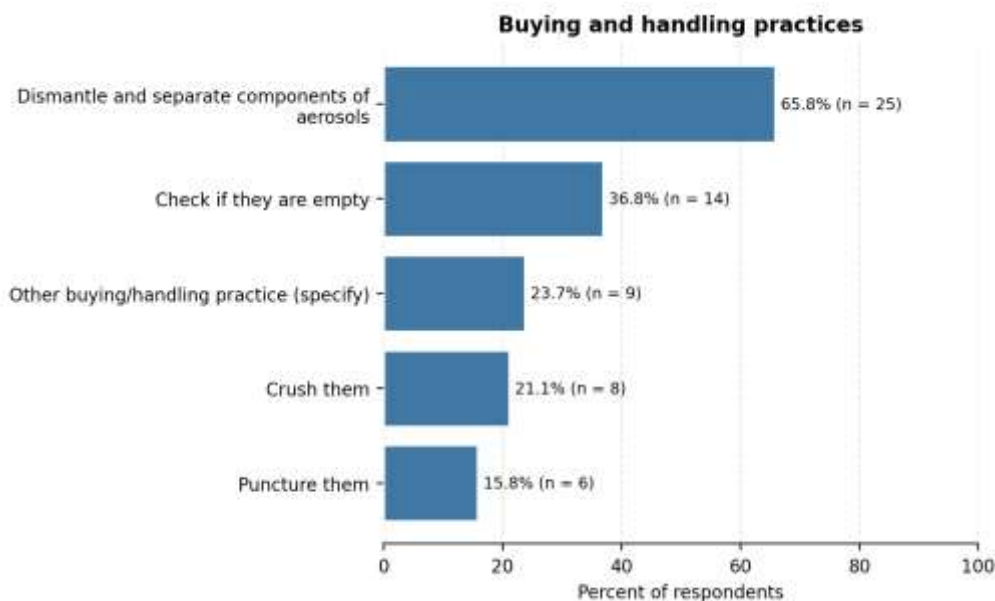


Figure 11: Buying and handling practices used for aerosol cans.

Figure 12 presents the PPE provided by BBCs for handling aerosol cans. Gloves (60.5%) were the most provided PPE, followed by safety boots and overalls (50.0% each), although 39.5% of BBCs reported that PPE was not provided.

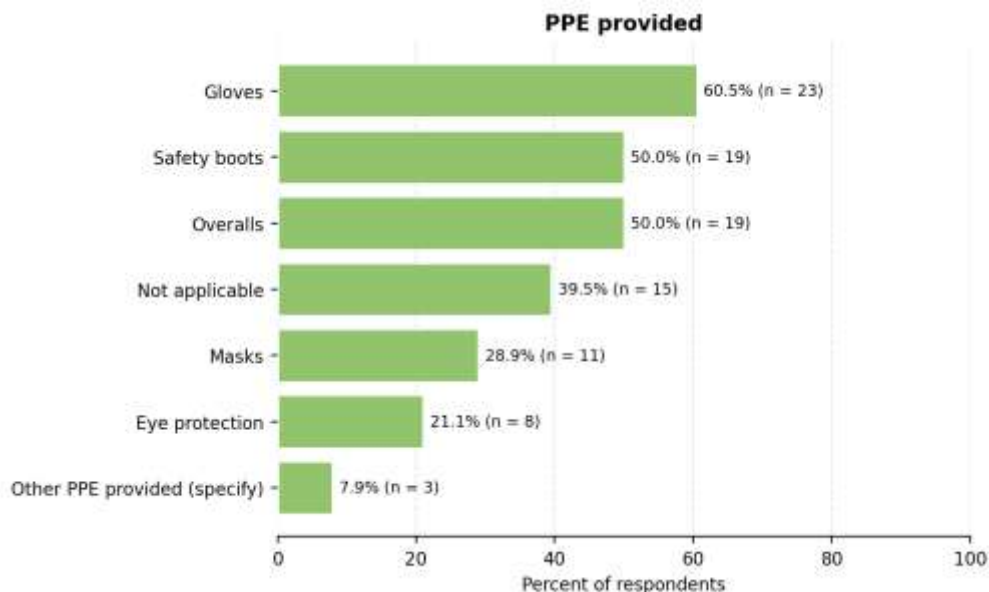


Figure 12: PPE provided by BBCs for handling aerosol cans.

Figure 13 presents the BBC storage practices before resale. Storage practices varied, with 31.6% of BBCs storing aerosol cans separately from other metal items, while 28.9% stored them together with other metals.

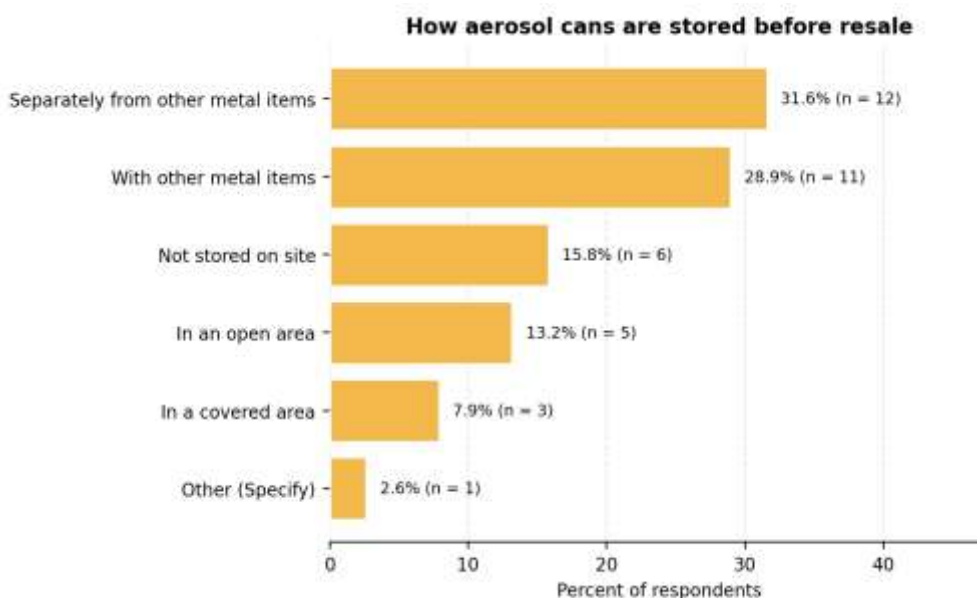


Figure 13: BBC storage practices before resale.

Section C Summary - Collection and Handling Practices: The findings from the tables and figures indicate that aerosol cans are widely accepted by participating BBCs, although aluminium aerosol cans are accepted more readily than steel aerosol cans. Most BBCs reported accepting aluminium aerosols outright, while acceptance of steel aerosols was lower, suggesting that material type continues to influence collection practices. Most respondents recognised the dangers associated with puncturing aerosol cans and reported routinely checking whether cans were empty before acceptance or storage. Staff also commonly sorted aluminium and steel aerosol cans separately, reflecting an awareness of material segregation requirements. Figures 10 and 13 further show that storage practices varied considerably, with some BBCs storing aerosol cans separately from other metal items while others stored them together or in open areas, indicating inconsistent approaches to safe storage.

The buying, handling and safety practices reveal both positive operational behaviours and areas requiring improvement. Aerosol cans were purchased either together with other metal cans or as a separate recyclable stream, while dismantling and separating aerosol components was the most frequently reported handling practice. However, a notable proportion of respondents also reported crushing or puncturing aerosol cans despite recognising the associated hazards. More than half of the BBCs provided PPE, most commonly gloves, safety boots and overalls, although a substantial proportion reported providing no PPE. Overall, Section C demonstrates that BBCs have incorporated aerosol cans into routine collection and handling activities, but the variation in acceptance criteria, storage practices, PPE provision and handling methods highlights the need for standardised operating procedures and practical guidance to promote consistent and safe aerosol management across the sector.

3.2.4 Research Instrument Section D: Safe Working Practices

Section D examined incidents experienced when handling aerosol cans, storage before resale, retention time and downstream rejection reasons. Table 16 presents Section D single-response results: Safe working practices.

Table 16: Section D single-response results: Safe working practices.

Question	Response	n	%
When did an explosion, fire, gas release, chemical smell/leak or injury his last happen?	Not applicable	22	57.9
	In the past 12 months	6	15.8
	In the past month	4	10.5
	In the past 6 months	3	7.9
	More than 12 months ago	3	7.9
Do you store aerosol cans separately from other metal items before resale to aggregator/re-melter?	Yes	22	57.9
	Not applicable	6	15.8
	No	5	13.2
	Sometimes	5	13.2
How long are aerosol cans usually kept at your BBC before they are sold, removed, or disposed of?	More than 7 days	15	39.5
	Not sure	8	21.1
	Not applicable	6	15.8
	4–7 days	5	13.2
	1–3 days	4	10.5

Table 17 presents the multiple-response results for incidents experienced by BBCs when handling post-consumer aerosol cans. The findings provide insight into the types and frequency of safety-related incidents encountered during collection, storage and handling, highlighting the potential occupational risks associated with aerosols. These results provide an evidence base for identifying risk mitigation measures and informing strategies to improve safe handling practices throughout the aerosol recycling value chain.

Table 17: Section D multiple-response results: incidents when handling aerosol cans.

Option	n	% Respondents
None	20	52.6
Gas release	10	26.3
Chemical smell/leak	6	15.8
Injury	5	13.2
Explosion	3	7.9
Fire	0	0.0

Table 18 presents the ranked reasons why downstream buyers reject post-consumer aerosol cans, based on the responses of participating BBCs. Ranking these factors provides an indication of their relative importance and highlights the key market, operational and safety barriers affecting aerosol recovery. The findings provide valuable evidence for developing targeted interventions to improve market acceptance, enhance safe handling practices and strengthen metal circularity within SA's recycling value chain.

Table 18: Ranked downstream rejection reasons for aerosol cans.

Reason	Mean rank	Median rank	Ranked 1st (n)	Ranked 1st (%)
No market	2.32	2.0	11	28.9
Too low value	2.82	3.0	5	13.2
Not separated properly	3.32	3.0	5	13.2
Not empty	3.34	4.0	9	23.7
Too dangerous	3.89	4.0	4	10.5
No reason given	5.37	6.0	1	2.6
Not applicable	6.03	7.0	5	13.2

Figure 14 presents the incidents experienced when handling aerosol cans. While 52.6% of BBCs reported no incidents, gas releases (26.3%) were the most common event experienced, followed by chemical leaks (15.8%) and injuries (13.2%).

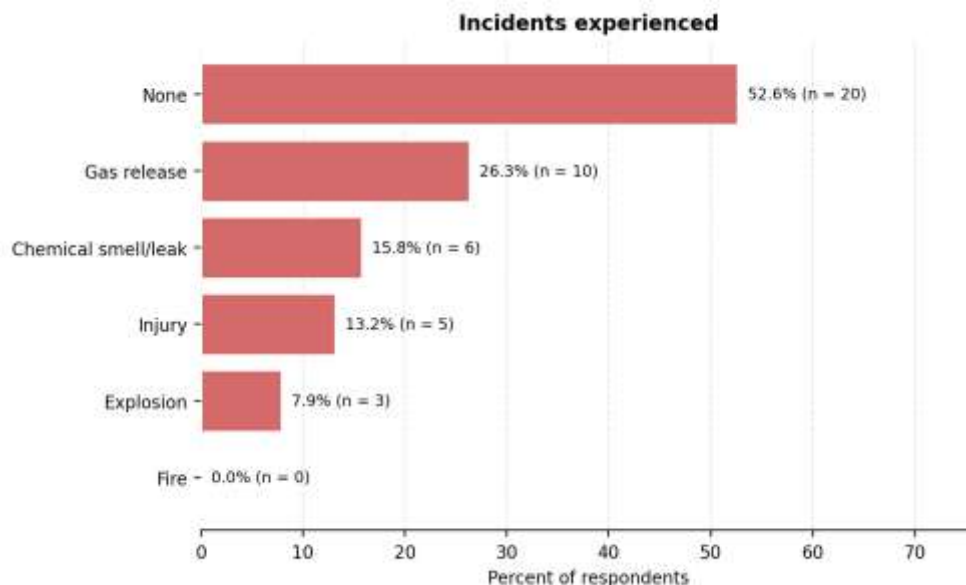


Figure 14: Incidents experienced when handling aerosol cans at the BBC.

Figure 15 presents the ranked reasons for downstream rejection of aerosol cans. Where reasons for downstream rejection were identified, the most important were that aerosol cans were considered too dangerous, not empty, or not properly separated before resale.

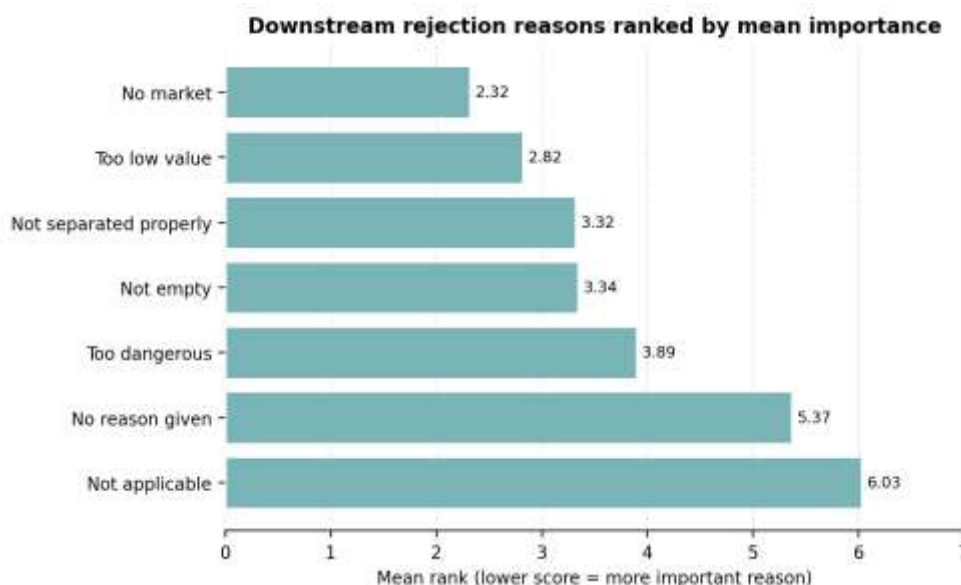


Figure 15: Ranked reasons for downstream rejection of aerosol cans.

Section D Summary - Safe Working Practices: The findings from the tables and figures indicate that, although more than half of participating BBCs reported experiencing no incidents when handling aerosol cans, safety risks remain evident. The most frequently reported incidents were gas releases, followed by chemical smells or leaks, injuries and, in a small number of cases, explosions, while no respondents reported fires. Most BBCs stored aerosol cans separately from other metal items before resale, although a notable proportion either did not separate them or did so only sometimes. Aerosol cans were also often retained on site for extended periods, with the largest proportion of respondents reporting storage times exceeding seven days, potentially increasing exposure to handling and storage risks.

The downstream rejection results show that market-related factors were the primary barriers to successful recycling of aerosol cans. The absence of a market was ranked as the most important reason for rejection, followed by low material value, inadequate separation and aerosol cans not being empty. Safety concerns relating to the perceived danger of aerosol cans were ranked lower than economic and quality-related factors, suggesting that downstream acceptance is influenced more by market demand and material quality than by safety considerations alone. Overall, Section D demonstrates that while many BBCs have experienced relatively few handling incidents, opportunities remain to strengthen safe storage practices, minimise on-site retention times, and improve material preparation to reduce downstream rejection and enhance aerosol recovery.

3.2.5 Research Instrument Section E: Challenges, Risks and Support Needs

Section E identified the main challenges faced by BBCs, whether they regard aerosol cans as dangerous in the recycling or waste collection stream, who alerted them to safety risks, what support is needed, and the biggest concern when dealing with aerosol cans.

Table 19 presents the Section E single-response results: Challenges, risks and support needs.

Table 19: Section E single-response results: Challenges, risks and support needs.

Question	Response	n	%
Do you think aerosol cans are dangerous in recycling or waste collection?	Yes	29	76.3
	No	5	13.2
	Not sure	4	10.5
Which area is the biggest concern for your BBC when dealing with aerosol cans?	Low value/price	15	42.9
	Safety risk	7	20.0
	Lack of knowledge	5	14.3
	Staff protection	5	14.3
	Buyer rejection	1	2.9
	Other (Specify)	1	2.9
	Storage	1	2.9

Table 20 presents the Section E multiple-response results: challenges faced.

Table 20: Section E multiple-response results: challenges faced.

Option	n	% Respondents
Lack of PPE	22	57.9
Low price for metal	20	52.6
Lack of knowledge about safe handling	18	47.4
Risk of explosion	14	36.8
Lack of storage space	12	31.6
Other challenge (specify)	8	21.1
BBCs /recyclers do not accept aerosol cans	1	2.6

Table 21 presents the multiple-response results identifying the sources from which participating BBCs receive alerts or information regarding the safety risks associated with post-consumer aerosol cans. The findings provide insight into the effectiveness of existing communication channels and the extent to which safety information is disseminated throughout the recycling value chain. This information is important for identifying opportunities to strengthen awareness, improve risk communication and support safer aerosol handling practices across SA.

Table 21: Section E multiple-response results: alert sources for aerosol cans safety risks.

Option	n	% Respondents
No one	25	65.8
General public	12	31.6
BBCs or scrap dealers	2	5.3
Landfill authorities	2	5.3
Municipalities	0	0.0

Table 22 presents the multiple-response results identifying the support required by participating BBCs to improve the safe handling of post-consumer aerosol cans. The findings highlight the priority areas where additional guidance, training, equipment and resources are needed to strengthen occupational safety and operational practices. These results provide an evidence-based foundation for developing targeted interventions that enhance aerosol recovery while supporting SA's metal circularity objectives and EPR framework.

Table 22: Section E multiple-response results: improving safe handling of aerosol cans.

Option	n	% Respondents
Safety training on guidelines	28	73.7
Clear written aerosol handling guidelines	26	68.4
PPE	25	65.8
Safety dismantling equipment	25	65.8
Other support needed (specify)	3	7.9

Figure 16 presents the challenges faced when handling aerosol cans. The main challenges reported by BBCs were a lack of PPE (57.9%), low metal prices (52.6%) and limited knowledge of safe aerosol can handling (47.4%).

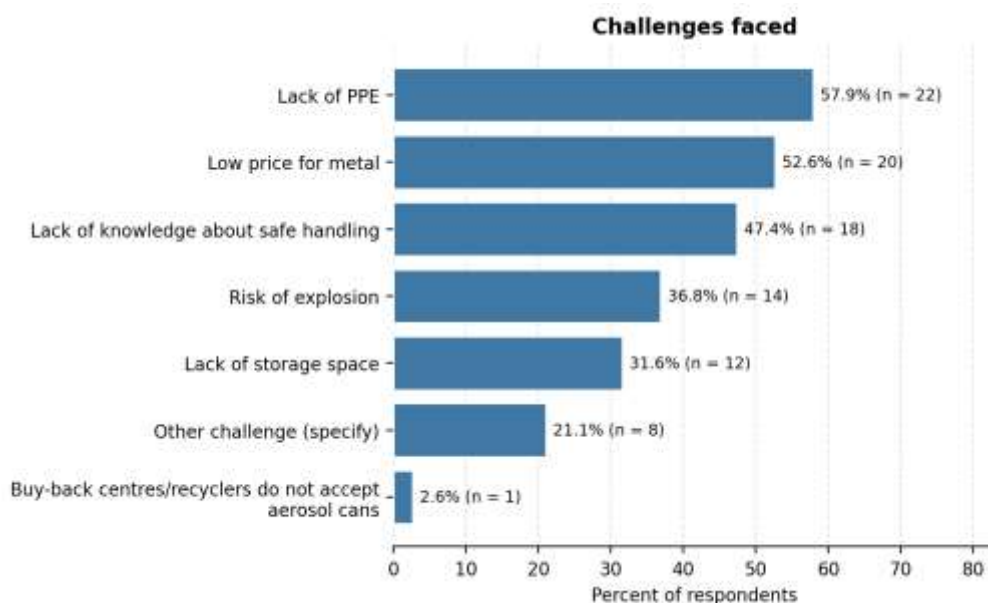


Figure 16: Challenges faced when handling aerosol cans at the BBC.

Figure 17 presents the support needed to improve safe aerosol handling. BBCs identified safety training (73.7%), clear handling guidelines (68.4%), PPE (65.8%) and safe dismantling equipment (65.8%) as their highest support needs.

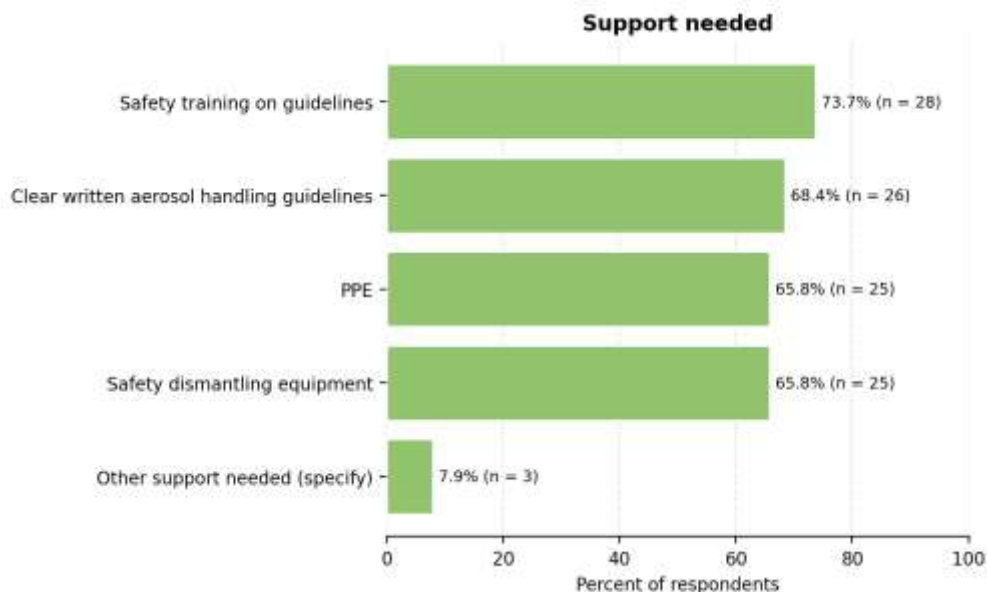


Figure 17: Support needed to improve safe aerosol handling at the BBC.

Figure 18 presents the biggest concern when dealing with aerosol cans. The biggest concerns when handling aerosol cans were their low value (42.9%), followed by safety risks (20.0%) and limited knowledge of safe handling (14.3%).

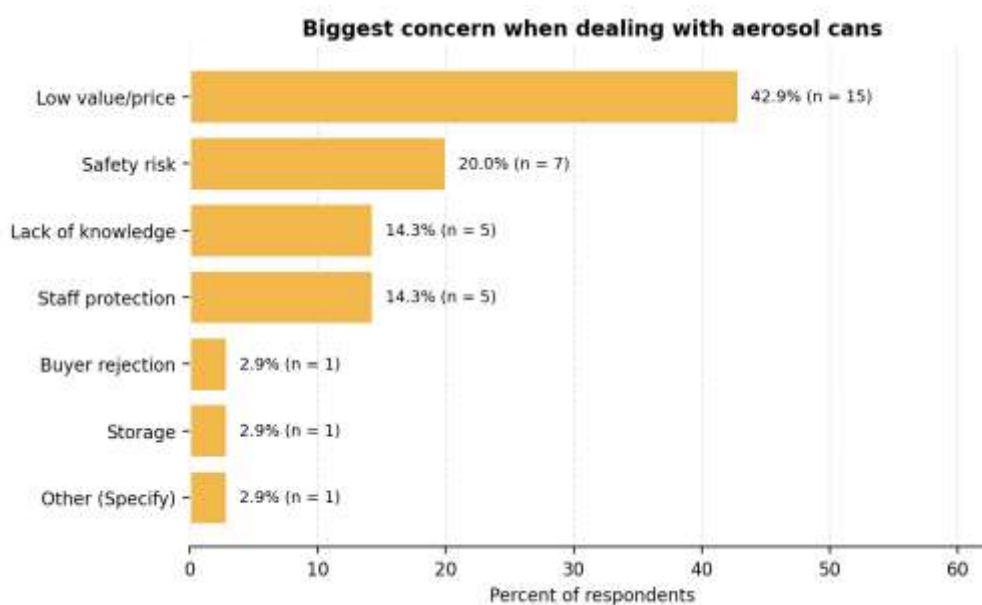


Figure 18: Biggest concern when dealing with aerosol cans at the BBC.

Figure 19 presents the sources that alerted BBCs to aerosol safety risks. Most BBCs (65.8%) reported receiving no safety risk alerts, indicating limited communication on aerosol can hazards across the recycling value chain.

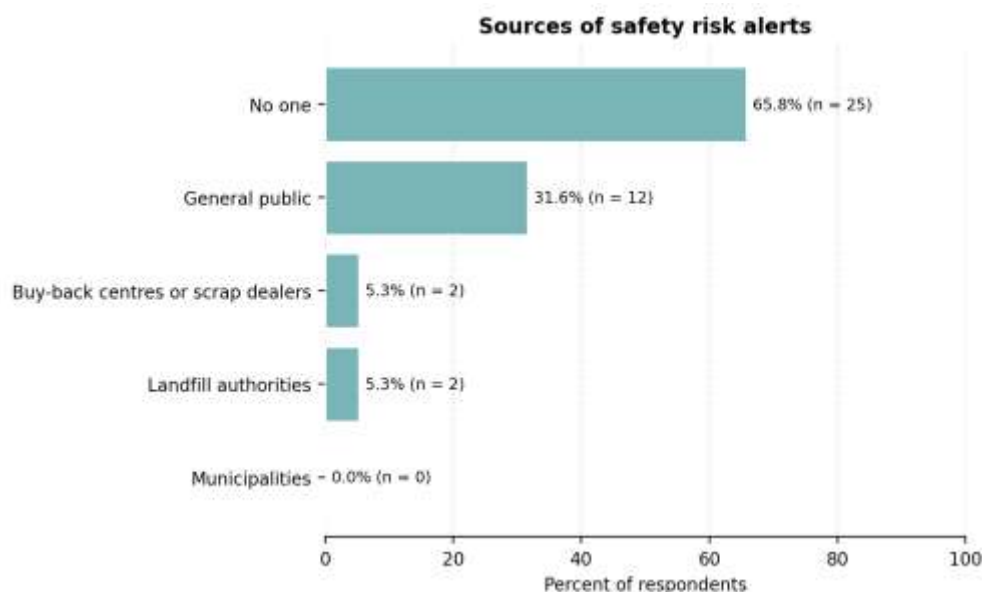


Figure 19: Sources that alerted BBCs about aerosol safety risks.

Section E Summary - Challenges, Risks and Support Needs: The findings from the tables and figures indicate that most participating BBCs recognise aerosol cans as hazardous within the recycling and waste collection stream. However, the greatest concern identified by respondents was not safety itself, but the low value or price received for aerosol cans, followed by safety risks, lack of knowledge and staff protection. The most reported operational challenges included inadequate PPE, low metal prices, insufficient knowledge of safe handling practices, the risk of explosions and limited storage space. These findings suggest that the barriers to effective aerosol management are both economic and operational, with safety concerns compounded by resource constraints rather than existing in isolation.

The support needs identified by respondents provide a clear indication of the interventions required to strengthen safe aerosol handling. Safety training on aerosol handling guidelines emerged as the highest priority, followed by the need for clear written handling procedures, improved access to PPE and specialised dismantling equipment. The results also show that most respondents had never been formally alerted to aerosol safety risks, with relatively few receiving information from the general public, BBCs, scrap dealers or landfill authorities, and none from municipalities. This lack of formal communication reinforces the need for coordinated awareness and training programmes. Overall, Section E demonstrates that improving aerosol management at BBCs will require a combination of practical safety support, consistent guidance, appropriate equipment and stronger market incentives to address both operational and economic challenges.

3.3 Analysis and Interpretation of Results

3.3.1 Buy-Back Centre Readiness Indicators (Sections A - E)

This section presents key indicator values. Indicators were selected to summarise operational exposure, awareness, safe handling readiness and support requirements.

The key indicator section brings the main BBC survey results into a concise decision-making view. It shows where the biggest gaps sit across exposure, awareness, operational controls and support needs. This is useful because the BBC survey does not rely on scale averages or academic testing. Instead, the indicators help stakeholders see which issues are most urgent, and which interventions are most likely to matter. The section also supports the later readiness segmentation. It therefore acts as a bridge between the descriptive results and the trend model. Table 23 presents the key BBC survey indicators.

Table 23: Key BBC survey indicators.

Indicator	n	%
BBCs receiving aerosol cans daily	22	57.9
BBCs buying aerosol cans regularly	23	60.5
BBCs accepting aluminium aerosol cans	27	71.1
BBCs accepting steel aerosol cans	22	57.9
BBCs recognising pressurised gas/chemical danger	36	94.7
BBCs with prior training/information (valid n = 37)	1	2.7
BBCs with written or informal rules	9	23.7
BBCs providing PPE	21	55.3
BBCs always checking emptiness	25	65.8
BBCs reporting no incidents	20	52.6
BBCs needing safety training	28	73.7
BBCs needing written guidelines	26	68.4

Section Summary - BBC Readiness Indicators: The key indicators demonstrate that aerosol cans are an established component of BBCs operations rather than a niche or occasional waste stream. Most BBCs regularly purchase and accept aerosol cans, particularly aluminium aerosols, and almost all

recognise the hazards associated with residual gas and chemicals. However, this high level of awareness has not translated into consistent operational readiness to safely handle aerosols. Very few BBCs have received formal training or implemented written handling procedures, while only around half provide PPE. Although many BBCs routinely check whether aerosol cans are empty before handling, the strong demand for safety training and written guidelines confirms that current practices remain inconsistent. Overall, the findings indicate that the principal challenge is not raising awareness of aerosol hazards but converting existing awareness into standardised, safe operational practices through practical training, clear procedures, appropriate equipment and stronger market support.

In summary BBCs are aware of the risks associated with aerosol cans and already handle them routinely, but significant gaps in training, procedures, PPE and operational support prevent this awareness from being consistently translated into safe and standardised handling practices.

3.3.2 Impact of Background and Operational Factors on Key Outcomes

Cross-tabulation was used to identify practical patterns between background or operational factors and key safety outcomes. These patterns are reported as descriptive trends and should be read as signals for decision-making rather than as formal test results.

Figure 20 presents how receiving frequency relates to buying frequency. Most BBCs (60.5%) reported regularly purchasing aerosol cans, indicating that these materials form part of routine recycling operations.

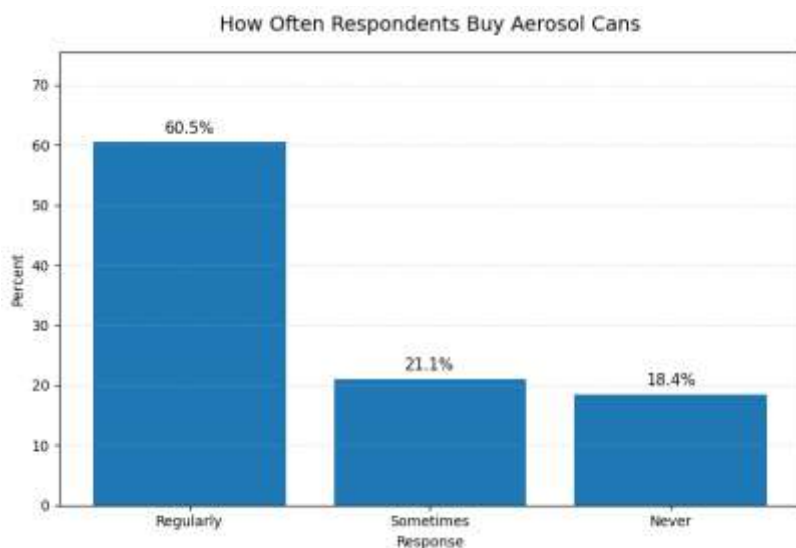


Figure 20: How often respondents buy aerosol cans.

Figure 21 presents how often aluminium aerosol cans are checked for emptiness before being accepted or stored. Most respondents (65.8%) reported always following the practice being assessed, while only 7.9% indicated they did so sometimes or never, demonstrating a high level of consistent compliance among participating BBCs.

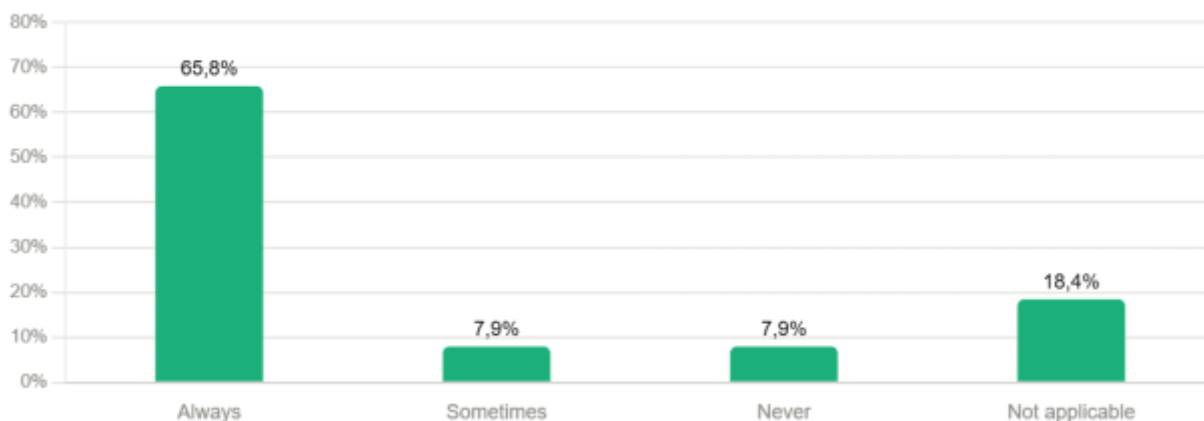


Figure 21: Aluminium acceptance by emptiness-checking practice.

Figure 22 illustrates the extent to which steel aerosol cans are separated from other metal packaging during storage prior to recycling. Most respondents (63.2%) reported always following the practice, while only 10.5% indicated they never did so, reflecting generally consistent implementation across participating BBCs.

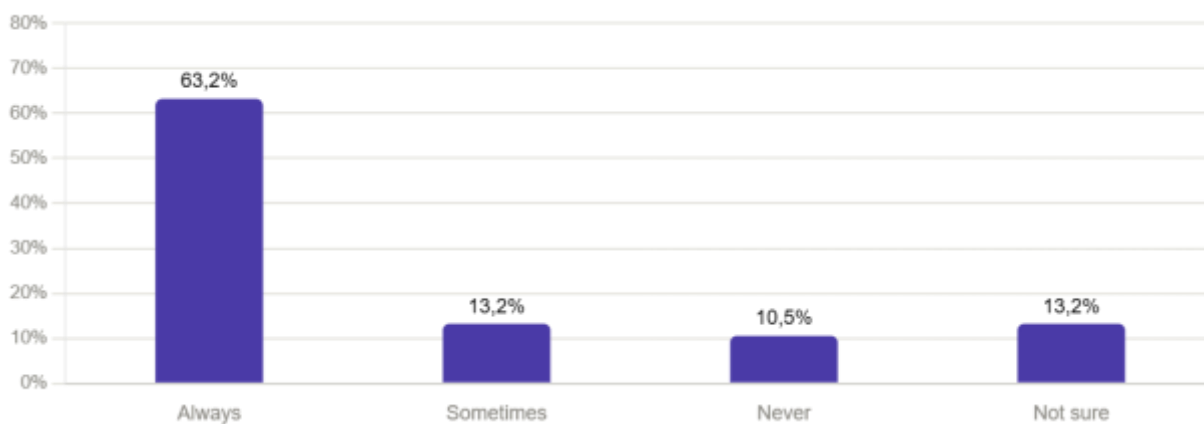


Figure 22: Extent to which steel aerosol cans are separated from other metal packaging.

Section summary - Impact of Background and Operational Factors on Key Outcomes: The trend patterns were operational rather than demographic. BBCs that received aerosol cans daily were usually regular buyers, showing that aerosol cans are already part of the everyday material stream for many BBCs. Acceptance was also linked to practical routines: aluminium acceptance was strongest where BBCs checked cans for emptiness, while steel aerosol acceptance was strongest where separate storage was reported. This means that the report should emphasise operational readiness, buyer requirements and routine safety controls, rather than treating awareness alone as the main outcome.

The operational relationship section shows that BBCs behaviour is shaped by exposure, routines and market participation. Daily receipt of aerosols tends to align with regular buying, confirming that aerosol handling is part of routine BBC activity for many respondents. Acceptance also appears to be linked with practical controls such as emptiness checking and separate storage. These patterns should not be read as formal statistical proof, but they are useful planning signals. They suggest that BBCs with stronger routines are better positioned to accept and manage aerosols safely. The section therefore helps identify where targeted support may improve outcomes.

3.3.3 Analysis of the Open-Ended Question

The final questionnaire item asked respondents to suggest how aerosol cans could be handled or recycled more safely. Empty or non-substantive comments, including entries such as None or NA, were excluded from the word map and thematic interpretation. The word map below shows the strongest language patterns in the usable responses, with training, market access, PPE, buyers, storage, safety and pricing emerging as the most visible concerns. Figure 23 presents the word cloud of 31 substantive open-ended responses.



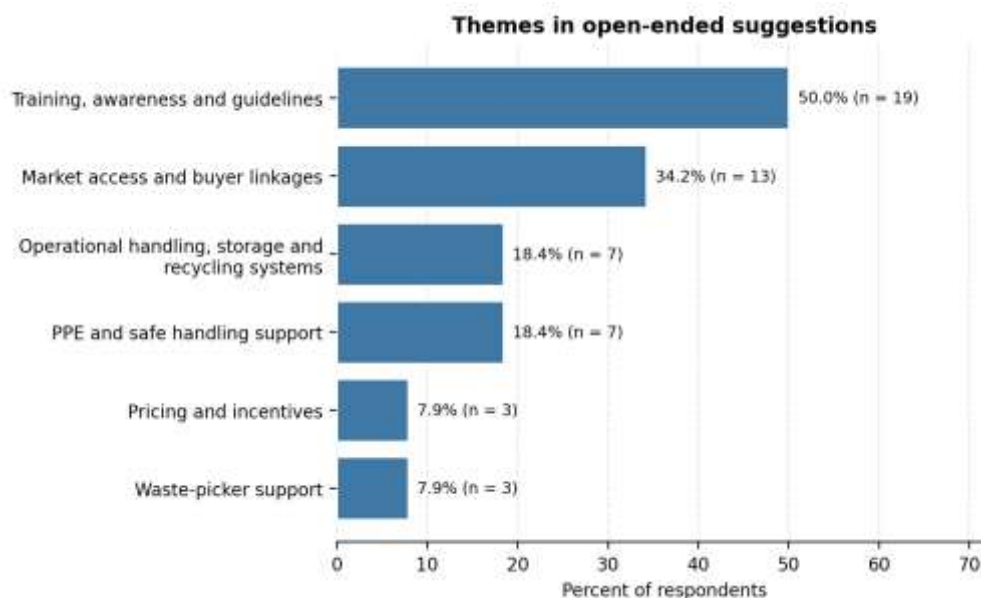
Figure 23: Word cloud of substantive open-ended responses.

Table 24 presents the thematic coding of the open-ended suggestions provided by participating BBCs to improve the safe handling and recovery of post-consumer aerosol cans. The qualitative responses were grouped into common themes to identify recurring priorities, concerns and recommendations expressed by respondents. These findings complement the quantitative survey results by providing richer contextual insights that inform the development of practical, stakeholder-driven interventions to strengthen aerosol safety and metal circularity in SA.

Table 24: Thematic coding of open-ended suggestions.

Theme	n	% Comments / Respondents
Training, awareness and guidelines	19	50.0
Market access and buyer linkages	13	34.2
Operational handling, storage and recycling systems	7	18.4
PPE and safe handling support	7	18.4
No comment recorded	6	15.8
Pricing and incentives	3	7.9
waste picker / reclaimer support	3	7.9

Figure 24 presents the themes identified from open-ended safe-handling suggestions. Training, awareness and clear handling guidelines (50.0%) emerged as the most common recommendations, followed by improved market access and buyer linkages (34.2%) to strengthen aerosol can recovery.

*Figure 24: Themes identified from open-ended safe-handling suggestions.*

The open-ended responses reinforced the quantitative findings. Training, awareness and written guidance formed the most common theme. Market access and buyer linkages were also prominent, especially where BBCs indicated that they were not collecting or buying steel aerosol cans because they

did not have buyers. PPE, safe handling support and operational handling systems were also repeatedly mentioned.

Table 25 presents a selection of verbatim responses provided by participating BBCs, together with the corresponding theme codes assigned during the qualitative analysis. The quotations illustrate how respondents' views were systematically categorised into broader themes, providing transparency in the thematic coding process and demonstrating how individual experiences informed the overall findings. These verbatim responses enrich the quantitative results by providing practical insights that support the development of evidence-based recommendations for improving the safe handling and recovery of post-consumer aerosol cans in SA.

Table 25: Selected verbatim open-ended suggestions and theme codes.

Respondent	Verbatim suggestion	Theme code
1	Training	Training, awareness and guidelines; operational handling, storage and recycling systems
2	Storage and training	Training, awareness and guidelines; operational handling, storage and recycling systems
3	Training and workshops	Training, awareness and guidelines
4	Lack of sustainable market within our area	Market access and buyer linkages
5	Currently collecting Alu aerosol only Not collecting steal aerosol, tins fishes, etc, do to not having the buyers	Market access and buyer linkages; operational handling, storage and recycling systems
7	Assist by connecting buy back BBCs to buyers	Market access and buyer linkages
8	Our BBC don't buy aerosol, we request the training first on how to handle aerosol, and market	Training, awareness and guidelines; Market access and buyer linkages
9	Request training so that we can start collecting aerosol cans	Training, awareness and guidelines; Operational handling, storage and recycling systems

Respondent	Verbatim suggestion	Theme code
10	Currently we are not collecting or buying due to not having market	Market access and buyer linkages; operational handling, storage and recycling systems
11	workshop connecting buyers incentives for steel(aerosol)	Training, awareness and guidelines; Market access and buyer linkages
12	safe handling	Operational handling, storage and recycling systems
14	Training on safety and better price	Training, awareness and guidelines; PPE and safe handling support; Pricing and incentives

Section summary - Analysis of the Open-Ended Question: The open-ended responses validate the main survey trends in the language of respondents. Training, awareness, written guidance, market access, buyer linkages, PPE and price concerns appeared repeatedly. This means that the qualitative evidence is not introducing a different problem; it is reinforcing the same operational gaps found in the closed-ended data. The word cloud also shows the importance of practical terms such as market, training, PPE, buyers and storage. These comments make the recommendations more grounded. They show that respondents are already identifying the kind of support they need.

3.3.4 Aerosol handling readiness segmentation

A simple descriptive readiness score was created to make the findings more useful for intervention planning. One point was assigned for each of six centre-level controls: prior training, written or informal rules, PPE provision, always checking cans for emptiness, separate storage before resale, and always sorting aluminium and steel aerosol cans separately. The score should not be read as a validated scale; it is a practical segmentation tool for planning support.

The segmentation shows that only two BBCs fell into the high-readiness group. Most BBCs were either developing readiness or low readiness, confirming that the main intervention need is to move BBCs from general awareness into repeatable safety routines. Figure 25 presents the aerosol handling readiness segments. Most BBCs (55.3%) demonstrated developing readiness for safe aerosol can handling, while 39.5% remained at low readiness, indicating significant scope for improving safety controls.

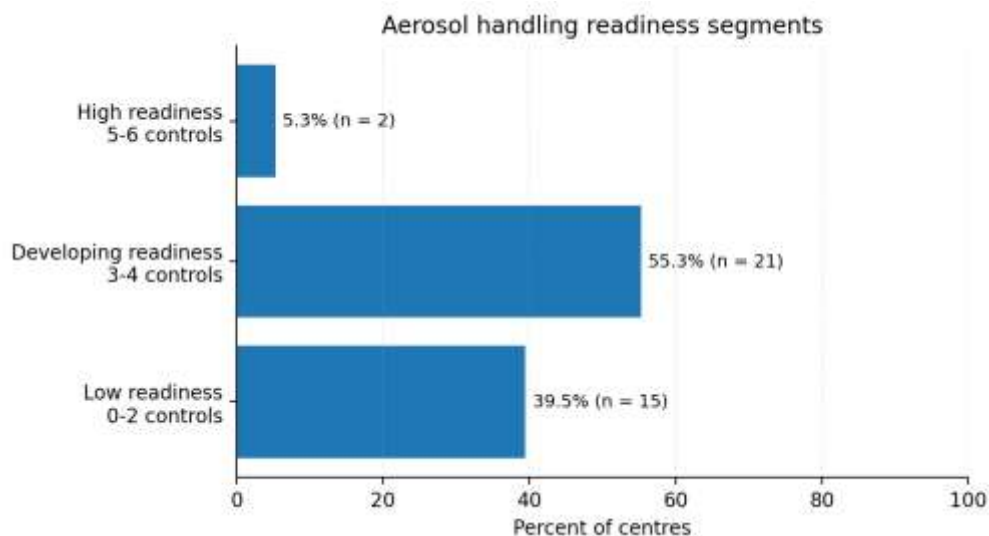


Figure 25: Aerosol handling readiness segments.

3.3.5 Trend-Based Interpretation and Trend Model

Aerosol cans are already a routine material stream for many BBCs. More than half of the BBCs reported receiving aerosol cans daily, and regular buying was also common. This makes aerosol safety a current operational matter rather than a future awareness topic.

The most important trend is the gap between awareness and implementation. Risk recognition was very high, with 94.7% recognising the gas or chemical danger, yet 97.3% had not received safe-handling training and 76.3% had no written or informal handling rules. This shows that awareness has not yet been converted into a structured safety system.

Staff confidence followed the same pattern. Most BBCs placed staff in the not confident or only a little confident category, which suggests that knowledge is not yet being converted into reliable worker-level practice.

Aluminium aerosol cans were more readily accepted than steel aerosol cans. The steel stream therefore requires more attention to buyer linkages, price concerns, sorting requirements and downstream acceptance rules.

Practical controls appear to matter. BBCs that accepted steel aerosols were more likely to report consistent sorting, and BBCs that accepted aluminium aerosols were more likely to report regular emptiness checking. These patterns suggest that acceptance should be linked to simple routines that BBCs can apply consistently.

The support package is clear. Safety training, written guidelines, PPE, safe dismantling equipment and stronger buyer connections emerged as the practical combination most likely to improve safe recovery.

The trend model below is a practical planning model based on the patterns observed in the BBC survey. It brings the variables together into a pathway showing how material exposure, risk awareness, operational controls, handling practices, market participation and support requirements influence safer recovery. The model does not present formal causal testing; rather, it provides a structured way to interpret the results and identify where intervention will have the greatest practical effect.

The impact of the model is that it changes the report from a descriptive set of results into a decision-making tool. It shows that training alone will not be sufficient unless it is connected to PPE, written guidance, sorting and storage routines, and stronger buyer or market linkages. In practical terms, high-exposure BBCs should be prioritised first, and BBCs with low or developing readiness should receive targeted support that moves them toward safer, repeatable handling practices.

Figure 26 presents the trend model for aerosol safe-handling and market-readiness pathway.



Figure 26: Trend model for aerosol safe-handling and market-readiness pathway.

The trend model illustrated in Figure 26 improves the report by linking the survey variables into a practical intervention pathway. Instead of reading the BBC questionnaire as separate results, the model shows where action should be placed: high-exposure BBCs should be prioritised first; all BBCs should receive clear written guidance and training; PPE and equipment should be packaged with the guidance; and steel aerosol recovery should be supported through buyer linkages, clear downstream acceptance rules and value propositions / demand creation.

Section summary - Trend-Based Interpretation and Trend Model: This section reframes the BBC findings as practical trends for planning and intervention design. No formal test results are reported. Percentages are used only where they help to emphasise the scale of a trend or a decision priority.

The trend-based interpretation shows that the strongest finding is not a lack of awareness, but a lack of implementation capacity. BBCs often understand that aerosol cans can be dangerous, but they do not consistently have training, rules, PPE, equipment or market pathways. The readiness segmentation makes this clearer by showing that most BBCs are not yet in a high-readiness position. The trend model then links the findings into a practical pathway from exposure to safer recovery. Its impact is to turn separate findings into an intervention logic. This helps decision-makers prioritise support where it can have the greatest operational effect.

3.4 Recommendations – BBC Survey

The results and the trend model point to a practical intervention package rather than a single action.

- i. The first recommendation is to strengthen the awareness-to-practice pathway through short training sessions, visual workplace instructions and clear written handling guidelines. This responds directly to the finding that risk recognition is high but formal training and handling rules are very limited. Training should focus on emptiness checking, avoiding puncturing or crushing, safe temporary storage, sorting aluminium and steel aerosols, and when to use PPE. The training should be simple, repeatable and suitable for both owners/managers and staff. It should also be linked to waste picker / reclaimer communication because most BBCs buy from reclaimers.
- ii. The second recommendation is to strengthen operational controls. BBCs require practical support such as gloves, boots, overalls, masks, eye protection and safe handling or dismantling equipment where appropriate. The reported handling incidents reinforce the need for improved operational practices, including improved mechanical separation of valve and dip tube from the aerosol body. PPE support should not be distributed as a once-off item only; it should be connected to training and centre-level rules so that equipment becomes part of routine practice. Storage and sorting guidance should be standardised, especially because separate storage and emptiness checking are linked to safer acceptance behaviour. BBCs that already show developing readiness can be moved toward higher readiness through structured checklists and visible instructions. BBCs with low readiness should receive priority support before being encouraged to expand aerosol acceptance.

- iii. The third recommendation is to address the market side of the aerosol recovery pathway. The results show that market access, price and buyer rejection influence whether BBCs accept and manage aerosols, especially steel aerosols. MetPac-SA and partner stakeholders should therefore work with downstream buyers to clarify acceptance rules, improve buyer linkages and communicate separation requirements. Where feasible, pilot sites should be selected to test a combined package of training, PPE, written guidance, sorting procedures and buyer access. The trend model can be used as a monitoring framework by tracking whether BBCs move from exposure and awareness into operational controls and safer market participation.

Table 26 presents the action-oriented recommendations.

Table 26: Action-oriented recommendations.

No.	Recommendation	Implementation detail
1	Develop concise written handling guidelines	Create a one-page illustrated guideline covering identification, checking for emptiness, no puncturing/crushing unless using approved equipment, heat/fire avoidance, PPE, storage and escalation steps. Reinforce the need for improved dismantling safety, including, ideally, a specialised tool to enable safe mechanical separation of valve and dip tube from the aerosol body.
2	Implement short safety training sessions	Prioritise BBCs that receive aerosol cans daily and BBCs that accept both aluminium and steel aerosols. Training should include owners/managers, employees and where possible reclaimers.
3	Provide PPE starter support	Use a minimum PPE set covering gloves, safety boots, overalls, masks and eye protection, with practical guidance on when each item is required.
4	Standardise checking and storage procedures	Encourage all BBCs accepting aerosols to check emptiness consistently and store aerosol cans separately from other metal items, away from heat and open flame.
5	Clarify downstream acceptance requirements	Work with aggregators and re-melters to communicate whether aerosols must be empty, separated by substrate, unpunctured, uncrushed or handled under specified conditions.
6	Strengthen market linkages for steel aerosol cans	Provide buyer-linkage support and market information to reduce non-collection or rejection caused by lack of buyers and low value.
7	Establish a safety-alert communication channel	Use municipal, recycler, association and BBCs networks to circulate safety alerts because most respondents indicated that no one had alerted them to aerosol safety risks.

3.5 Conclusion – BBC Survey

The BBC survey shows that BBCs are already exposed to aerosol cans and that many BBCs are willing to accept them, particularly aluminium aerosol cans. The dominant issue is not a complete absence of awareness, but the gap between awareness and consistent operational readiness. Most respondents recognise that aerosol cans can be dangerous, yet training, written rules, PPE provision and staff confidence remain uneven. This makes the safety problem practical and immediate. The results therefore support interventions that translate existing awareness into daily routines that staff can follow reliably.

The findings also show that recycling performance cannot be separated from market conditions. Low value, lack of market access and buyer rejection appear alongside PPE, training and equipment needs. This is especially important for steel aerosol cans, where acceptance is weaker and market confidence appears more limited. As illustrated in figure 26, the trend model integrates the survey findings into a coherent framework by demonstrating that safer aerosol recovery is achieved through the interaction of material exposure, risk awareness, operational controls, handling practices and market participation. The model therefore provides a practical pathway from individual findings to coordinated implementation.

In conclusion, the report points to a clear action agenda for safer aerosol recovery through BBCs, as articulated in Chapter 5 (Integrated Recommendations and Conclusion). The priority should be to provide training, written guidance, PPE, safe handling equipment, sorting and storage controls, and stronger buyer linkages as a combined package. If these interventions are implemented together, BBCs can move from general risk awareness to safer, repeatable handling and improved participation in the aerosol recovery stream. The recommended approach is therefore not only a safety intervention, but also a market-readiness intervention that can improve recovery while reducing avoidable risk.

The recommendations and conclusion in Chapter 5 (Integrated Recommendations and Conclusion) bring the BBC report together as an implementation framework. The results show that BBCs need practical support rather than abstract information alone. As illustrated in figure 26, the trend model explains why safety guidance, PPE, storage controls, sorting routines and buyer linkages must be developed together. The recommended actions therefore respond directly to the strongest survey trends. A combined intervention package is likely to improve both safety and recovery. This final section turns the report from descriptive findings into a practical route for sector action.

The following chapter discusses the findings of the waste picker / reclaimer survey, providing an analysis, interpretation, and recommendations for the safe handling of aerosols.

Chapter 4 - National Waste Picker / Reclaimer Survey

4.1 Introduction

Waste pickers / reclaimers are a key part of the post-consumer packaging collection and recycling value chain. Waste picker / reclaimer collect recyclable post-consumer packaging materials from streets, landfills, households, businesses and other informal collection routes before selling them to BBCs, to earn a livelihood, contributing significantly to SA's recycling value chain, supporting the circularity of packaging materials. Aerosol cans can add value to the recyclable metal packaging stream, but they also create safety risks when they are not empty, when they contain residual propellant or chemicals, or when they are punctured, crushed or stored near heat or fire.

This survey was designed to understand current practices, risk awareness, collection behaviour, BBCs interactions, challenges and support needs relating to the collection and handling of post-consumer aluminium and steel aerosol cans. The findings are intended to guide practical interventions.

4.2 Presentation of Results

4.2.1 Research Instrument Section A: Respondent Profile and Operational Context

The following presents the respondent profile and operational context data that was obtained through the waste picker / reclaimer survey.

The respondent profile provides an important foundation for interpreting the subsequent findings on aerosol awareness, handling practices, safety risks and support needs. Understanding who the respondents are, where they operate, the nature of their work, and the recyclable materials they routinely recover provides essential context for assessing the extent of exposure to post-consumer aerosol cans within SA's informal recycling sector. The profile also demonstrates whether aerosol cans represent a niche waste stream or form part of the normal recyclable materials handled by waste pickers and reclaimers.

The results presented in Table 27 and Figures 27 – 30 indicate that the respondents represent an experienced, geographically diverse and operationally active population of waste pickers and reclaimers. Their routine engagement in recovering recyclable materials across multiple provinces, together with the high frequency of daily and weekly collection activities, confirms that waste picking is an established livelihood rather than an occasional activity. The material profile further demonstrates that aerosol cans are recovered alongside a wide range of recyclable materials, including aluminium beverage cans, paper and cardboard, plastics, steel cans and glass. Consequently, aerosol cans should be viewed as an integral component of mainstream informal recycling rather than a specialised waste stream. This

operational context provides the basis for evaluating current levels of awareness, handling practices and safety preparedness, while highlighting the need for aerosol management strategies that are practical and compatible with the realities of high-volume, mixed-material recovery undertaken by waste pickers and reclaimers.

Table 27 presents the respondent and operational profile of the participating waste pickers/reclaimers. The findings provide demographic and operational context by describing the geographical distribution of respondents, their experience in recyclable material recovery and their typical working patterns. This profile establishes the context for interpreting the subsequent findings on aerosol awareness, collection practices, safety risks and support requirements.

Table 27: Respondent and operational profile.

Question	Response	n	%
Where do you work? Province	Eastern Cape	30	11.0
	Free State	40	14.7
	Gauteng	74	27.2
	KZN	51	18.8
	Limpopo	21	7.7
	Mpumalanga	19	7.0
	Northwest	37	13.6
How long have you been doing this work?	Less than 1 year	38	14.0
	1-5 years	112	41.2
	6-10 years	81	29.8
	More than 10 years	41	15.1
How many days in a normal week do you work with recyclable materials?	1-2 days	6	2.2
	3-4 days	17	6.2
	5-6 days	159	58.5
	Every day	90	33.1

Figure 27 presents the provincial distribution of participating waste pickers / reclaimers. Respondents were drawn from seven provinces, with the highest representation from Gauteng (27.2%), followed by KwaZulu-Natal (18.8%) and the Free State (14.7%).

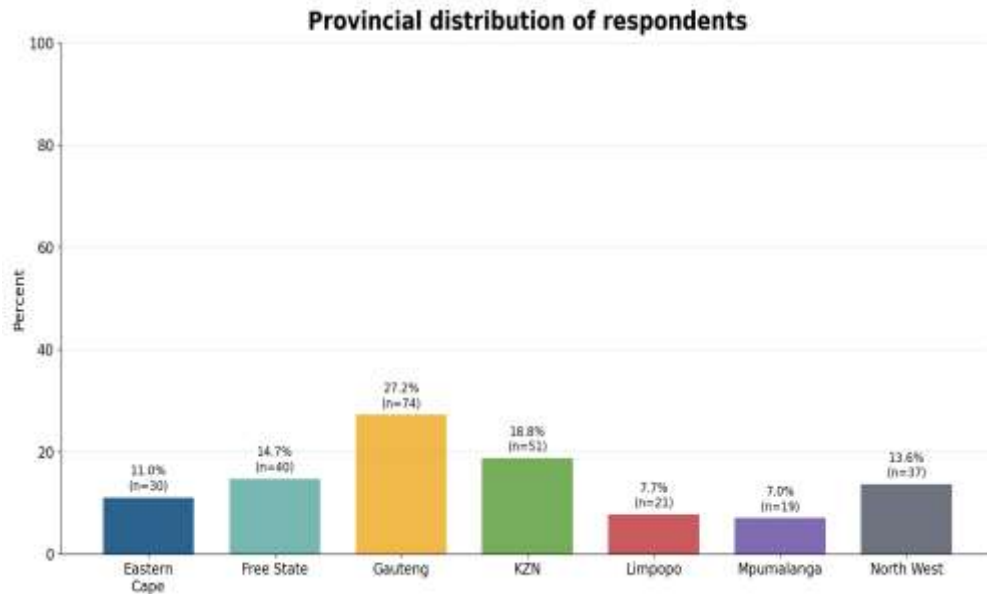


Figure 27: Provincial distribution of participating waste pickers / reclaimers.

Figure 28 presents the length of time doing waste picking / reclaiming work. Most respondents (41.2%) had been working as waste pickers for 1–5 years, indicating a relatively experienced participant group.

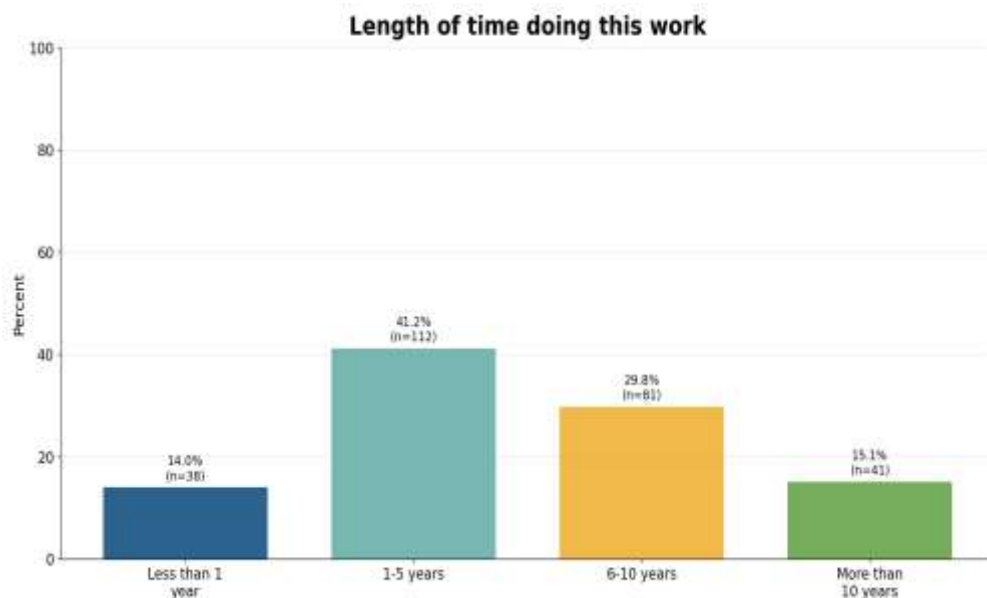


Figure 28: Length of time doing waste picking / reclaiming work.

Figure 29 presents the number of days per week that waste pickers work collecting recyclable materials. Most respondents (91.6%) worked with recyclable materials at least five days a week, highlighting the regular and sustained nature of their recycling activities.

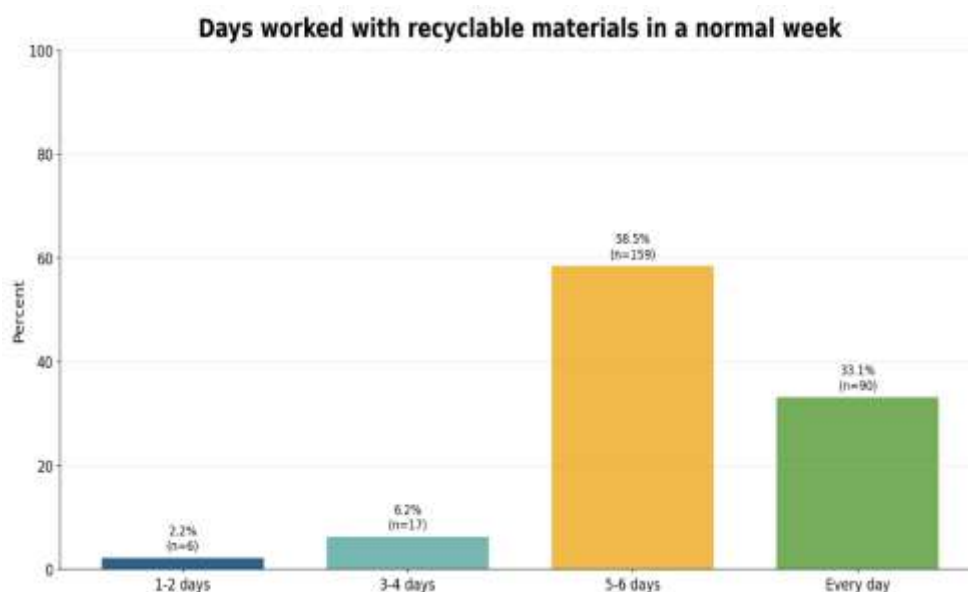


Figure 29: Number of days per week that waste pickers work collecting recyclable materials.

Table 28 presents the primary work activities of the participating respondents within SA's informal recycling sector. The findings identify the predominant roles performed by waste pickers/reclaimers, providing insight into their level of involvement in post-consumer material recovery and the operational context in which aerosol cans are collected and handled. Understanding these activities is important for designing targeted safety interventions and strengthening metal circularity across the recycling value chain.

Table 28: Primary Work Activities of Respondents.

Option	n	% Respondents
Street waste picker / reclaimer	215	79.0
Landfill waste picker / reclaimer	119	43.8
Informal trader / buyer	18	6.6
Other	3	1.1
Both	2	0.7

Figure 30 presents the recyclable materials mainly collected or bought. Aluminium used beverage cans (94.1%) and aluminium aerosol cans (91.9%) were the most commonly collected recyclable materials, followed by paper/cardboard (89.0%) and plastics (87.5%).

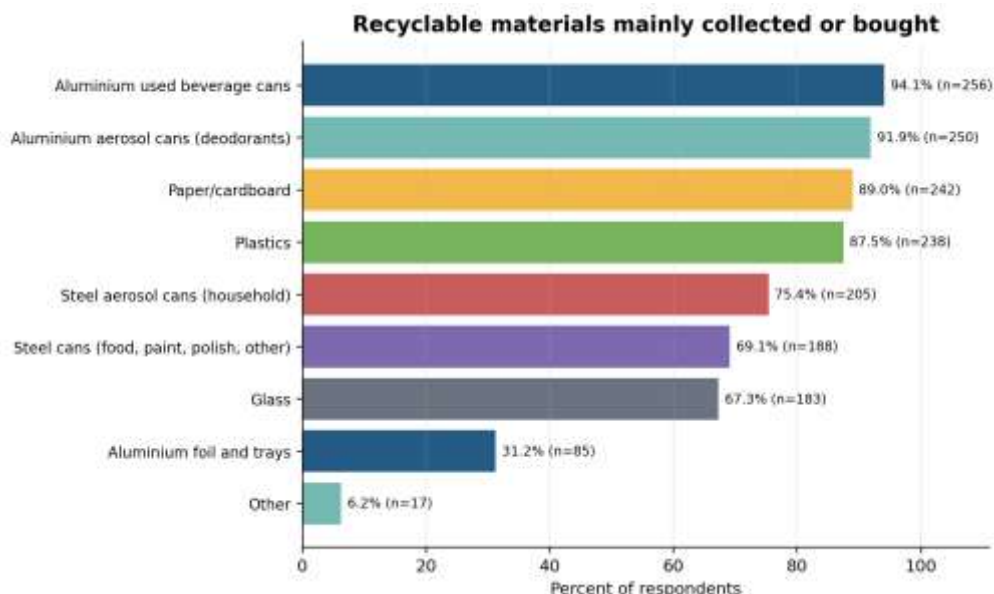


Figure 30: Primary recyclable materials collected or purchased by the respondents.

Table 29 presents the primary recyclable materials collected or purchased by the participating respondents. The findings provide insight into the diversity of materials recovered within the informal recycling sector and the extent to which aluminium and steel aerosol cans form part of respondents' regular collection activities. This information establishes the relevance of aerosols within the broader recyclable material stream and provides important context for evaluating current handling practices and identifying opportunities to improve safe recovery and metal circularity in SA.

Table 29: Primary recyclable materials collected or purchased by the respondents.

Option	n	% Respondents
Aluminium used beverage cans	256	94.1
Aluminium aerosol cans (deodorants)	250	91.9
Paper/cardboard	242	89.0
Plastics	238	87.5
Steel aerosol cans (household)	205	75.4
Steel cans (food, paint, polish, other)	188	69.1
Glass	183	67.3
Aluminium foil and trays	85	31.2
Other	17	6.2

Section A Summary - Respondent Profile and Operational Context: The respondent profile indicates that participating waste pickers / reclaimers represent an experienced and highly active segment of SA's informal recycling sector. The sample included respondents from seven provinces, with the largest representation from Gauteng, followed by KwaZulu-Natal, the Free State and Northwest. Most participants had been engaged in waste picking for between one and five years, while almost half had more than six years of experience. The findings further show that waste picking is a regular livelihood activity rather than an occasional source of income, with most respondents working with recyclable materials five to six days per week and one-third working every day. The majority identified themselves as street waste pickers, while a substantial proportion also recovered recyclable materials from landfill sites, reflecting the diverse collection environments in which recyclables are recovered.

The materials profile demonstrates that waste pickers routinely collect a broad range of recyclable materials, with aluminium used beverage cans, aluminium aerosol cans, paper and cardboard, plastics, steel aerosol cans and steel cans among the most recovered items. The high collection rates for both aluminium and steel aerosol cans confirm that these products are already integrated into mainstream informal recycling activities rather than representing a niche material stream. Collectively, the findings establish that waste pickers experience frequent exposure to aerosol cans as part of their everyday work. This provides an important operational context for interpreting subsequent findings on aerosol awareness, handling practices, safety risks and support needs, and highlights the importance of integrating aerosol safety into mainstream waste picker training and recycling support initiatives.

4.2.2 Research Instrument Section B: Awareness of Aerosol Cans

Table 30 presents the single-response results relating to respondents' awareness of post-consumer aerosol cans and their associated safety risks. The findings examine the frequency with which respondents collect or sell aerosol cans, their awareness of potential hazards, the extent of formal safety training received and their self-assessed knowledge of safe aerosol handling. These results provide a baseline assessment of safety awareness and identify knowledge gaps that can inform targeted education, training and risk reduction initiatives across SA's informal recycling sector.

Table 30: Section B single-response results: Awareness of aerosol cans.

Question	Response	n	%
How often do you collect / sell aerosol cans?	Regularly	110	40.4
	Sometimes	142	52.2
	Never	20	7.4
Aerosol cans can be dangerous because they may still contain pressurised gas or chemicals.	Yes	248	91.2
	No	4	1.5
	Not sure	20	7.4
Have you ever received training or information about the safe handling of aerosol cans?	Yes	19	7.0
	No	253	93.0
How much do you know about aerosols can safety?	Nothing	29	10.7
	A little	168	61.8
	Some	67	24.6
	A lot	8	2.9

Figure 31 presents the frequency of collecting / selling aerosol cans. Most respondents (92.6%) reported collecting or selling aerosol cans at least occasionally, with 40.4% doing so regularly, demonstrating that aerosol cans form a routine part of waste picker recycling activities.

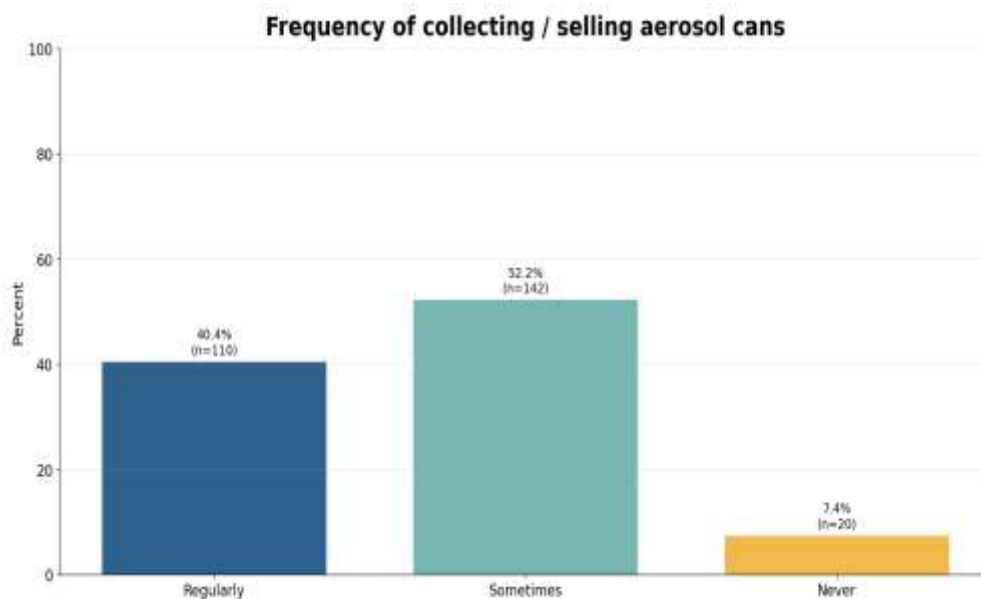


Figure 31: Frequency of collecting / selling aerosol cans.

Figure 32 presents the safety-awareness and readiness indicators. While most respondents recognised the hazards associated with pressurised aerosol cans (91.2%) and puncturing them (89.0%), relatively few had received formal training (7.0%) or reported a high level of knowledge (27.6%), highlighting a need for targeted safety education.

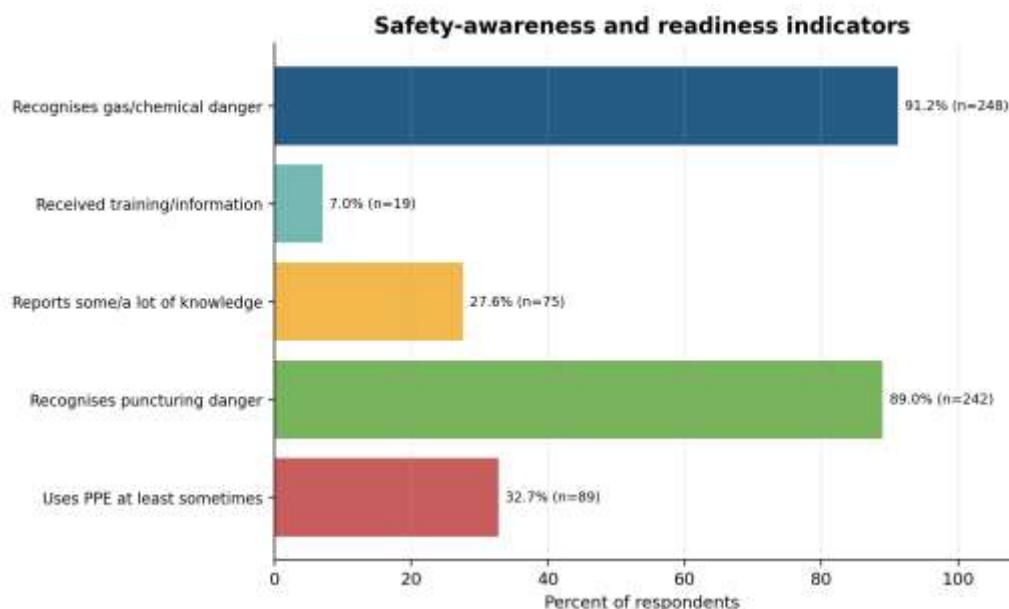


Figure 32: Safety awareness and readiness indicators.

Table 31 presents the known aerosol can materials.

Table 31: Known aerosol can materials.

Option	n	% Respondents
Aluminium	257	94.5
Steel	240	88.2
Not sure	8	2.9

Table 32 presents the multiple-response results identifying the danger factors recognised by respondents when handling post-consumer aerosol cans. The findings provide insight into respondents' awareness of the principal hazards associated with aerosols, including residual gas, chemical contents and unsafe handling practices. Understanding the level of hazard recognition is essential for identifying knowledge gaps and informing targeted safety interventions to reduce occupational risks and improve the safe recovery of aerosols within SA's recycling value chain.

Table 32: Danger factors recognised by respondents.

Option	n	% Respondents
Gas still inside	216	79.4
Chemical still inside	212	77.9
Heat or fire	187	68.8
Puncturing the can	160	58.8
Crushing the can	130	47.8
Not sure	11	4.0

Figure 33 presents the danger factors recognised by respondents. Most respondents recognised that aerosol cans may still contain gas (79.4%) and chemicals (77.9%), while fewer identified puncturing (58.8%) and crushing (47.8%) as potential hazards, indicating opportunities to strengthen safe handling awareness.

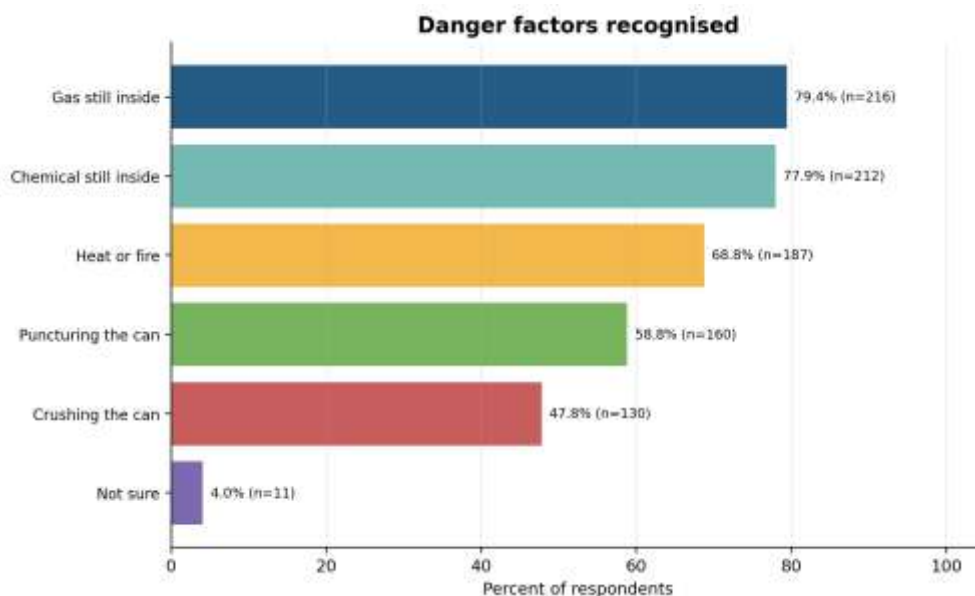


Figure 33: Danger factors recognised by respondents.

Section B Summary - Awareness of Aerosol Cans: The findings from the tables and figures indicate that aerosol cans form part of the routine recyclable materials collected and sold by participating waste pickers and reclaimers. More than half of respondents reported collecting or selling aerosol cans sometimes, while a further two-fifths did so regularly, confirming that aerosol cans are a familiar component of informal recycling activities rather than an occasional waste stream. Most respondents recognised that aerosol cans may still contain pressurised gas or hazardous chemicals and correctly identified aluminium and steel as the primary materials used in aerosol cans. Respondents also demonstrated a good awareness of specific hazards associated with aerosol cans, particularly the presence of residual gas and chemicals, as well as the risks posed by heat, fire and puncturing. These findings indicate that awareness of aerosol-related hazards is widespread despite the absence of formal training.

Despite this high level of hazard recognition, the results reveal a substantial gap between awareness and operational readiness. Only a small proportion of respondents reported ever receiving training or information on the safe handling of aerosol cans, while most rated their knowledge as either "nothing" or "a little," suggesting that existing knowledge is largely gained through practical experience rather than structured education. The safety-awareness and readiness indicators further demonstrate that, although respondents generally recognise aerosol-related risks, formal support mechanisms remain limited.

Overall, Section B shows that waste pickers possess a strong intuitive awareness of aerosol hazards but lack the structured knowledge and training needed to consistently apply safe handling practices. The findings therefore highlight the need for practical, accessible and repeated safety training programmes that can convert existing awareness into safer day-to-day handling behaviours.

The main trend is a clear gap between awareness and support. Most respondents recognised the gas or chemical danger, but only 7.0% had received training or information. Knowledge was also concentrated at the lower end: 72.4% reported knowing nothing or only a little about aerosol can safety.

Section B shows that awareness is stronger than formal support. Most respondents recognise that aerosol cans can be dangerous and identify gas, chemicals and heat as key risk factors. However, training exposure remains very limited, and only a small minority reported ever receiving information on safe handling. Self-rated knowledge also clusters at the lower end, which suggests that awareness is often intuitive rather than structured. The section therefore points to a classic awareness-to-action gap. The main implication is that simple, repeated and practical training could convert existing awareness into safer behaviour.

4.2.3 Research Instrument Section C: Collection and Handling Practices

Table 33 presents the single-response results relating to the collection and handling practices of participating waste pickers/reclaimers when managing post-consumer aerosol cans. The findings assess the use of PPE, awareness of unsafe handling practices such as puncturing aerosol cans, precautionary measures to prevent heat-related incidents, and the recency of handling-related occurrences. Together, these results provide valuable insight into current safety practices and identify opportunities to strengthen risk management and improve the safe recovery of aerosol cans within SA's recycling value chain.

Table 33: Section C single-response results: Collection and handling practices.

Question	Response	n	%
Do you use PPE when handling aerosol cans?	Yes	40	14.7
	No	183	67.3
	Sometimes	49	18.0
Puncturing aerosol cans (making a hole in them) can be dangerous.	Yes	242	89.0
	No	8	2.9
	Not sure	22	8.1
Do you keep aerosol cans away from heat or fire?	Yes	233	85.7
	No	26	9.6
	Sometimes	13	4.8

Question	Response	n	%
If yes, when did this last happen?	In the past month	74	30.5
	In the past 6 months	21	8.6
	In the past 12 months	12	4.9
	More than 12 months ago	15	6.2
	Not sure	121	49.8

Table 34 presents how aerosol cans are collected or bought.

Table 34: How aerosol cans are collected or bought.

Option	n	% Respondents
Separately from other recyclables	171	62.9
With other metal cans	97	35.7
Steel aerosol mixed with higher grade steel	40	14.7
Do not collect or buy aerosols	17	6.2
Steel and aluminium aerosols together	7	2.6

Table 35 presents aerosol handling actions used by respondents.

Table 35: Aerosol handling actions used by respondents.

Option	n	% Respondents
Dismantle and separate the parts	176	64.7
Check if they are empty	156	57.4
Puncture them	98	36.0
Crush them	74	27.2
Do nothing	32	11.8
Other	4	1.5

Figure 34 presents what handling actions used for aerosol cans. Most respondents dismantled and separated aerosol can components (64.7%) manually and checked whether cans were empty (57.4%), although a notable proportion still reported puncturing (36.0%) and crushing (27.2%) cans during handling.

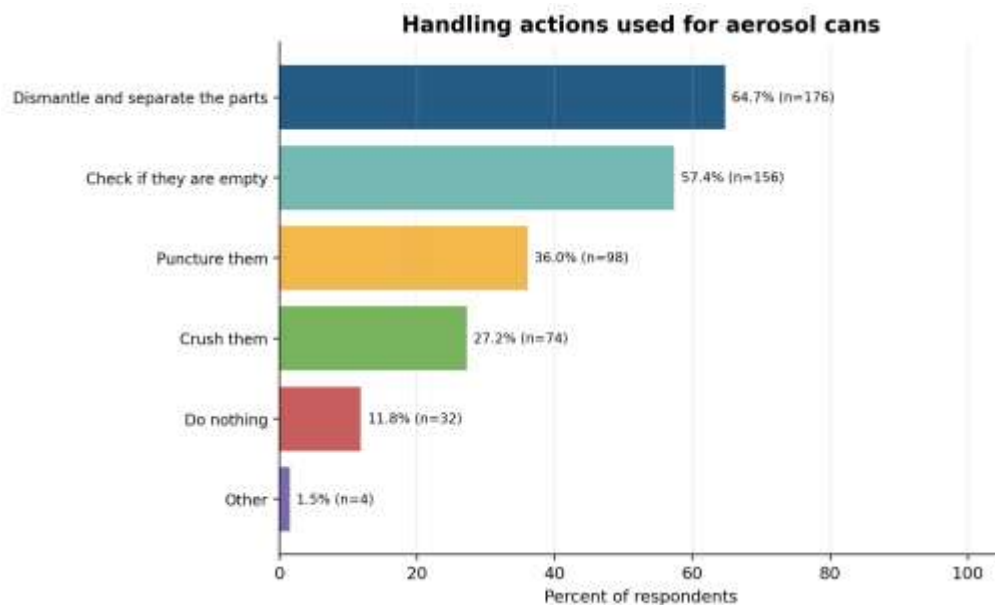


Figure 34: Handling actions used for aerosol cans.

Figure 35 presents PPE used when handling aerosol cans. PPE use was generally low, with 67.3% of respondents reporting that they did not use PPE when handling aerosol cans, highlighting a significant occupational safety concern.

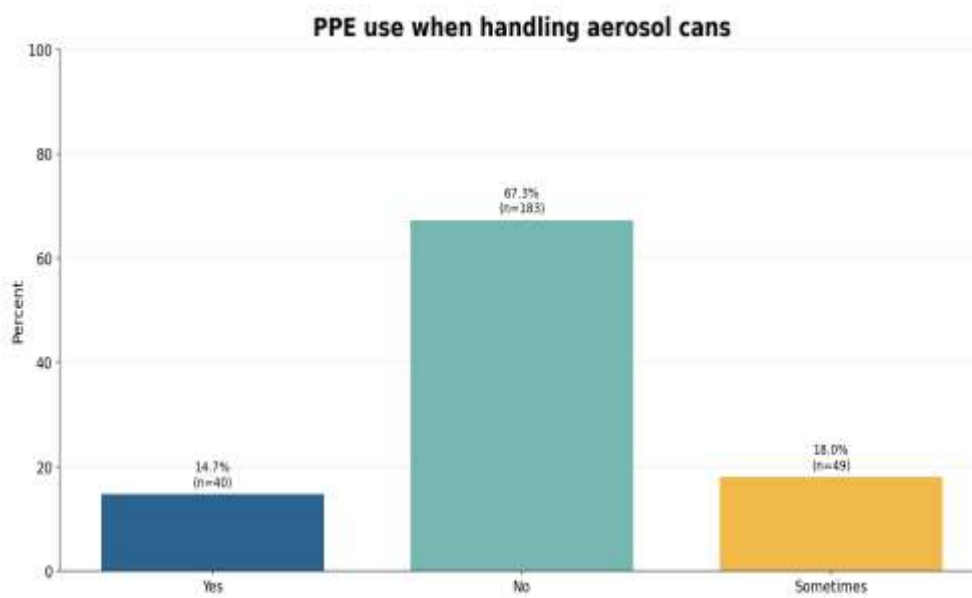


Figure 35: PPE used when handling aerosol cans.

Figure 36 presents the PPE items used by respondents. Among those using PPE, gloves (29.8%) and safety boots (25.0%) were the most worn items, while eye protection was used by only 1.8% of respondents.

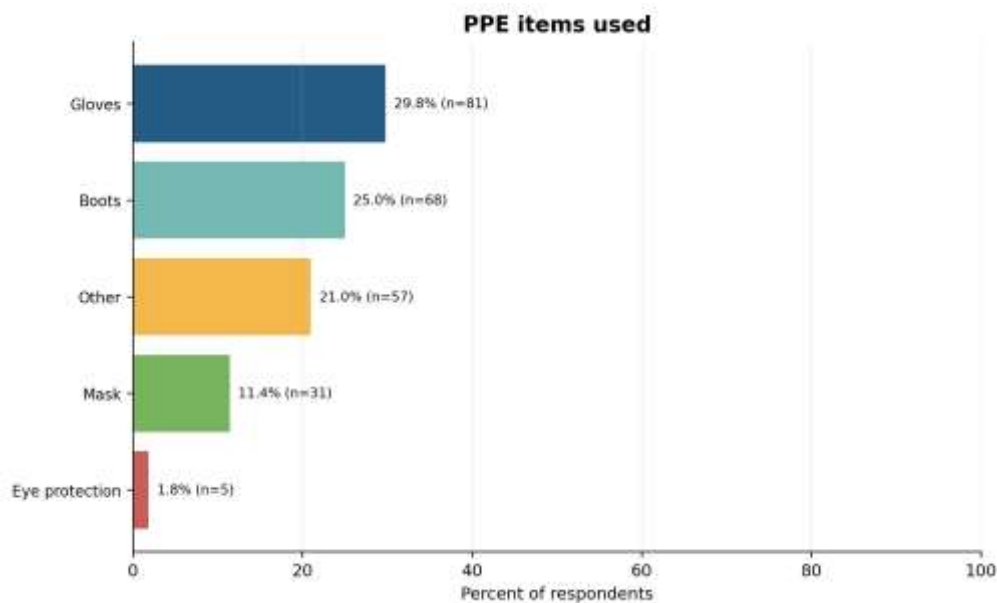


Figure 36: PPE items used by respondents.

Table 36 presents the PPE items used by respondents.

Table 36: PPE items used by respondents.

Option	n	% Respondents
Gloves	81	29.8
Boots	68	25.0
Other	57	21.0
Mask	31	11.4
Eye protection	5	1.8

Figure 37 presents where aerosol cans are stored before selling. Most respondents stored aerosol cans separately from other materials (44.1%) or at home (42.6%) before selling, while 21.7% stored them together with other metal items.

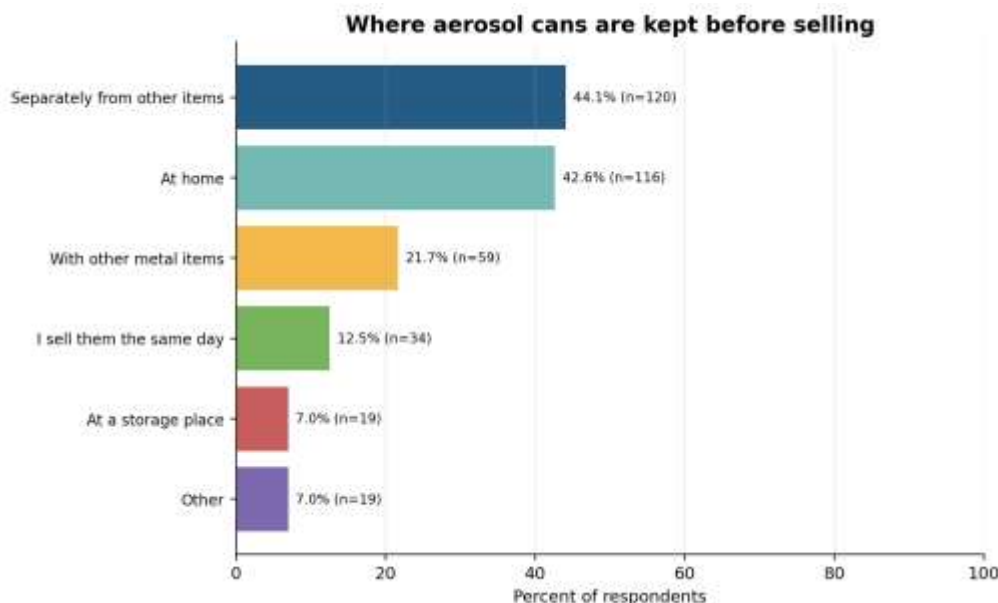


Figure 37: Where aerosol cans are kept before selling.

Figure 38 presents incidents experienced when handling aerosol cans. Gas releases (43.8%) and chemical leaks (29.4%) were the most commonly reported incidents when handling aerosol cans, highlighting the safety risks associated with their recovery.

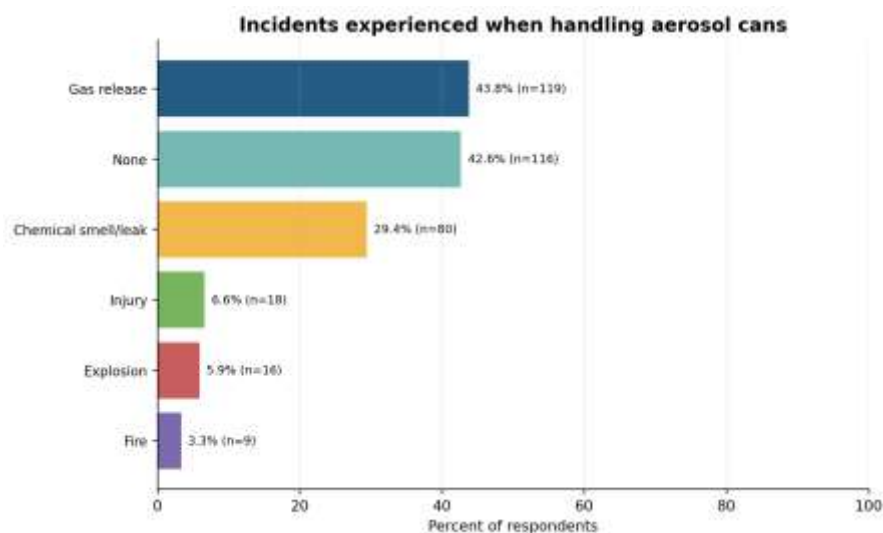


Figure 38: Incidents experienced when handling aerosol cans.

Section C Summary - Collection and Handling Practices: The findings from the tables and figures indicate that waste pickers and reclaimers demonstrate a combination of safe and unsafe aerosol handling practices. Most respondents recognised that puncturing aerosol cans is dangerous and reported keeping aerosol cans away from heat or fire, reflecting a good level of awareness of key safety risks. More than half also reported checking whether aerosol cans were empty before handling, while most collected aerosol cans separately from other recyclable materials. However, handling practices remained inconsistent, with substantial proportions of respondents reporting that they dismantled aerosol cans manually, punctured them or crushed them during recovery activities. The reported handling incidents reinforce the need for improved operational practices, including improved mechanical separation of valve and dip tube from the aerosol body. These findings suggest that, although safer handling behaviours are already evident, potentially hazardous practices continue to occur within routine recycling activities.

The results further reveal important gaps in personal protection and storage practices. Most respondents reported not using PPE when handling aerosol cans, and among those who did, gloves and boots were the most used items, while masks and eye protection were far less common. Aerosol cans were commonly stored separately from other materials or kept at home before being sold, although a notable proportion were stored together with other metal items. The reported handling incidents reinforce the need for improved operational practices, including improved mechanical separation of valve and dip tube from the aerosol body. Gas releases and chemical leaks are the most frequently experienced incidents, while injuries, explosions and fires were reported less often. Overall, Section C demonstrates that waste pickers possess a foundation of practical safety awareness, but inconsistent PPE use, continued hazardous handling practices, home storage of aerosol cans and recurring exposure to gas releases and chemical leaks indicate that current practices remain insufficient to ensure safe handling. The findings therefore highlight the need for practical training, improved access to PPE, safer storage arrangements and operational guidance that supports behaviour change within the realities of informal recycling activities.

4.2.4 Research Instrument Section D: Buy-back Centre Practices

Table 37 presents Section D single-response results: BBC practices.

Table 37: Section D single-response results: BBC practices.

Question	Response	n	%
Do BBCs or scrap dealers accept aerosol cans from you?	Yes	239	87.9
	No	21	7.7
	Sometimes	12	4.4
When buyers reject aerosol cans, how often does this happen to you?	Often	16	5.9
	Sometimes	104	38.2
	Rarely	103	37.9
	Never	49	18.0

Figure 39 presents the BBC / scrap dealer acceptance of aerosol cans. Most respondents (87.9%) reported that BBCs or scrap dealers accepted aerosol cans, indicating an established market for their recovery.

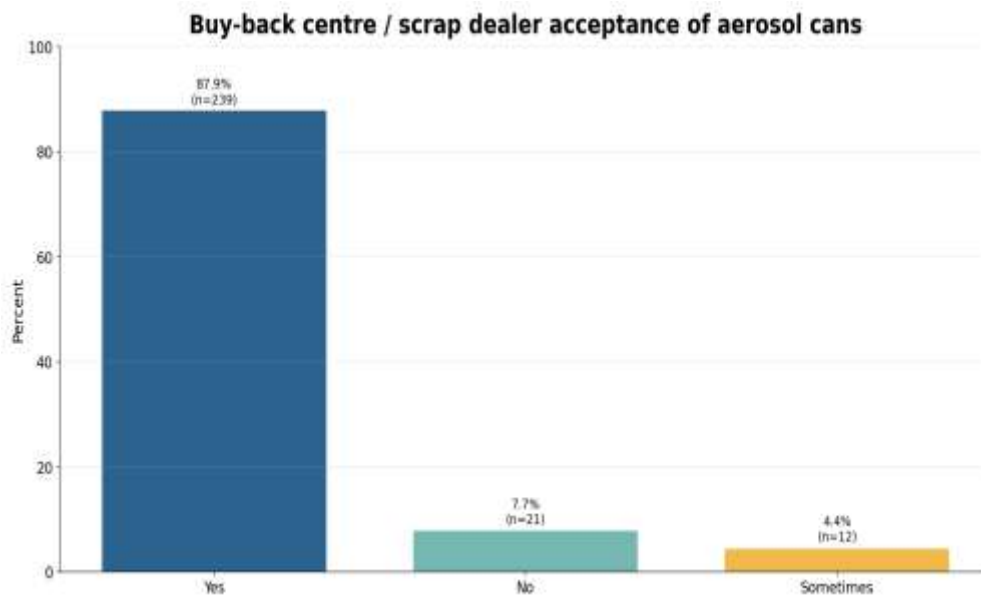


Figure 39: BBC / scrap dealer acceptance of aerosol cans.

Figure 40 presents the frequency of buyer rejection of aerosol cans. Buyer rejection of aerosol cans was generally infrequent, with 55.9% of respondents reporting that rejections occurred rarely or never, while only 5.9% experienced frequent rejection.

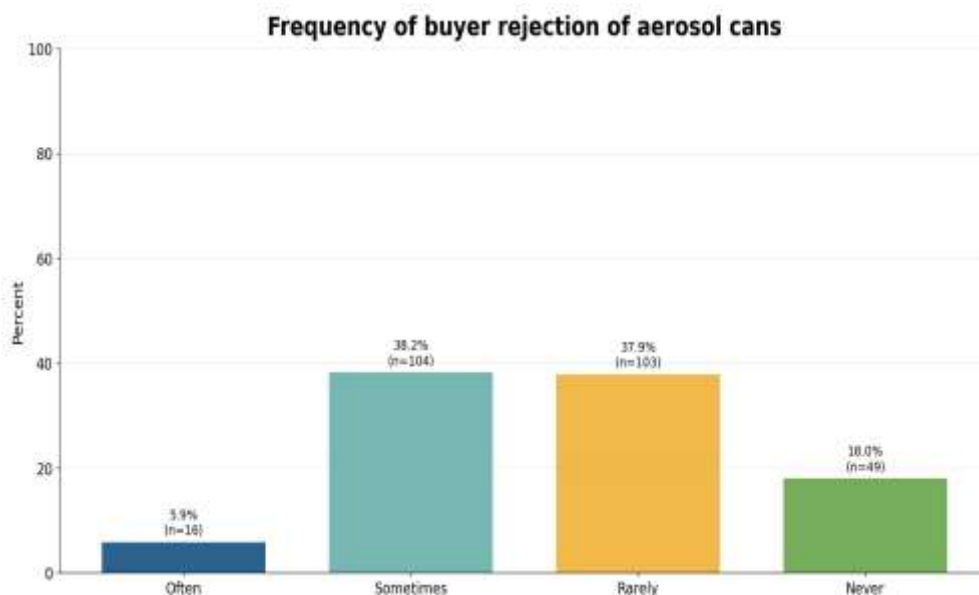


Figure 40: Frequency of buyer rejection of aerosol cans.

Table 38 presents the actions taken when aerosol cans are not accepted.

Table 38: Actions taken when aerosol cans are not accepted.

Option	n	% Respondents
Find another BBCs or scrap dealer	165	60.7
Leave them at landfill sites	56	20.6
Throw them in general waste bins	29	10.7
Other	24	8.8
Do not collect aerosol cans in future	22	8.1

Table 39 presents the reasons why respondents believe some buyers do not accept post-consumer aerosol cans. The findings provide insight into the perceived economic, market and safety factors influencing buyer acceptance and highlight barriers that may limit aerosol collection and recycling. Understanding these perceptions is important for identifying opportunities to improve market access, increase collection rates and strengthen the circularity of aluminium and steel aerosol cans within SA's recycling value chain.

Table 39: Reasons respondents believe some buyers do not accept aerosol cans.

Option	n	% Respondents
The price is too low	176	64.7
Not sure	66	24.3
Other	45	16.5
The buyer does not want them	31	11.4
They are dangerous	15	5.5
They may still be full	4	1.5

Section D Summary - Buy-back Centre Practices: The findings from the tables and figures indicate that BBCs and scrap dealers play a critical role in supporting the recovery of post-consumer aerosol cans. Most respondents reported that BBCs or scrap dealers accepted aerosol cans, demonstrating that aerosols generally remain within the informal recycling value chain. However, buyer rejection was not uncommon, with most respondents indicating that rejection occurred either sometimes or rarely, suggesting that market access remains inconsistent. When aerosol cans were rejected, respondents most sought an alternative BBC or scrap dealer, although some disposed of the cans at landfill sites, placed them in general waste bins or chose not to collect aerosol cans in future. These findings demonstrate that buyer acceptance directly influences the recovery pathways available to waste pickers and reclaimers.

The results further show that economic factors were perceived to be the primary reason for buyer rejection. The low price offered for aerosol cans was identified as the leading reason why some buyers do not accept these materials, while relatively few respondents attributed rejection to safety concerns, residual contents or the perception that aerosol cans are dangerous. This suggests that market conditions, rather than safety considerations alone, strongly influence collection and selling decisions. Overall, Section D demonstrates that although aerosol cans are generally accepted within the informal recycling system, inconsistent buyer practices and weak market incentives can discourage recovery and divert recyclable material from the recycling stream. The findings therefore highlight the importance of strengthening market demand, improving pricing mechanisms and promoting more consistent acceptance practices among BBCs and scrap dealers to support both increased aerosol recovery and safer management of post-consumer aerosol cans.

4.2.5 Research Instrument Section E: Risks, Challenges and Support Requirements

Table 40 presents Section E single-response results: Risks, challenges and support requirements.

Table 40: Section E single-response results: Risks, challenges and support requirements.

Question	Response	n	%
Which one is the biggest problem for you?	Risk of explosion	39	14.3
	Lack of knowledge about safe handling	18	6.6
	BBCs or scrap dealers do not accept aerosol cans	15	5.5
	Low price for aerosols/metal	109	40.1
	Lack of storage space	6	2.2
	Lack of PPE	83	30.5
	Other	2	0.7
Do you think aerosol cans are dangerous in recycling or waste collection?	Yes	245	90.1
	No	6	2.2
	Not sure	21	7.7

Figure 41 presents the risks and challenges faced when handling aerosol cans. The main challenges reported were a lack of PPE (79.0%), limited knowledge of safe handling (76.5%), low aerosol can value (68.4%) and the risk of explosion (67.3%), highlighting key barriers to safe aerosol can recovery.

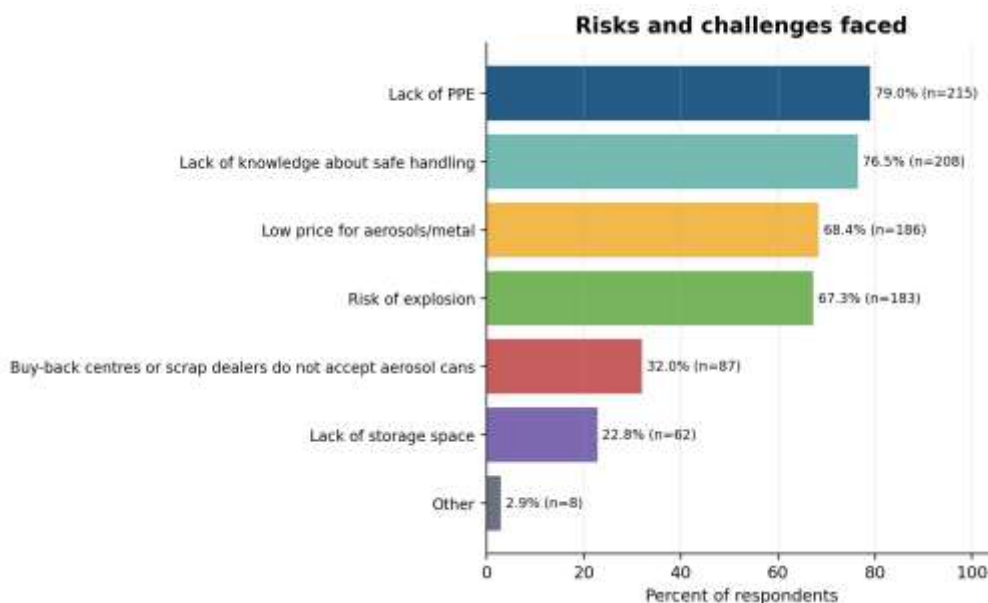


Figure 41: Risks and challenges faced when handling aerosol cans.

Figure 42 presents the support needed to improve safe disposal. Training (82.0%) and safety equipment (78.3%) were the most frequently identified support needs, followed by higher prices for aerosol cans (61.0%), highlighting priorities for improving safe aerosol can recovery.

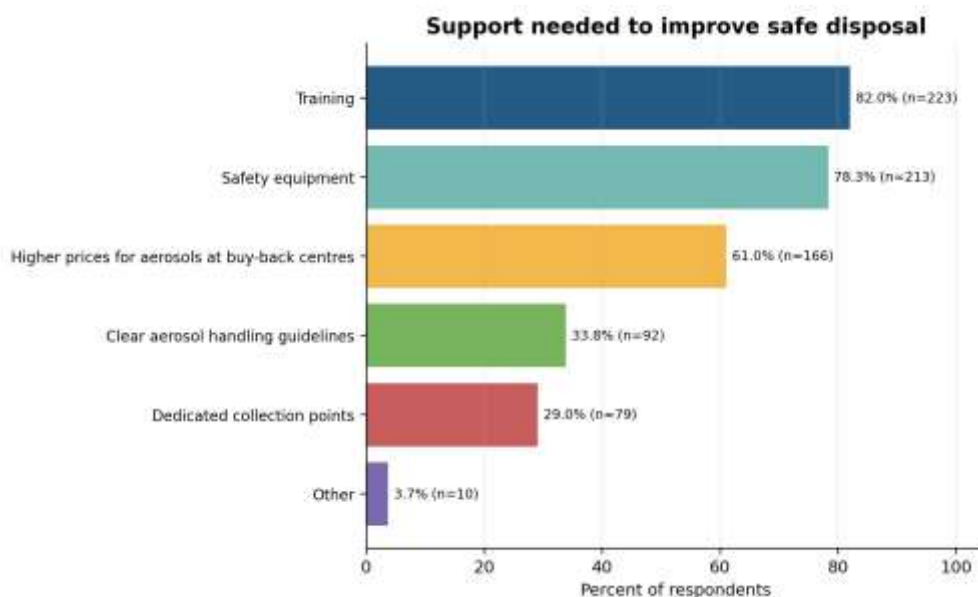


Figure 42: Support needed to improve safe disposal.

Table 41 presents the risks and challenges faced when handling aerosol cans.

Table 41: Risks and challenges faced when handling aerosol cans.

Option	n	% Respondents
Lack of PPE	215	79.0
Lack of knowledge about safe handling	208	76.5
Low price for aerosols/metal	186	68.4
Risk of explosion	183	67.3
BBCs or scrap dealers do not accept aerosol cans	87	32.0
Lack of storage space	62	22.8
Other	8	2.9

Table 42 presents the sources of warnings about aerosol can safety.

Table 42: Sources of warnings about aerosol safety.

Option	n	% Respondents
No one	160	58.8
General public	100	36.8
BBCs or scrap dealers	11	4.0
Municipalities	3	1.1
Landfill authorities	2	0.7

Table 43 presents the support needed to improve safe disposal of aerosol cans.

Table 43: Support needed to improve safe disposal of aerosol cans.

Option	n	% Respondents
Training	223	82.0
Safety equipment	213	78.3
Higher prices for aerosols at BBCs	166	61.0
Clear aerosol handling guidelines	92	33.8
Dedicated collection points	79	29.0
Other	10	3.7

Table 44 presents the support considered most beneficial by respondents.

Table 44: Support considered most beneficial by respondents.

Option	n	% Respondents
Training	203	74.6
Safety equipment	193	71.0
Higher prices for aerosols at BBCs	157	57.7
Clear aerosol handling guidelines	54	19.9
Dedicated collection points	47	17.3
Other	10	3.7

Section E Summary - Risks, Challenges and Support Requirements: The findings from the tables and figures indicate that participating waste pickers and reclaimers clearly recognise the risks associated with handling post-consumer aerosol cans, with most respondents considering aerosol cans to be dangerous within the recycling and waste collection stream. The greatest single challenge identified was the low price received for aerosol cans and other metal recyclables, followed by a lack of PPE, the risk of explosion and limited knowledge of safe handling practices. The multiple-response findings reinforce this pattern, with lack of PPE, insufficient knowledge of safe handling, low prices and explosion risks emerging as the most frequently reported challenges. Although market-related issues were prominent, the findings demonstrate that economic constraints and safety concerns are closely interconnected, influencing both the willingness and the ability of waste pickers to recover aerosol cans safely.

The support requirements identified by respondents closely mirror the challenges they experience. Training and safety equipment emerged as the highest priorities for improving the safe disposal and handling of aerosol cans, followed by higher prices at BBCs, clear handling guidelines and dedicated collection points. Most respondents also indicated that they had never received warnings or information about aerosol can safety from formal sources, with only a small proportion citing BBCs, municipalities or landfill authorities as sources of guidance. This highlights a significant gap in formal communication and safety education within the informal recycling sector. Overall, Section E demonstrates that waste pickers have clearly identified both the barriers to safe aerosol management and the practical interventions required to address them. The strong alignment between reported challenges and requested support provides a clear evidence base for prioritising training, PPE provision, market incentives and targeted awareness programmes to improve the safe recovery and recycling of post-consumer aerosol cans.

4.3 Analysis and Interpretation of Results

4.3.1 Key Trends and Strategic Indicators

Table 45 presents a summary of the key indicators from the waste picker/reclaimer survey, providing an overview of the principal findings relating to aerosol collection, safety awareness, handling practices, market experiences and support requirements. The indicators consolidate the most significant results into a concise format, highlighting both strengths and areas requiring improvement within the post-consumer aerosol recovery system. This summary provides an evidence-based foundation for the development of targeted recommendations and a strategic action plan to optimise the safe collection, handling, processing and recycling of aerosol cans while advancing metal circularity in SA's.

Table 45: Key waste picker / reclaimer survey indicators.

Indicator	n	%
Collect or sell aerosol cans regularly/sometimes	252	92.6
Recognise pressurised gas/chemical danger	248	91.2
Received training/information	19	7.0
Use PPE at least sometimes	89	32.7
Check cans are empty	156	57.4
Puncture aerosol cans	98	36.0
Crush aerosol cans	74	27.2
Report any incident other than none	156	57.4
BBCs /scrap dealers accept aerosols	239	87.9
Low price is the biggest problem	109	40.1
Need training support	223	82.0
Need safety equipment	213	78.3

Figure 43 presents the exploratory safe-handling readiness. Most respondents (57.4%) demonstrated developing readiness for safe aerosol can handling, while only 32.0% were better prepared, indicating continued need for targeted training and support.

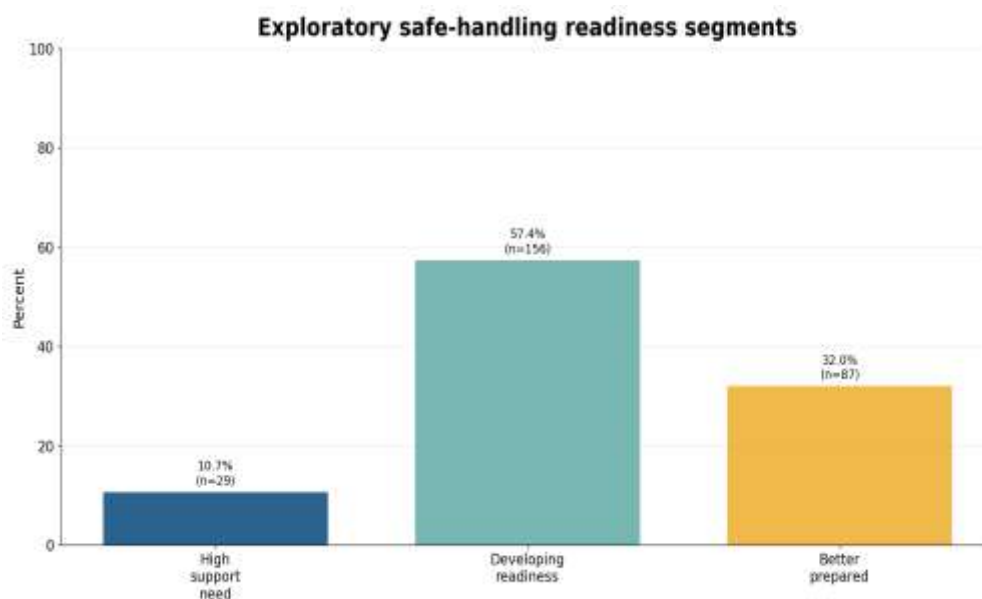


Figure 43: Exploratory safe-handling readiness.

Table 46 presents the exploratory safe-handling readiness segments.

Table 46: Exploratory safe-handling readiness segments.

Readiness segment	n	%
High support need	29	10.7
Developing readiness	156	57.4
Better prepared	87	32.0

The readiness segmentation is not a tested scale. It is a practical grouping based on ten observed indicators covering risk awareness, safety knowledge, safe practices, PPE use and exposure to training or warnings. It is useful for planning intervention intensity: high-support respondents need basic orientation and equipment, developing respondents need reinforcement and practical tools, and better-prepared respondents can be supported to model safer practices at collection sites.

Section summary - Key Trends and Strategic Indicators. The readiness segmentation helps translate many indicators into practical groups. Most respondents fall into the developing-readiness category, which means they have some awareness and some safer behaviours, but still need support to become consistently safe. A smaller group appears better prepared, while a meaningful minority remains in the high-support-need segment. This matters because a single intervention package is unlikely to fit everyone equally well. Segmentation allows support to be targeted more efficiently. In practice, it suggests that broad education should be paired with additional support for the most vulnerable group.

4.3.2 Exploratory Trend Relationships

Table 47 presents the exploratory cross-tabulated trend summary.

Table 47: Exploratory cross-tabulated trend summary.

Trend area	Group	n	Group N	% within group	Interpretation
Safety knowledge and PPE use	Nothing	5	29	17.2	PPE use generally increased as self-reported knowledge increased; the highest-knowledge group was small but showed the strongest PPE use.
	A little	51	168	30.4	PPE use generally increased as self-reported knowledge increased; the highest-knowledge group was small but showed the strongest PPE use.
	Some	28	67	41.8	PPE use generally increased as self-reported knowledge increased; the highest-knowledge group was small but showed the strongest PPE use.
	A lot	5	8	62.5	PPE use generally increased as self-reported knowledge increased; the highest-knowledge group was small but showed the strongest PPE use.
Training/information and PPE use	Yes	13	19	68.4	Respondents who had received training/information were more likely to use PPE at least sometimes.
	No	76	253	30.0	Respondents who had received training/information were more likely to use PPE at least sometimes.
Aerosol collection	Regularly	68	110	61.8	Incident exposure was much higher among regular/sometimes collectors

frequency and incident exposure					than among those who never collect aerosols.
	Sometimes	87	142	61.3	Incident exposure was much higher among regular/sometimes collectors than among those who never collect aerosols.
	Never	1	20	5.0	Incident exposure was much higher among regular/sometimes collectors than among those who never collect aerosols.
Buyer acceptance and stopping future collection	Yes	9	239	3.8	Where buyers did not accept aerosols, respondents were more likely to stop collecting them in future.
	No	10	21	47.6	Where buyers did not accept aerosols, respondents were more likely to stop collecting them in future.
	Sometimes	3	12	25.0	Where buyers did not accept aerosols, respondents were more likely to stop collecting them in future.
Rejection frequency and disposal/discontinuation response	Often	11	16	68.8	Frequent rejection was associated with higher diversion into general waste, landfill leaving or future non-collection.
	Sometimes	43	104	41.3	Frequent rejection was associated with higher diversion into general waste, landfill leaving or future non-collection.
	Rarely	21	103	20.4	Frequent rejection was associated with higher diversion into general waste, landfill leaving or future non-collection.
	Never	9	49	18.4	Frequent rejection was associated with higher diversion into general waste, landfill leaving or future non-collection.
Buyer acceptance and checking emptiness	Yes	147	239	61.5	Respondents with buyer acceptance were more likely to report checking whether aerosol cans were empty.
	No	5	21	23.8	Respondents with buyer acceptance were more likely to report checking whether aerosol cans were empty.
	Sometimes	4	12	33.3	Respondents with buyer acceptance were more likely to report checking whether aerosol cans were empty.

These cross-tabulated patterns are descriptive. They identify where practical relationships appear in the dataset and where intervention planning can be improved. They should not be read as causal proof.

Section summary - Exploratory Trend Relationships. The exploratory relationships add practical depth to the descriptive findings. They show that better self-reported safety knowledge tends to align with higher PPE use, and that exposure to training is associated with safer handling behaviour. They also indicate that market conditions can reinforce or weaken safety by influencing whether aerosols remain in the recovery chain. These are not causal results, but they are useful directional signals. They help identify where change is most likely to have downstream benefits. The section therefore strengthens the case for interventions that connect awareness, equipment and market support rather than treating them separately.

4.3.3 Strategic Model

The Figure 44 strategic model summarises the practical logic suggested by the survey and links exposure conditions, awareness, handling readiness, market response, support levers and the collection system into one operational pathway. It should be read as a practical planning framework rather than a statistical or causal model. The value of the Figure 44 strategic model is that it brings the survey results together in a way that helps decision-makers see where intervention can enter the system and where impact is most likely to spread.

Figure 44 illustrates that achieving safer post-consumer aerosol management requires an integrated systems approach rather than awareness alone. While education, training and hazard communication strengthen safety awareness, they must be supported by practical interventions, including the provision of appropriate PPE, clear handling guidelines and standardised operating procedures. The model further demonstrates that dedicated collection points, consistent buyer acceptance and well-functioning downstream markets are essential for sustaining safe collection and recovery. In addition, the strategy highlights the need to improve dismantling safety through the development and adoption of specialised tools that enable the controlled mechanical separation of the aerosol valve and dip tube from the can body, thereby reducing the risks associated with manual handling and residual pressurised contents. Collectively, these interventions are expected to improve safety throughout the value chain, increase the recovery of aluminium and steel aerosols, support safe processing and melting, and minimise the diversion of potentially hazardous aerosol containers into unsafe disposal or recycling pathways.

Figure 44 presents the strategic model for waste picker / reclaimer safe aerosol collection handling and recovery.



Figure 44: Strategic model for waste picker / reclaimer aerosol safety and recovery.

Table 48 presents the interpretation of Figure 44 strategic model.

Table 48: Interpretation of the strategic model.

Strategic Model element	What it means
Exposure conditions	How often respondents work with recyclables and collect aerosols.
Awareness base	Risk recognition, safety knowledge and whether warnings or training have been received.
Handling readiness	PPE use, checking for emptiness, avoiding heat/fire and avoiding puncturing or crushing.
Market response	Whether BBCs accept aerosols, whether rejections occur and whether prices are attractive.
Support levers	Training, equipment, guidelines and pricing support that shift behaviour.
Collection system	Dedicated collection points, local buyers and sorting guidance that reduce unsafe disposal.
Expected outcome	Safer handling, more consistent recovery and less leakage into general waste or unsafe storage.

Section summary - Strategic Model: The strategic model provides an applied interpretation of the whole report. It shows that safer aerosol recovery depends on connected improvements across awareness, behaviour, market conditions and support systems. The model also clarifies that interventions can reinforce one another: for example, training becomes more effective when PPE and collection arrangements are also improved. Its practical impact is therefore strategic alignment. Instead of isolated actions, the model encourages a coordinated programme response. This makes it especially useful for planning by MetPac-SA and its strategic implementation partners.

4.3.4 Analysis of the Open-Ended Question

The open-ended item asked respondents to suggest how aerosol cans could be handled or recycled more safely. After removing empty or non-substantive comments, including entries such as None or NA, 251 usable comments remained. The themes were highly consistent with the closed-ended findings. The word cloud below visualises the most repeated substantive terms and highlights how strongly the discussion centred on training, PPE, equipment, prices, buyers and safer collection arrangements.

Figure 45 presents the word cloud of substantive open-ended responses.



Figure 45: Word cloud of substantive open-ended responses.

Table 49 presents the thematic coding of the open-ended suggestions provided by participating waste pickers/reclaimers to improve the safe collection and handling of post-consumer aerosol cans. The qualitative responses were systematically grouped into common themes to identify the key priorities and support needs expressed by respondents. These findings complement the quantitative survey results by providing practical insights that inform the development of targeted interventions and an evidence-based strategic action plan to strengthen aerosol safety and metal circularity in SA.

Table 49: Thematic coding of open-ended suggestions.

Theme	n	% of valid comments
Training, workshops and awareness	139	55.4
PPE and safety equipment	117	46.6
Higher prices and market access	81	32.3
Tools, trolleys and handling equipment	27	10.8
Dedicated collection/disposal points	16	6.4
Sorting, checking and safe-practice guidance	11	4.4

Table 50 presents a selection of verbatim suggestions provided by participating waste pickers/reclaimers, organised according to the themes identified during the qualitative analysis. The quotations illustrate the practical experiences and priorities of respondents, demonstrating how individual comments informed the thematic coding process and supporting the credibility of the qualitative findings. These verbatim responses provide valuable contextual evidence that complements the quantitative results and informs the development of an evidence-based strategic action plan to improve the safe collection, handling and recovery of post-consumer aerosol cans in SA.

Table 50: Selected verbatim suggestions by theme.

Theme	Selected suggestion
Training, workshops and awareness	Workshop and PPE provision
	Bulk bags and training
PPE and safety equipment	Workshop and PPE provision
	To receive training, gloves and safety boots
Higher prices and market access	Higher prices
	All scrap must buy
Dedicated collection/disposal points	Bulk bags and training
	Proper site to dispose aerosol cans
Tools, trolleys and handling equipment	Trolleys
	Bulk bags and training
Sorting, checking and safe-practice guidance	Formalise the collection of aerosol cans
	Double check if cans are empty

The comments strongly reinforce the quantitative findings: respondents repeatedly asked for training, PPE, safety equipment, better prices, buyers and dedicated points for aerosols. This consistency strengthens the practical confidence of the recommendations even though the report remains descriptive.

Section summary - Analysis of the Open-Ended Question: The open-ended responses closely validate the structured survey results. Respondents repeatedly returned to the same practical priorities: training, PPE, safer procedures, better prices and more reliable collection or buying arrangements. This consistency increases confidence that the major trends in the report reflect lived operational realities. It also shows that respondents are not only describing problems but pointing directly toward workable solutions. The word cloud and thematic coding therefore serve as a useful bridge between statistics and

lived experience. In programme terms, the qualitative evidence makes the recommendations more grounded and actionable.

4.4 Recommendations - Waste Picker Survey

The results and the Figure 44 strategic model point to a recommendation set that is both practical and sequenced. The immediate priority is to strengthen the awareness base with simple safety education, repeated warnings and clear handling guidance that can be used in low-literacy, field-based environments. This should be combined with visible behaviour support through PPE starter packs, demonstrations on emptiness checks and guidance on keeping aerosols away from heat and fire. These actions respond directly to the awareness-support gap identified in the survey.

A second set of recommendations should focus on the collection system and market response. Dedicated aerosol collection points, stronger engagement with BBCs and clearer acceptance rules would reduce uncertainty in the recovery chain. The survey shows that low prices and inconsistent buyer practices weaken safe recovery, so market-facing interventions should accompany safety education. Where possible, sorting guidance and buyer communication should be standardised so that respondents know what is acceptable, where to take aerosols and what safe recovery steps are expected.

A third recommendation is to target support by readiness level. Respondents in the high-support-need group should receive intensive, practical assistance, while those in the developing-readiness group need reinforcement to move toward more consistent safe behaviour. The better-prepared group can be used as a demonstration base for peer learning or pilot interventions. In this way, the Figure 44 strategic model helps convert general survey findings into an intervention pathway that is more strategic, more efficient and more likely to produce measurable field impact.

Table 51 presents the recommendation rationale and practical implication.

Table 51: Recommendation rationale and practical implication.

No.	Finding	Practical implication
1	High aerosol exposure	Aerosol safety should be treated as a mainstream recycling-sector issue, not a niche concern.
2	Awareness-support gap	Training and simple visual guidance are required because risk recognition alone is not enough.
3	PPE and equipment gap	PPE distribution and safe handling equipment should be central to implementation.
4	Unsafe handling still occurs	Guidance must directly address puncturing, crushing, checking for emptiness, heat/fire separation and storage. Reinforce the need for improved dismantling safety, including, ideally, a specialised tool to enable safe mechanical separation of valve and dip tube from the aerosol body.
5	Market signals shape behaviour	Price, buyer availability and rejection practices affect whether aerosols are recovered or avoided.
6	Support requests are consistent	The programme should prioritise training, safety equipment, guidelines, pricing and dedicated collection points.

Table 52 presents the recommended intervention roadmap.

Table 52: Recommended intervention roadmap.

No.	Timeframe	Action
1	Immediate	Develop a one-page aerosol safety guide using simple language and visuals.
2	Short term	Run practical safety sessions at BBCs, landfill sites and high-volume reclaiming areas.
3	Medium term	Distribute basic PPE starter packs linked to training attendance and safe-handling demonstrations.
4	Medium term	Pilot dedicated aerosol collection points and communicate which buyers accept aluminium and steel aerosols.
5	Ongoing	Track incident reports, rejection experiences and support uptake to refine the Figure 44 strategic model and assess impact.

4.5 Conclusion - Waste Picker / Reclaimer Survey

The survey shows that aerosol cans are already a normal part of the working environment for waste pickers / reclaimers. Respondents are regularly exposed to these items, often understand that they can be dangerous, and can identify major risk factors such as gas, chemicals and heat. However, this awareness exists alongside major practical constraints, especially limited formal training, inconsistent PPE use, low prices and weak or uneven warning systems. The overall picture is therefore one of real operational exposure combined with incomplete protection. This makes aerosol safety an urgent practical issue within everyday recycling activity rather than a peripheral concern.

The combined evidence from the section analyses, readiness segmentation, exploratory trend relationships and open-ended responses points to a clear strategic direction. Safer outcomes will not come from information alone. They depend on linking awareness to safe handling readiness, and safe handling readiness to the availability of appropriate equipment and operational guidance. This includes reinforcing the need for improved dismantling safety through the development and adoption of specialised tools that enable the safe mechanical separation of the aerosol valve and dip tube from the can body. These elements must, in turn, be supported by an effective collection system and stable market environment that encourage the continued safe recovery, processing and recycling of post-consumer aerosol cans.

The strategic model illustrated in Figure 44 is useful because it captures these connections and helps show where programme actions can reinforce one another. In effect, it translates the findings into a practical intervention logic for MetPac-SA and its strategic implementation partners.

The recommendations and conclusion bring the report together around a coordinated action agenda, as articulated in Chapter 5 (Integrated Recommendations and Conclusion). The evidence suggests that the most effective response is not a single intervention but a package that combines awareness, equipment, buyer engagement and targeted support. The Figure 44 strategic model helps explain why these elements should move together. The recommendations are therefore grounded in both the descriptive results and the broader system logic of the study. If implemented in sequence, they offer a practical route toward safer handling and stronger recovery outcomes. This final section turns the report from diagnosis into an action framework.

In conclusion, the study provides a strong basis for action. The priority should be to move from general awareness toward structured support through training, PPE, clear guidance, dedicated collection arrangements and stronger buyer alignment. If these actions are coordinated, the likely impact is safer handling, reduced aerosol leakages and a more stable recovery pathway for aluminium and steel aerosol cans. The report therefore supports a programme approach that is field-based, responsive to waste picker / reclaimer needs and capable of improving both safety and recycling performance over time.

The following chapter synthesises the findings of the national BBCs and Waste Picker / Reclaimer surveys by presenting integrated action-oriented recommendations, an implementation framework, an implementation roadmap, and the overall conclusion for improving the safe handling and recovery of post-consumer aluminium and steel aerosols.

Chapter 5 - Integrated Recommendations and Conclusion

5.1 Introduction

The findings from the BBC and waste picker / reclaimer surveys demonstrate that improving the safe recovery and recycling of post-consumer aluminium and steel aerosol cans requires an integrated intervention strategy that addresses the entire recycling value chain rather than individual stakeholders in isolation. Although the two surveys examined different participant groups, the findings are highly complementary and consistently identify similar operational strengths, implementation gaps and priority support needs. Together, they show that aerosol cans are already embedded within SA's informal recycling system, yet the supporting safety systems, operational procedures and market mechanisms have not developed at the same pace. Consequently, interventions should focus on strengthening the links between waste pickers, BBCs, downstream recyclers, municipalities, PROs and other industry stakeholders to improve both occupational safety and recycling performance.

The combined findings confirm that awareness of aerosol-related hazards is generally high across both stakeholder groups. Most respondents recognised that aerosol cans may still contain residual pressurised gases or hazardous chemicals and understood the risks associated with unsafe handling practices. However, this awareness has not translated into consistent operational readiness. Formal training on aerosol safety remains extremely limited, written handling procedures are largely absent, PPE provision and utilisation are inconsistent, and potentially hazardous practices such as puncturing, crushing or dismantling aerosol cans continue to occur. The surveys therefore reveal a clear awareness-to-practice gap, where respondents understand the risks but lack the practical guidance, equipment and organisational support required to manage them consistently and safely.

The combined findings provide a comprehensive picture of aerosol can recovery within SA's informal recycling sector. BBCs represent experienced recycling businesses that receive aerosol cans as part of their routine operations, while waste pickers and reclaimers recover aerosol cans daily alongside a wide range of recyclable materials. This demonstrates that post-consumer aluminium and steel aerosol cans are no longer niche products within the recycling stream but are firmly integrated into mainstream recovery activities. Consequently, aerosol safety should be considered an integral component of metal packaging recovery rather than a specialised intervention.

The surveys also reveal important differences in operational responsibilities while highlighting common implementation challenges. Among BBCs, most respondents were owners or managers with extensive industry experience, indicating that the findings reflect operational decision-making and established business practices. Aluminium aerosol cans were accepted more readily than steel aerosol cans, suggesting that market conditions continue to influence recovery behaviour. Although most BBCs recognised the hazards associated with residual gases and chemicals, almost all reported receiving no formal training, and most lacked written handling procedures. PPE provision remained incomplete, while

respondents consistently identified safety training, written guidelines, PPE and safe dismantling equipment as their highest support priorities. These findings indicate that the principal challenge for BBCs is not hazard recognition but converting awareness into standardised operational practices supported by practical equipment and market incentives.

The waste picker/reclaimer survey presents a similar pattern. Aerosol cans form part of the routine recyclable materials collected by most respondents, confirming frequent exposure during day-to-day recovery activities. Awareness of aerosol hazards was high, yet only a small proportion had received any training or information on safe handling. PPE utilisation was particularly low despite respondents recognising the risks associated with gas release, chemical exposure and explosions. Lack of PPE limited safe-handling knowledge and low prices for aerosol cans emerged as the most significant operational challenges. These findings demonstrate that waste pickers require practical, field-based interventions that improve both safety awareness and everyday handling practices while recognising the realities of informal recycling environments.

Taken together, the findings demonstrate that both stakeholder groups identify remarkably similar priorities for improving aerosol recovery. The strongest support requests relate to practical safety training, improved access to PPE, simple handling guidelines, better market conditions and stronger communication throughout the recycling chain. This close alignment indicates that intervention priorities are well defined and that coordinated programmes are likely to produce measurable improvements across multiple stages of the recovery system.

5.2 Recommendations

The results point towards a coordinated intervention programme rather than isolated activities aimed at individual stakeholder groups as outlined below:

- i. The first and most important recommendation is to strengthen the awareness-to-practice pathway through practical, accessible and repeatable safety education. Training should be developed as short, field-based modules supported by illustrated workplace instructions, visual communication materials and concise written handling guidelines. These materials should be suitable for both formal operational environments within BBCs and the low-literacy, field-based environments in which many waste pickers operate. The training should focus on recognising aerosol can hazards, checking whether aerosol cans are empty, avoiding puncturing and crushing, separating aluminium and steel aerosol cans, maintaining safe temporary storage, keeping aerosol cans away from heat and fire, using appropriate PPE and responding appropriately to damaged or potentially hazardous containers. Because BBCs and waste pickers operate within the same recycling system, training should be coordinated across both stakeholder groups to establish consistent handling practices throughout the recovery chain.

- ii. The second recommendation is to strengthen operational controls by embedding safety into routine recycling activities rather than treating it as an additional requirement. Practical support should include the provision of PPE starter packs comprising gloves, safety boots, overalls, eye protection and respiratory protection, together with practical demonstrations on their correct selection, use and maintenance. PPE distribution should not be implemented as a once-off intervention but should be integrated with training programmes, refresher sessions and centre-level standard operating procedures to promote sustained safe work practices. Operational controls should also include standardised procedures for aerosol acceptance, emptiness verification, sorting, temporary storage, handling and transportation. Emphasis should be placed on improving dismantling safety through the development and adoption of specialised tools that enable the controlled mechanical separation of the aerosol valve and dip tube from the can body, thereby reducing the risks associated with manual dismantling and residual pressurised contents. Finally, the implementation of these operational controls should recognise different levels of organisational readiness, enabling well-performing BBCs and experienced waste pickers/reclaimers to serve as demonstration sites while directing additional training and technical support to participants requiring greater assistance.
- iii. The third recommendation focuses on strengthening the market conditions that influence aerosol recovery behaviour. The findings consistently demonstrate that economic considerations affect both collection and handling decisions. Aluminium aerosol cans continue to enjoy stronger market acceptance than steel aerosol cans, while low prices, inconsistent buyer practices and uncertainty regarding downstream acceptance discourage recovery and may contribute to unsafe disposal. PROs, BBCs, recyclers, aggregators and other industry stakeholders should therefore collaborate to improve buyer communication, clarify acceptance criteria and standardise sorting requirements across the recycling chain. Dedicated aerosol collection points, improved market information and stronger buyer linkages would reduce uncertainty while encouraging higher recovery rates. These market interventions should complement safety education rather than operate independently because both surveys demonstrate that operational behaviour is shaped simultaneously by safety considerations and economic incentives.

The findings further indicate that communication systems require significant improvement. Most respondents reported receiving little or no formal information about aerosol safety from municipalities, recyclers or other institutional stakeholders. Future interventions should therefore establish coordinated communication networks involving municipalities, PROs, recyclers, industry associations, BBCs and community organisations. Safety alerts illustrated guidance materials and practical handling advice should be distributed through multiple channels to ensure that consistent information reaches both waste

pickers and BBCs. Because aerosol recovery involves numerous participants operating under different conditions, communication should reinforce consistent handling expectations throughout the recycling value chain.

Finally, programme implementation should adopt a staged approach based on operational readiness. Participants demonstrating the greatest need should receive intensive support through training, PPE provision and practical demonstrations, while organisations already demonstrating good practices should be used as pilot sites and peer-learning centres. Monitoring should extend beyond training attendance to include changes in handling behaviour, PPE utilisation, buyer acceptance, rejection rates, incident reporting and market participation. The trend model as illustrated in figure 26, developed from this study, provides a practical framework for monitoring improvements over time and evaluating whether interventions successfully move participants from awareness towards consistent operational readiness.

Overall, the integrated findings demonstrate that improving the safe recovery of post-consumer aerosol cans requires more than increasing awareness. Sustainable improvements will depend on coordinated action that combines practical training, operational support, market development, consistent communication and ongoing monitoring across the entire recycling value chain. By addressing these interconnected factors simultaneously, stakeholders will be better positioned to improve occupational safety, increase aerosol recovery rates and strengthen the contribution of SA's informal recycling sector to the country's circular economy and EPR objectives.

5.3 Implementation Framework

The findings demonstrate that improving the safe recovery of post-consumer aluminium and steel aerosol cans requires interventions that are coordinated across the entire recycling value chain. The recommended actions therefore combine the operational recommendations arising from both the BBC and waste picker/reclaimer surveys. While some interventions are stakeholder-specific, many apply equally across both groups and should be implemented simultaneously to maximise effectiveness.

The integrated framework recognises that the recovery pathway begins with waste pickers and reclaimers collecting aerosol cans before selling them to BBCs, which subsequently prepare the material for downstream recyclers. Consequently, weaknesses at any point in the chain can undermine both occupational safety and recycling performance. The recommendations therefore address five strategic intervention areas: awareness and training, operational controls, PPE and equipment support, market development, and monitoring and continuous improvement.

Training should become the foundation of all interventions. Both surveys consistently identified limited formal training as one of the largest implementation gaps despite widespread recognition of aerosol-related hazards. Training should therefore be practical, short and highly visual, using demonstrations rather than lengthy classroom sessions. Emphasis should be placed on identifying aerosol cans,

checking whether cans are empty, avoiding puncturing and crushing, separating aluminium and steel aerosol cans, safe storage practices, keeping aerosol cans away from heat and open flames, and the correct use of PPE. Because BBCs purchase recyclable materials from waste pickers, training should be delivered jointly wherever possible to establish consistent handling expectations throughout the recovery chain.

Operational controls should be strengthened through the introduction of standardised handling procedures supported by practical equipment. Written guidance should be concise, illustrated and easily understood by both formal recycling businesses and informal collectors. Standard operating procedures should cover aerosol acceptance criteria, emptiness checking, sorting requirements, storage conditions, temporary handling, transportation and escalation procedures for damaged or potentially hazardous containers. PPE support should include gloves, safety boots, overalls, masks and eye protection and should be integrated into routine operational practices rather than distributed as isolated once-off interventions.

The surveys also demonstrate that market conditions significantly influence recovery behaviour. Aluminium aerosol cans are generally accepted more readily than steel aerosol cans, while low prices, inconsistent buyer practices and uncertainty regarding downstream acceptance reduce collection incentives. PROs, BBCs, recyclers, aggregators and municipalities should therefore collaborate to improve market communication, clarify acceptance requirements and strengthen buyer networks. Dedicated aerosol collection points and clearer information regarding acceptable material preparation would reduce uncertainty while increasing recovery rates.

Implementation should follow a phased approach that recognises differing levels of operational readiness. Participants requiring substantial support should receive intensive assistance through training, PPE and ongoing mentoring, while better-performing BBCs and experienced waste pickers can serve as demonstration sites for peer learning and pilot projects. Continuous monitoring should evaluate changes in training uptake, PPE utilisation, handling behaviour, buyer rejection, market participation and incident reporting to determine whether interventions improve both safety and recycling performance.

Collectively, the recommendations provide a practical roadmap for strengthening SA's post-consumer aerosol recovery system. By integrating behavioural interventions with operational support, market development and stakeholder collaboration, the proposed framework supports safer working conditions, improved recycling efficiency and greater alignment with the objectives of SA's EPR system.

Table 53 presents the integrated action-oriented recommendations.

Table 53: Integrated Action-Oriented Recommendations.

No.	Strategic Priority	Integrated Recommendation	Implementation Detail
1	Training and awareness	Develop standardised aerosol safety training for BBCs and waste pickers.	Deliver short practical workshops supported by demonstrations, illustrated guides and refresher training.
2	Written guidance	Produce a one-page illustrated handling guide.	Include identification, emptiness checking, no puncturing or crushing, PPE requirements, storage and emergency procedures. Reinforce the need for improved dismantling safety, including, ideally, a specialised tool to enable safe mechanical separation of valve and dip tube from the aerosol body.
3	PPE support	Provide PPE starter packs linked to training.	Supply gloves, safety boots, overalls, masks and eye protection together with practical instruction.
4	Operational controls	Standardise aerosol handling procedures.	Introduce procedures for acceptance, sorting, storage, transport and temporary holding of aerosol cans.
5	Communication	Strengthen safety communication.	Use municipalities, PROs, recyclers, associations and BBC networks to distribute consistent safety messages.
6	Market development	Improve downstream acceptance and pricing.	Strengthen buyer networks, communicate acceptance criteria and improve market access, particularly for steel aerosol cans.
7	Collection infrastructure	Establish dedicated aerosol collection points.	Pilot collection facilities at BBCs, landfill sites and high-volume reclaiming areas.
8	Monitoring	Monitor implementation progress.	Track incidents, PPE use, buyer rejection, training uptake and handling behaviour to support continuous improvement.

Table 54 presents the integrated recommendation rationale developed from the combined findings of the BBC and waste picker/reclaimer surveys. By synthesising the key findings from both stakeholder groups, the table translates the research evidence into practical implications that address the principal safety, operational and market challenges affecting post-consumer aerosol recovery. These integrated recommendations provide the foundation for the strategic action plan to optimise the safe collection, handling, processing and melting of aluminium and steel aerosol cans while strengthening metal circularity within SA's EPR framework.

Table 54: Integrated Recommendation Rationale.

No.	Key Finding	Integrated Practical Implication
1	Aerosol cans are routinely recovered by both waste pickers and BBCs.	Aerosol safety should become part of mainstream recycling practice rather than a specialised activity.
2	High awareness but limited formal training.	Practical safety training and visual guidance should become the primary intervention.
3	PPE provision and utilisation remain inconsistent.	PPE provision should accompany training and become part of routine work practices.
4	Unsafe handling practices continue to occur.	Standard operating procedures should address puncturing, crushing, emptiness checking, sorting and safe storage.
5	Market conditions influence recovery behaviour.	Strengthen pricing signals, buyer communication and downstream acceptance requirements.
6	Support needs are consistent across stakeholder groups.	Prioritise integrated interventions involving training, PPE, written guidance, market development and dedicated collection systems.

Table 55 presents the integrated implementation roadmap for this research.

Table 55: Integrated Implementation Roadmap.

No.	Timeframe	Recommended Action
1	Immediate (0–6 months)	Develop illustrated aerosol safety guidelines and communication material for waste pickers and BBCs.
2	Short Term (6–12 months)	Deliver practical safety workshops, demonstrations and awareness campaigns at BBCs, landfill sites and reclaiming areas.
3	Medium Term (12–24 months)	Distribute PPE starter packs linked to training and implement standard operating procedures for aerosol handling.
4	Medium Term (12–24 months)	Pilot dedicated aerosol collection points and strengthen buyer communication regarding aluminium and steel aerosol acceptance.
5	Long Term (24 months and beyond)	Monitor programme outcomes, refine interventions and integrate aerosol safety into broader EPR, municipal and recycling initiatives.

To translate the study findings into practical action, an integrated implementation framework was developed to guide the safe handling and recovery of post-consumer aluminium and steel aerosol cans across the recycling value chain. The framework builds on the recommendations arising from the national BBCs and Waste Picker/Reclaimer surveys by illustrating how coordinated interventions, stakeholder collaboration and continuous monitoring can strengthen operational readiness, improve safety practices and enhance material recovery. It provides a structured roadmap that links strategic priorities with implementation activities, expected outcomes and long-term impacts, thereby supporting the implementation of SA's EPR objectives and promoting a safer, more sustainable circular economy for metal packaging. Figure 46 presents the integrated implementation framework.

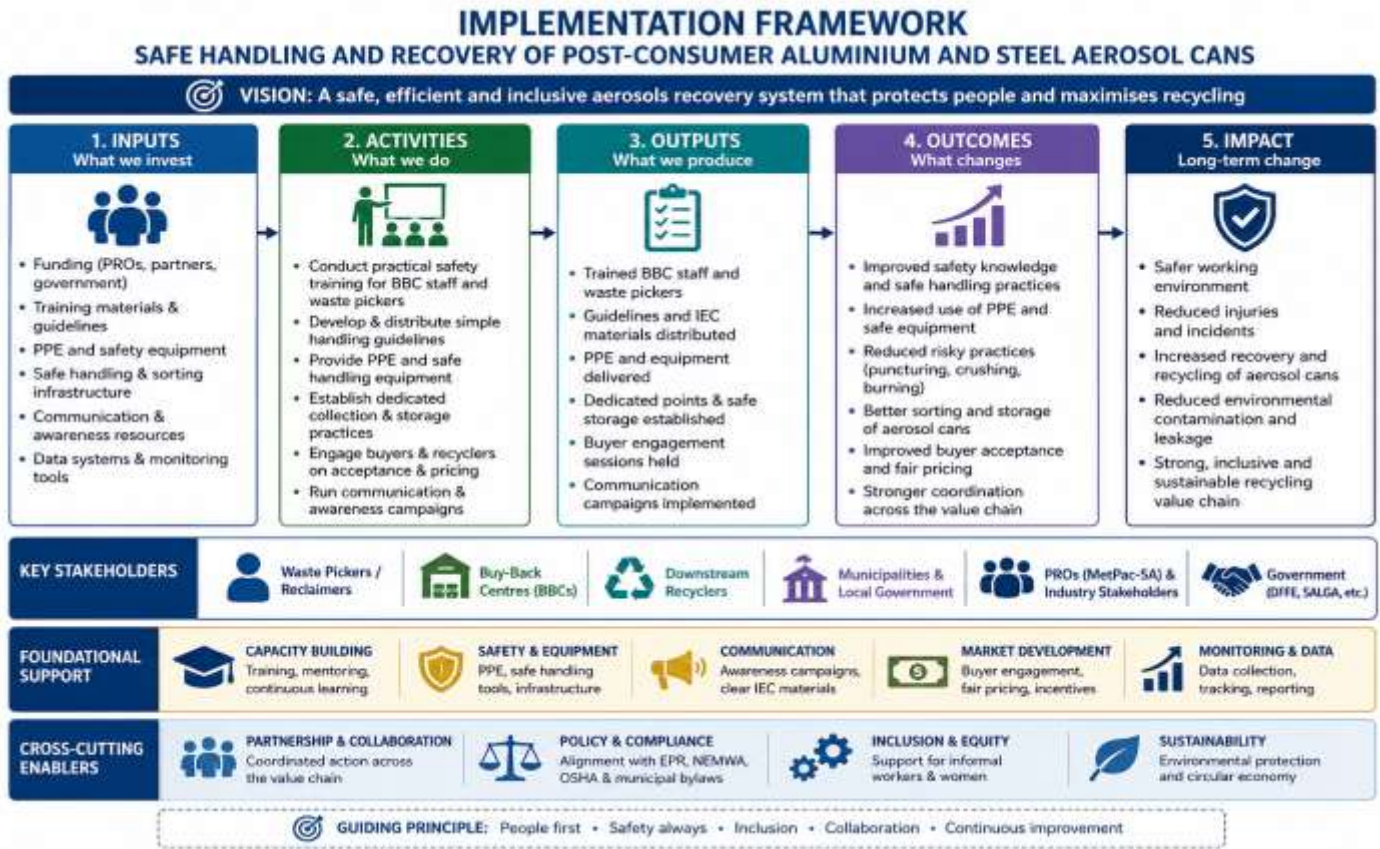


Figure 46: Integrated Implementation Framework.

5.4 Integrated Conclusion

The recommendations developed from both stakeholder surveys provide a coherent implementation framework for improving the safe collection, handling and recycling of post-consumer aluminium and steel aerosol cans in SA. The strong alignment between the challenges reported by waste pickers and BBCs demonstrate that intervention priorities are clear and mutually reinforcing. Training, PPE provision, operational guidance, market development and coordinated stakeholder communication should be implemented as an integrated package rather than as isolated initiatives. Operational guidance should reinforce safe handling practices throughout the aerosol recovery value chain, with particular emphasis on improving dismantling safety through the development and adoption of specialised tools that enable the safe mechanical separation of the aerosol valve and dip tube from the aerosol body. Integrating these interventions will strengthen occupational health and safety, improve the quality and recovery of recyclable materials, reduce preventable operational risks, and enhance the long-term sustainability of SA's circular economy and EPR system.

The information presented in the following section comprises the detailed responses generated from the BBC and waste picker/reclaimer research instruments. These results are provided to ensure transparency of the research process and to enable readers to examine the evidence underpinning the analysis, findings, conclusions and recommendations presented in this report. While the preceding chapters synthesise and interpret the data, the detailed responses presented here provide the empirical basis from which the strategic action plan for optimising the safe collection, handling, processing and melting of post-consumer aerosol cans was developed.

List of appendices BBC survey

6.1 Appendix A: Frequency Tables

The appendix section provides detailed frequency tables for all coded survey items. Multiple-response tables are based on the percentage of all respondents.

6.1.1 Appendix A1: Section A single-response items

Table 56 presents A1: Section A single-response items.

Table 56: A1: Section A single-response items.

Question	Response	n	%
Respondent Type	BBC Owner/Manager	31	81.6
	BBC Employee	7	18.4
Location: Province	Gauteng	7	18.4
	Limpopo	7	18.4
	Free state	6	15.8
	Northwest	6	15.8
	Mpumalanga	5	13.2
	Eastern Cape	4	10.5
	KZN	3	7.9
How long have you been in the recycling business?	More than 10 years	23	60.5
	1–5 years	8	21.1
	6–10 years	7	18.4
Approximately how often does your BBC receive aerosol cans?	Daily	22	57.9
	Occasionally	8	21.1

Question	Response	n	%
	Never	4	10.5
	Weekly	4	10.5
Approximately how many people work at this BBC?	More than 10	18	47.4
	1–5	10	26.3
	6–10	10	26.3
Approximately how many aerosol cans does your BBC receive in a normal week?	1–100	13	34.2
	101–500	9	23.7
	Not sure	7	18.4
	None	5	13.2
	More than 500	4	10.5

6.1.2 Appendix A2: Section B single-response items

Table 57 presents A2: Section B single-response items.

Table 57: A2: Section B single-response items.

Question	Response	n	%
How often do you buy aerosol cans?	Regularly	23	60.5
	Sometimes	8	21.1
	Never	7	18.4
Aerosol cans are dangerous because they may still contain pressurised gas or chemicals.	Yes	36	94.7
	No	1	2.6
	Not sure	1	2.6
	No	36	97.3

Question	Response	n	%
Have you ever received any training or information regarding safe handling of aerosol cans?	Yes	1	2.7
Do you have any written or informal rules at your BBC for handling aerosol cans?	No	29	76.3
	Yes	9	23.7
How confident are you that staff at your BBC know how to handle aerosol cans safely?	A little confident	14	36.8
	Not confident	12	31.6
	Confident	10	26.3
	Very confident	2	5.3

6.1.3 Appendix A3: Section C single-response items

Table 58 presents A3: Section C single-response items.

Table 58: A3: Section C single-response items.

Question	Response	n	%
Do you accept aluminium aerosol cans at your BBC?	Yes	27	71.1
	No	6	15.8
	Only if empty	5	13.2
Do you accept steel aerosol cans at your BBC?	Yes	22	57.9
	No	11	28.9
	Only if empty	5	13.2
Do you provide PPE for handling aerosols?	Yes	21	55.3
	No	17	44.7

Question	Response	n	%
Puncturing aerosol cans (making a hole in them) can be dangerous.	Yes	28	73.7
	Not sure	7	18.4
	No	3	7.9
How often are aerosol cans checked for emptiness before being accepted or stored?	Always	25	65.8
	Not applicable	7	18.4
	Never	3	7.9
	Sometimes	3	7.9
How are aerosol cans usually stored before resale?	Separately from other metal items	12	31.6
	With other metal items	11	28.9
	Not stored on site	6	15.8
	In an open area	5	13.2
	In a covered area	3	7.9
	Other (Specify)	1	2.6
Do staff sort aluminium and steel aerosol cans separately?	Always	24	63.2
	Not sure	5	13.2
	Sometimes	5	13.2
	Never	4	10.5

6.1.4 Appendix A4: Section D single-response items

Table 59 presents A4: Section D single-response items.

Table 59: A4: Section D single-response items.

Question	Response	n	%
If yes, when did this last happen?	Not applicable	22	57.9
	In the past 12 months	6	15.8
	In the past month	4	10.5
	In the past 6 months	3	7.9
	More than 12 months ago	3	7.9
Do you store aerosol cans separately from other metal items before resale to aggregator/re-melter?	Yes	22	57.9
	Not applicable	6	15.8
	No	5	13.2
	Sometimes	5	13.2
How long are aerosol cans usually kept at your BBC before they are sold, removed, or disposed of?	More than 7 days	15	39.5
	Not sure	8	21.1
	Not applicable	6	15.8
	4–7 days	5	13.2
	1–3 days	4	10.5

6.1.5 Appendix A5: Section E single-response items

Table 60 presents A5: Section E single-response items.

Table 60: A5: Section E single-response items.

Question	Response	n	%
Do you think aerosol cans are dangerous in recycling or waste collection?	Yes	29	76.3
	No	5	13.2
	Not sure	4	10.5
Which area is the biggest concern for your BBC when dealing with aerosol cans?	Low value/price	15	42.9
	Safety risk	7	20.0
	Lack of knowledge	5	14.3
	Staff protection	5	14.3
	Buyer rejection	1	2.9
	Other (Specify)	1	2.9
	Storage	1	2.9

6.1.6 Appendix A: Materials mainly bought

Table 61 presents the detailed multiple-response results: materials mainly bought.

Table 61: Detailed multiple-response results: materials mainly bought.

Option	n	% respondents
Aluminium used beverage cans	37	97.4
Paper/cardboard	34	89.5
Plastics (rigids, flexibles)	32	84.2
Aluminium aerosol cans (deodorants)	30	78.9
Steel cans (food, paint, polish, other)	26	68.4
Steel aerosol cans (household)	23	60.5
Glass	18	47.4
Aluminium foil and trays	14	36.8
Other recyclable materials (specify)	1	2.6

6.1.7 Appendix A: Main sources of material

Table 62 presents the detailed multiple-response results: main sources of material.

Table 62: Detailed multiple-response results: main sources of material.

Option	n	% Respondents
Waste pickers / reclaimers	34	89.5
Households	25	65.8
Businesses	23	60.5
Mixed sources	10	26.3
Other	10	26.3

6.1.8 Appendix A: Reasons for not accepting aerosols

Table 63 presents detailed multiple-response results: reasons for not accepting aerosols.

Table 63: Detailed multiple-response results: reasons for not accepting aerosols.

Option	n	% Respondents
Not applicable	25	65.8
The price is too low	8	21.1
Other reason for not accepting aerosol cans (specify)	4	10.5
There is no buyer for them	4	10.5
They are not empty	3	7.9
They may still contain gas or chemicals	2	5.3
They are too dangerous to store	0	0.0

6.1.9 Appendix A: Known substrates

Table 64 presents the detailed multiple-response results: known substrates.

Table 64: Detailed multiple-response results: known substrates.

Option	n	% Respondents
Aluminium	37	97.4
Steel	33	86.8
Not sure	1	2.6

6.1.10 Appendix A: Training or information sources

Table 65 presents the detailed multiple-response results: training or information sources.

Table 65: Detailed multiple-response results: training or information sources.

Option	n	% Respondents
BBC	1	2.6
Recycling company	1	2.6
Aerosol Manufacturers Association	0	0.0
Municipality	0	0.0
Non-Government Organisation	0	0.0
Other training/information source (specify)	0	0.0

6.1.11 Appendix A: Staff knowledge areas

Table 66 presents the detailed multiple-response results: staff knowledge areas.

Table 66: Detailed multiple-response results: staff knowledge areas.

Option	n	% Respondents
They may still contain gas even when they look empty	26	68.4
Puncturing can be dangerous	22	57.9
Crushing can be dangerous	20	52.6
They should be kept away from heat or flames	18	47.4
Not sure	8	21.1
Some buyers only accept empty cans	6	15.8

6.1.12 Appendix A: How aerosol cans are bought

Table 67 presents the detailed multiple-response results: how aerosol cans are bought.

Table 67: Detailed multiple-response results: how aerosol cans are bought.

Option	n	% Respondents
Buy aerosols with other metal cans	19	50.0
Buy aerosols separately from other recyclables	18	47.4
Buy steel aerosol mixed with higher grade steel	10	26.3
Buy steel and aluminium aerosols together	10	26.3
Do not buy aerosols	6	15.8

6.1.13 Appendix A: Buying / handling practices

Table 68 presents the detailed multiple-response results: buying / handling practices.

Table 68: Detailed multiple-response results: buying / handling practices.

Option	n	% Respondents
Dismantle and separate components of aerosols	25	65.8
Check if they are empty	14	36.8
Other buying/handling practice (specify)	9	23.7
Crush them	8	21.1
Puncture them	6	15.8

6.1.14 Appendix A: PPE provided

Table 69 presents the detailed multiple-response results: PPE provided.

Table 69: Detailed multiple-response results: PPE provided.

Option	n	% Respondents
Gloves	23	60.5
Overalls	19	50.0
Safety boots	19	50.0
Not applicable	15	39.5
Masks	11	28.9
Eye protection	8	21.1
Other PPE provided (specify)	3	7.9

6.1.15 Appendix A: Incidents experienced

Table 70 presents the detailed multiple-response results: incidents experienced.

Table 70: Detailed multiple-response results: incidents experienced.

Option	n	% Respondents
None	20	52.6
Gas release	10	26.3
Chemical smell/leak	6	15.8
Injury	5	13.2
Explosion	3	7.9

Option	n	% Respondents
Fire	0	0.0

6.1.16 Appendix A: Challenges faced

Table 71 presents the detailed multiple-response results: challenges faced.

Table 71: Detailed multiple-response results: challenges faced.

Option	n	% Respondents
Lack of PPE	22	57.9
Low price for metal	20	52.6
Lack of knowledge about safe handling	18	47.4
Risk of explosion	14	36.8
Lack of storage space	12	31.6
Other challenge (specify)	8	21.1
BBCs /recyclers do not accept aerosol cans	1	2.6

6.1.17 Appendix A: Alert sources

Table 72 presents the detailed multiple-response results: alert sources.

Table 72: Detailed multiple-response results: alert sources.

Option	n	% Respondents
No one	25	65.8
General public	12	31.6

Option	n	% Respondents
BBCs or scrap dealers	2	5.3
Landfill authorities	2	5.3
Municipalities	0	0.0

6.1.18 Appendix A: Support needed

Table 73 presents the detailed multiple-response results: support needed.

Table 73: Detailed multiple-response results: support needed.

Option	n	% Respondents
Safety training on guidelines	28	73.7
Clear written aerosol handling guidelines	26	68.4
PPE	25	65.8
Safety dismantling equipment	25	65.8
Other support needed (specify)	3	7.9

6.2 Appendix B: Verbatim Open-Ended Suggestions

The table below lists non-blank verbatim suggestions with the applied theme code. Text was lightly normalised only for spacing; wording was otherwise retained. Table 74 presents verbatim suggestions and thematic codes.

Table 74: Verbatim suggestions and thematic codes.

Respondent	Verbatim suggestion	Theme code
1	Training	Training, awareness and guidelines; Operational handling, storage and recycling systems
2	Storage and training	Training, awareness and guidelines; Operational handling, storage and recycling systems
3	Training and workshops	Training, awareness and guidelines
4	Lack of sustainable market within our area	Market access and buyer linkages
5	Currently collecting Alu aerosol only Not collecting steal aerosol, tins fishes, etc, do to not having the buyers	Market access and buyer linkages; Operational handling, storage and recycling systems
7	Assist by connecting BBCs to buyers	Market access and buyer linkages
8	Our BBCs e don't buy aerosol, we request the training first on how to handle aerosol, and market	Training, awareness and guidelines; Market access and buyer linkages
9	Request training so that we can start collecting aerosol cans	Training, awareness and guidelines; Operational

Respondent	Verbatim suggestion	Theme code
		handling, storage and recycling systems
10	Currently we are not collecting or buying due to not having market	Market access and buyer linkages; Operational handling, storage and recycling systems
11	workshop connecting buyers incentives for steel(aerosol)	Training, awareness and guidelines; Market access and buyer linkages
12	safe handling	Operational handling, storage and recycling systems
14	Training on safety and better price	Training, awareness and guidelines; PPE and safe handling support; Pricing and incentives
16	continue recycling	Operational handling, storage and recycling systems
17	Trainings and PPE for waste picker / reclaimer	Training, awareness and guidelines; PPE and safe handling support; waste picker / reclaimer support
18	Market for steel	Market access and buyer linkages
19	Market to sell	Market access and buyer linkages
20	Market for steel packaging, PPE and trainings	Training, awareness and guidelines; PPE and safe handling support; Market access and buyer linkages

Respondent	Verbatim suggestion	Theme code
21	creating more awareness on dangers of aerosols	Training, awareness and guidelines
22	Training for the community and provision of PPE	Training, awareness and guidelines; PPE and safe handling support
24	Training, provision of PPE, market	Training, awareness and guidelines; PPE and safe handling support; Market access and buyer linkages
25	Training of waste picker / reclaimer, and employees	Training, awareness and guidelines; waste picker / reclaimer support
26	Training and workshops	Training, awareness and guidelines
27	Trainings	Training, awareness and guidelines
28	Higher prices	Pricing and incentives
29	Workshops	Training, awareness and guidelines
31	Finding market for steel aerosol	Market access and buyer linkages
32	Training and finding market for steel products	Training, awareness and guidelines; Market access and buyer linkages
34	Getting PPE for waste picker / reclaimer	PPE and safe handling support; waste picker / reclaimer support

Respondent	Verbatim suggestion	Theme code
35	Prices	Pricing and incentives
36	Prepare site, lack of PPEs	PPE and safe handling support
37	Education and market for steel aerosols	Training, awareness and guidelines; Market access and buyer linkages
38	they need training	Training, awareness and guidelines

6.3 Appendix: Buy-Back Centre Survey Questionnaire

Safe handling of Aluminium and Steel Aerosols

Buy-Back Centre Survey Questionnaire

Dear Participant,

You are invited to take part in this survey for Buy-Back Centres. Your feedback will help us understand current practices, awareness, and challenges related to the safe handling, disposal, and recycling of post-consumer aluminium and steel aerosol cans. The information collected will be used for research and to help improve recycling systems and safety practices.

Confidentiality and anonymity

Your responses will remain anonymous. All information will be combined with responses from other participants and used only for research and strategy development.

This questionnaire consists of five sections:

Section A: Respondent Information

Section B: Awareness of Aerosol Cans

Section C: Collection and Handling Practices

Section D: Safe Working Practices

Section E: Challenges, Risks and Support Needs

Please answer all questions that apply to you.

Section A: Respondent Information

1. Respondent Type

- ☐ Buy-Back Centre Owner/Manager
- ☐ Buy-Back Centre Employee
- ☐ Other (Specify): _____

2. Location

Municipality: _____

Province: _____

3. How long have you been in the recycling business?

- ☐ 1–5 years
- ☐ 6–10 years
- ☐ More than 10 years

4. What types of recyclable materials do you mainly buy? (Select all that apply)

- ☐ Aluminium aerosol cans (deodorants)
- ☐ Steel aerosol cans (household)
- ☐ Aluminium used beverage cans
- ☐ Steel cans (food, paint, polish, other)
- ☐ Aluminium foil and trays
- ☐ Plastics (rigids, flexibles)
- ☐ Paper/cardboard
- ☐ Glass
- ☐ Other (Specify): _____

5. Approximately how often does your buy-back center receive aerosol cans?

- ☐ Daily
- ☐ Weekly
- ☐ Occasionally
- ☐ Never

6. Approximately how many people work at this buy-back center?

- ☐ 1–5
- ☐ 6–10
- ☐ More than 10

7. Approximately how many aerosol cans does your center receives in a normal week?

- ☐ None
- ☐ 1–100
- ☐ 101–500
- ☐ More than 500
- ☐ Not sure

8. Does your center mainly buy from waste pickers/reclaimers, households, businesses, or mixed sources?

- ☐ Waste pickers/reclaimers
- ☐ Households
- ☐ Businesses
- ☐ Mixed sources
- ☐ Other (Specify): _____

Section B: Awareness of Aerosol Cans

9. How often do you buy aerosol cans?

- ☐ Regularly
- ☐ Sometimes
- ☐ Never

10. If you do not accept aerosol cans, why not? (Select all that apply)

- ☐ They may still contain gas or chemicals
- ☐ They are not empty
- ☐ They are too dangerous to store
- ☐ There is no buyer for them
- ☐ The price is too low
- ☐ Other (Specify): _____
- ☐ Not applicable

11. What substrate/s are aerosol cans made from? More than one option can be selected

- ☐ Aluminium

- ☐ Steel
- ☐ Not sure

12. Aerosol cans are dangerous because they may still contain pressurised gas or chemicals.

- ☐ Yes
- ☐ No
- ☐ Not sure

13a. Have you ever received any training or information regarding safe handling of aerosol cans?

- ☐ Yes
- ☐ No

13b. If YES, from whom?

- ☐ Municipality
- ☐ Recycling company
- ☐ Non-Government Organisation
- ☐ Aerosol Manufacturers Association
- ☐ Buy-back center
- ☐ Other (Specify): _____

14. Do you have any written or informal rules at your center for handling aerosol cans?

- ☐ Yes
- ☐ No
- ☐ Not sure

15. Which of the following do your staff know about aerosol cans? (Select all that apply)

- ☐ They may still contain gas even when they look empty
- ☐ They should be kept away from heat or flames
- ☐ Puncturing can be dangerous
- ☐ Crushing can be dangerous
- ☐ Some buyers only accept empty cans
- ☐ Not sure

16. How confident are you that staff at your center know how to handle aerosol cans safely?

- ☐ Not confident
- ☐ A little confident
- ☐ Confident

☐ Very confident

Section C: Collection and Handling Practices

17. Do you accept aluminium aerosol cans at your buy-back center?

- ☐ Yes
- ☐ No
- ☐ Only if empty

18. Do you accept steel aerosol cans at your buy-back center?

- ☐ Yes
- ☐ No
- ☐ Only if empty

19. How do you buy aerosol cans? (Select all that apply)

- ☐ Buy aerosols with other metal cans
- ☐ Buy aerosols separately from other recyclables
- ☐ Buy steel and aluminium aerosols together
- ☐ Buy steel aerosol mixed with higher grade steel
- ☐ Do not buy aerosols

20. When buying aerosol cans, do you: (Select all that apply)

- ☐ Check if they are empty
- ☐ Puncture them
- ☐ Crush them
- ☐ Dismantle and separate components of aerosols
- ☐ Other (Specify): _____

21. Do you provide Personal Protective Equipment (PPE) for handling aerosols?

- ☐ Yes
- ☐ No

22. If yes, what PPE is usually provided? (Select all that apply)

- ☐ Gloves
- ☐ Safety boots
- ☐ Overalls
- ☐ Eye protection
- ☐ Masks
- ☐ Other (Specify): _____
- ☐ Not applicable

23. Puncturing aerosol cans (making a hole in them) can be dangerous.

- ☐ Yes
- ☐ No
- ☐ Not sure

24. How often are aerosol cans checked for emptiness before being accepted or stored?

- ☐ Always
- ☐ Sometimes
- ☐ Never
- ☐ Not applicable

25. How are aerosol cans usually stored before resale?

- ☐ With other metal items
- ☐ Separately from other metal items
- ☐ In a covered area
- ☐ In an open area
- ☐ Not stored on site
- ☐ Other (Specify): _____

26. Do staff sort aluminium and steel aerosol cans separately?

- ☐ Always
- ☐ Sometimes
- ☐ Never
- ☐ Not sure

Section D: Safe Working Practices

27. Have you ever experienced any of the following when handling aerosol cans? (Select all that apply)

- ☐ Explosion
- ☐ Fire
- ☐ Gas release
- ☐ Chemical smell/leak
- ☐ Injury
- ☐ None

28. If yes, when did this last happen?

- ☐ In the past month

- ☐ In the past 6 months
- ☐ In the past 12 months
- ☐ More than 12 months ago
- ☐ Not applicable

29. Do you store aerosol cans separately from other metal items before resale to aggregator / remelter?

- ☐ Yes
- ☐ No
- ☐ Sometimes
- ☐ Not applicable

30. How long are aerosol cans usually kept at your center before they are sold, removed, or disposed of?

- ☐ Same day
- ☐ 1–3 days
- ☐ 4–7 days
- ☐ More than 7 days
- ☐ Not sure
- ☐ Not applicable

31. If aerosol cans are rejected by downstream buyers, what is the main reason given?

- ☐ Not empty
- ☐ Too dangerous
- ☐ No market
- ☐ Too low value
- ☐ Not separated properly
- ☐ No reason given
- ☐ Not applicable

Section E: Challenges, Risks and Support Needs

32. What challenges do you face when handling aerosol cans? (Select all that apply)

- ☐ Risk of explosion
- ☐ Lack of knowledge about safe handling
- ☐ Buy-back centers/recyclers do not accept aerosol cans
- ☐ Low price for metal
- ☐ Lack of storage space
- ☐ Lack of PPE

☐ Other (Specify): _____

33. Do you think aerosol cans are dangerous in recycling or waste collection?

- ☐ Yes
☐ No
☐ Not sure

34. Have you been alerted about aerosol can safety risks by any of the following:

- ☐ Buy-back centers or scrap dealers
☐ General public
☐ Landfill authorities
☐ Municipalities
☐ No one

35. What kind of support would help improve safe handling of aerosol cans? (Select all that apply)

- ☐ Clear written aerosol handling guidelines
☐ Safety training on guidelines
☐ Safety dismantling equipment
☐ PPE
☐ Other (Specify): _____

36. Which area is the biggest concern for your center when dealing with aerosol cans?

- ☐ Safety risk
☐ Lack of knowledge
☐ Storage
☐ Low value/price
☐ Buyer rejection
☐ Staff protection
☐ Other (Specify): _____

37. Do you have any suggestions on how aerosol cans could be handled or recycled more safely?

- _____
- _____
- _____

Thank you for taking the time to complete this questionnaire—your participation is greatly appreciated and will help improve recycling practices and safety within the waste management sector.

Regards

MetPac-SA Team

List of appendices waste pickers / reclaimers

7.1 Appendix A: Detailed Frequency Tables

7.1.1 Appendix A1: Section A detailed tables

Table 75 presents A1: Province distribution.

Table 75: A1: Province distribution.

Question	Response	n	%
Where do you work? Province	Eastern Cape	30	11.0
	Free State	40	14.7
	Gauteng	74	27.2
	KZN	51	18.8
	Limpopo	21	7.7
	Mpumalanga	19	7.0
	North West	37	13.6

Table 76 presents A2: Experience in this work.

Table 76: A2: Experience in this work.

Question	Response	n	%
How long have you been doing this work?	Less than 1 year	38	14.0
	1-5 years	112	41.2
	6-10 years	81	29.8
	More than 10 years	41	15.1

Table 77 presents A3: Days worked with recyclable materials.

Table 77: A3: Days worked with recyclable materials.

Question	Response	n	%
How many days in a normal week do you work with recyclable materials?	1-2 days	6	2.2
	3-4 days	17	6.2
	5-6 days	159	58.5
	Every day	90	33.1

Table 78 presents A4: Work type.

Table 78: A4: Work type.

Option	n	% Respondents
Street waste picker / reclaimer	215	79.0
Landfill waste picker / reclaimer	119	43.8
Informal trader / buyer	18	6.6
Other	3	1.1
Both	2	0.7

Table 79 presents A5: Materials collected or bought.

Table 79: A5: Materials collected or bought.

Option	n	% Respondents
Aluminium used beverage cans	256	94.1
Aluminium aerosol cans (deodorants)	250	91.9
Paper/cardboard	242	89.0
Plastics	238	87.5
Steel aerosol cans (household)	205	75.4
Steel cans (food, paint, polish, other)	188	69.1
Glass	183	67.3
Aluminium foil and trays	85	31.2
Other	17	6.2

7.1.2 Appendix A2: Section B detailed tables

Table 80 presents B1: Frequency of collecting / selling aerosol cans.

Table 80: B1: Frequency of collecting / selling aerosol cans.

Question	Response	n	%
How often do you collect / sell aerosol cans?	Regularly	110	40.4
	Sometimes	142	52.2
	Never	20	7.4

Table 82 presents B2: Aerosol cans dangers because of gas/chemicals.

Table 81: B2: Aerosol cans dangerous because of gas/chemicals.

Question	Response	n	%
Aerosol cans can be dangerous because they may still contain pressurised gas or chemicals.	Yes	248	91.2
	No	4	1.5
	Not sure	20	7.4

Table 82 presents B3: Training or information received.

Table 82: B3: Training or information received.

Question	Response	n	%
Have you ever received training or information about the safe handling of aerosol cans?	Yes	19	7.0
	No	253	93.0

Table 83 presents B4: Self-reported safety knowledge.

Table 83: B4: Self-reported safety knowledge.

Question	Response	n	%
How much do you know about aerosols can safety?	Nothing	29	10.7
	A little	168	61.8
	Some	67	24.6
	A lot	8	2.9

Table 84 presents B5: Known aerosol substrates.

Table 84: B5: Known aerosol substrates.

Option	n	% Respondents
Aluminium	257	94.5
Steel	240	88.2
Not sure	8	2.9

Table 85 presents B6: Training/information sources.

Table 85: B6: Training/information sources.

Option	n	% Respondents
Other	34	12.5
BBC	11	4.0
Municipality	3	1.1
Non-Government Organisation	3	1.1
Recycling company	3	1.1
Aerosol Manufacturers Association	0	0.0

Table 86 presents B7: Danger factors recognised.

Table 86: B7: Danger factors recognised.

Option	n	% Respondents
Gas still inside	216	79.4
Chemical still inside	212	77.9
Heat or fire	187	68.8
Puncturing the can	160	58.8
Crushing the can	130	47.8
Not sure	11	4.0

7.1.3 Appendix A3: Section C detailed tables

Table 87 presents C1: PPE use.

Table 87: C1: PPE use.

Question	Response	n	%
Do you use personal protective equipment (PPE) when handling aerosol cans?	Yes	40	14.7
	No	183	67.3
	Sometimes	49	18.0

Table 88 presents C2: Puncturing danger.

Table 88: C2: Puncturing danger.

Question	Response	n	%
Puncturing aerosol cans (making a hole in them) can be dangerous.	Yes	242	89.0
	No	8	2.9
	Not sure	22	8.1

Table 89 presents C3: Keeping aerosol cans away from heat/fire.

Table 89: C3: Keeping aerosol cans away from heat/fire.

Question	Response	n	%
Do you keep aerosol cans away from heat or fire?	Yes	233	85.7
	No	26	9.6
	Sometimes	13	4.8

Table 90 presents C4: Timing of last incident.

Table 90: C4: Timing of last incident.

Question	Response	n	%
If yes, when did this last happen?	In the past month	74	30.5
	In the past 6 months	21	8.6
	In the past 12 months	12	4.9
	More than 12 months ago	15	6.2
	Not sure	121	49.8

Table 91 presents C5: Collection/buying method.

Table 91: C5: Collection/buying method.

Option	n	% Respondents
Separately from other recyclables	171	62.9
With other metal cans	97	35.7
Steel aerosol mixed with higher grade steel	40	14.7
Do not collect or buy aerosols	17	6.2
Steel and aluminium aerosols together	7	2.6

Table 92 presents C6: Handling practices.

Table 92: C6: Handling practices.

Option	n	% Respondents
Dismantle and separate the parts	176	64.7
Check if they are empty	156	57.4
Puncture them	98	36.0
Crush them	74	27.2
Do nothing	32	11.8
Other	4	1.5

Table 93 presents C7: PPE items.

Table 93: C7: PPE items.

Option	n	% Respondents
Gloves	81	29.8

Option	n	% Respondents
Boots	68	25.0
Other	57	21.0
Mask	31	11.4
Eye protection	5	1.8

Table 94 presents C8: Storage before selling.

Table 94: C8: Storage before selling.

Option	n	% Respondents
Separately from other items	120	44.1
At home	116	42.6
With other metal items	59	21.7
I sell them the same day	34	12.5
At a storage place	19	7.0
Other	19	7.0

Table 95 presents C9: Incidents experienced.

Table 95: C9: Incidents experienced.

Option	n	% Respondents
Gas release	119	43.8
None	116	42.6
Chemical smell/leak	80	29.4
Injury	18	6.6
Explosion	16	5.9
Fire	9	3.3

7.1.4 Appendix A4: Section D detailed tables

Table 96 presents D1: Buyer acceptance.

Table 96: D1: Buyer acceptance.

Question	Response	n	%
Do BBCs or scrap dealers accept aerosol cans from you?	Yes	239	87.9
	No	21	7.7
	Sometimes	12	4.4

Table 97 presents D2: Buyer rejection frequency.

Table 97: D2: Buyer rejection frequency.

Question	Response	n	%
When buyers reject aerosol cans, how often does this happen to you?	Often	16	5.9
	Sometimes	104	38.2
	Rarely	103	37.9
	Never	49	18.0

Table 98 presents D3: Action if aerosols are not accepted.

Table 98: D3: Action if aerosols are not accepted.

Option	n	% Respondents
Find another BBCs or scrap dealer	165	60.7
Leave them at landfill sites	56	20.6
Throw them in general waste bins	29	10.7
Other	24	8.8
Do not collect aerosol cans in future	22	8.1

Table 99 presents D4: Reasons buyers do not accept aerosols.

Table 99: D4: Reasons buyers do not accept aerosols.

Option	n	% Respondents
The price is too low	176	64.7
Not sure	66	24.3
Other	45	16.5
The buyer does not want them	31	11.4
They are dangerous	15	5.5
They may still be full	4	1.5

7.1.5 Appendix A5: Section E detailed tables

Table 100 presents E1: Biggest problem.

Table 100: E1: Biggest problem.

Question	Response	n	%
Which one is the biggest problem for you?	Risk of explosion	39	14.3
	Lack of knowledge about safe handling	18	6.6
	BBCs or scrap dealers do not accept aerosol cans	15	5.5
	Low price for aerosols/metal	109	40.1
	Lack of storage space	6	2.2
	Lack of PPE	83	30.5
	Other	2	0.7

Table 101 presents E2: Aerosol cans dangerous in recycling/waste collection.

Table 101: E2: Aerosol cans dangerous in recycling/waste collection.

Question	Response	n	%
Do you think aerosol cans are dangerous in recycling or waste collection?	Yes	245	90.1
	No	6	2.2
	Not sure	21	7.7

Table 102 presents E3: Risks and challenges.

Table 102: E3: Risks and challenges.

Option	n	% Respondents
Lack of PPE	215	79.0
Lack of knowledge about safe handling	208	76.5
Low price for aerosols/metal	186	68.4
Risk of explosion	183	67.3
BBCs or scrap dealers do not accept aerosol cans	87	32.0
Lack of storage space	62	22.8
Other	8	2.9

Table 103 presents E4: Warning sources.

Table 103: E4: Warning sources.

Option	n	% Respondents
No one	160	58.8
General public	100	36.8
BBCs or scrap dealers	11	4.0
Municipalities	3	1.1
Landfill authorities	2	0.7

Table 104 presents E5: Support needed.

Table 104: E5: Support needed.

Option	n	% Respondents
Training	223	82.0
Safety equipment	213	78.3
Higher prices for aerosols at BBCs	166	61.0
Clear aerosol handling guidelines	92	33.8
Dedicated collection points	79	29.0
Other	10	3.7

Table 105 presents E6: Most helpful support.

Table 105: E6: Most helpful support.

Option	n	% Respondents
Training	203	74.6
Safety equipment	193	71.0
Higher prices for aerosols at BBCs	157	57.7
Clear aerosol handling guidelines	54	19.9
Dedicated collection points	47	17.3
Other	10	3.7

7.2 Appendix B: Verbatim Open-Ended Suggestions

Table 106 presents Verbatim open-ended suggestions.

Table 106: Verbatim open-ended suggestions.

No.	Verbatim suggestion
1	Workshop and PPE provision
2	Trolleys
3	Formalise the collection of aerosol cans
4	Bulk bags and training
5	Higher prices
6	All scrap must buy
7	To receive training, gloves and safety boots
8	Provide training and PPE
9	Safety equipment
10	PPE attire and training
11	To receive PPE
12	Workshops on aerosol
13	Training and PPE
14	Proper site to dispose aerosol cans
15	Receive safety equipment
16	To receive safety training/education
17	To receive PPE- gloves and masks

No.	Verbatim suggestion
18	Provide PPE and training
19	PPE
20	Full PPE
21	Provide PPE and training
22	To receive gloves, boots and masks
23	They do not collect aerosol cans
24	Advertising and training
25	Awareness to the public
26	Provide PPE
27	Trainings
28	To receive safety equipment(PPE)
29	Training
30	Provide PPE and training
31	Receive more safety equipment(PPE)
32	PPE and trolleys
33	Training
34	PPE and trolleys
35	Workshops
36	Higher paying on steel
37	Bags, PPE and trolleys

No.	Verbatim suggestion
38	Training and PPE provision for waste picker / reclaimer
39	PPE
40	Assist with the buyers
41	Training on different recyclables and the provision of PPE
42	Bring the buyers within our area
43	Buyers for aerosol cans
44	Proper PPE
45	BBC not buying
46	Training
47	Buyers within the area not buying
48	Workshop for waste picker / reclaimer
49	Market to sell steel
50	Making people understand through education and awareness
51	Market for steel aerosols and food packaging
52	Finding dedicated points meant only for aerosols and educating people
53	PPE and training
54	Double check if cans are empty
55	Not collecting because there's no buyers
56	No buyers within the area
57	We need buyers in our village

No.	Verbatim suggestion
58	Higher prices
59	Training of waste picker / reclaimer and bbcs
60	Prices are low
61	Higer prices for steel aerosols
62	Higher prices for steel and training for awareness
63	Create a big market within the Landfill
64	Increase prices
65	Training for waste picker / reclaimer and giving people PPE especially eye protecting googles
66	Workshops
67	PPE and prices
68	Proper equipment to dismantle
69	PPE
70	Prices and PPE
71	Increase price
72	Training
73	Training and PPE
74	Training and provision of PPE
75	Education and awareness
76	Provide us with PPE
77	PPE and workshops

No.	Verbatim suggestion
78	We need training
79	Request for training on how to sort the cans
80	PPE
81	Training
82	PPE
83	Higher prices, education and awareness
84	Trainings and PPE
85	Protective equipment
86	Training and market
87	Training and safety equipment
88	Trainings
89	Higher prices, training and PPE
90	Workshops, PPE and higher prices
91	Higher prices and safety equipment
92	Dedicated points for aerosols, training and PPE
93	Safety equipment and education
94	Training and Provide PPE
95	PPE and workshops for awareness
96	Education and awareness
97	Workshops

No.	Verbatim suggestion
98	Training and safety equipment
99	PPE and higher prices
100	Training, PPE
101	Training, higher prices
102	Training
103	Higher prices
104	Training
105	Training
106	Training, safety equipment and higher prices
107	Higher prices, Provision of PPE and workshops
108	PPE and workshop
109	PPE and training
110	Higher prices and training
111	PPE and training for waste picker / reclaimer
112	Training and prices
113	Trainings on procedures to follow when handling aerosol
114	Educate waste picker / reclaimer on using PPE for aerosol cans
115	Training on how to handle them
116	PPE, education and higher prices for steel
117	PPE

No.	Verbatim suggestion
118	PPE and workshop
119	Market for steel and PPE
120	Higher prices for steel packaging
121	PPE and trainings for awareness
122	Higher prices for steel
123	Higher prices
124	Higher prices and education to waste picker / reclaimer and bbcs
125	Higher prices for steel
126	Higher prices, education and awareness,
127	PPE
128	Prices
129	Higher prices for steel, training and ppe
130	Trainings
131	Safety equipment and workshops
132	Workshops to educate and safety equipment, higher prices for steel packaging
133	Clear guidelines and Safety equipment and trainings
134	Safety equipment and workshops
135	Market for steel
136	To be trained and proper disposal site
137	PPE and trainings

No.	Verbatim suggestion
138	PPE
139	Steel prices are low if they can be better more people would collect it
140	I need Workshop
141	Request training
142	Training requested
143	Higher prices and PPE
144	Higher production for steel
145	Lack of PPE
146	Higher prices for steel aerosols and PPE
147	Workshops and trainings
148	To receive training and PPE
149	To take out gas and to wear PPE
150	Check for gas and always use PPE
151	Higher price to get more collectors
152	Safety equipment
153	All BBCs should collect aerosol
154	Workshop
155	Providing PPE to waste picker / reclaimer regularly
156	Workshop
157	Finding market for steel packaging that will motivate more people to collect steel aerosols, educating people

No.	Verbatim suggestion
158	Training
159	Education and awareness about safety
160	Training
161	Provision of PPE and awareness and education
162	Establishing bbcs that will buy steel aerosol with in Mthatha
163	Educate waste reclaimers
164	Awareness and education, PPE and market for steel aerosols
165	Higher prices for steel packaging
166	Education and awareness to the general public
167	Price
168	Provision of training of waste picker / reclaimer and bbcs. Increase money for steel packaging
169	PPE and Prices
170	Training
171	Training and provision of PPE
172	Educating waste reclaimers
173	Provide with more prices
174	Education
175	Higher prices
176	Provision of PPE
177	Provision of training for schools

No.	Verbatim suggestion
178	Provision of PPE
179	Higher prices for steel cans and provision of PPE and training
180	Job
181	Training and market to sell
182	Training for people
183	Training and workshop
184	To receive more training on aerosol cans
185	PPE
186	Higher prices for steel and safety training
187	Provide PPE
188	PPE
189	Provide PPE and education to waste picker / reclaimer
190	Workshops, higher prices
191	Provide PPE
192	Higher prices and provisions of PPE
193	Provision of PPE and trainings for waste picker / reclaimer
194	More information to BBC and waste picker / reclaimer
195	Training and PPE for waste picker / reclaimer
196	Trainings and PPE
197	Training

No.	Verbatim suggestion
198	More awareness for waste picker / reclaimer
199	Getting dedicated points to separate at source
200	Training and PPE
201	Safety equipment
202	Higher prices result to more collection
203	Safety equipment for waste picker / reclaimer
204	High prices for steel packaging, educate people and providing training on how to handle aerosols safely
205	PPE and training
206	Higher prices for steel packaging will encourage more people to collect steel aerosols
207	Educating people and finding a market for steel aerosols
208	Provision of PPE
209	Training
210	Education and awareness
211	Higher prices for steel aerosols and provisions of PPE
212	Training
213	More payment
214	Provision of PPE
215	PPE and trainings
216	Training on how people should deal with the danger aerosols
217	Provide PPE and training

No.	Verbatim suggestion
218	Higher prices for aerosol steel cans
219	PPE and prices
220	Provision of PPE
221	Dedicated collection spots
222	Training to separate from others before selling
223	Trainings and provisions of PPE
224	Educating waste picker / reclaimer and PPE
225	PPE
226	Higher prices and provisions of PPE
227	No buyers around the area
228	Awareness and training for People
229	PPE and increase price
230	To receive training and higher prices
231	Write the danger of aerosol on cans
232	Increase price
233	For waste picker / reclaimer to be trained
234	More training, safety equipment and PPE
235	Transport trailer
236	Increase price
237	PPE and trolleys

No.	Verbatim suggestion
238	To have storage space, PPE and training
239	Bulk bags and trolleys
240	Increase in prices from bbcs and provision of PPE
241	Training, PPE and place to store aerosol
242	Training
243	Provide more PPE
244	PPE and increase prices
245	Price increase
246	To have training
247	Training and good selling price
248	To get training and PPE's
249	Training
250	To have training and PPE
251	Training

7.3 Appendix: Waste Picker / Reclaimer Survey Questionnaire

Safe handling of Aluminium and Steel Aerosols Waste Picker / Reclaimer Survey Questionnaire

Dear Participant,

You are invited to participate in this survey targeted at Waste Pickers / Reclaimers. We appreciate you taking the time to complete this questionnaire. Your feedback is important to MetPac-SA, as it will help us better understand the current practices, level of awareness, and challenges related to the post-consumer safe handling, disposal, and recycling of aerosol cans made from aluminium and steel. The information gathered will contribute to improving recycling systems and promoting safer handling of these materials within the recycling sector.

Confidentiality and Anonymity

Please note that your responses will remain strictly anonymous. All information collected will be combined with responses from other participants and used only for research and to develop a strategy for the safe handling and disposal of aerosols

This questionnaire consists of five sections.

Please answer all questions that are applicable to you:

Section A: Respondent Information

Section B: Awareness of Aerosol Cans

Section C: Collection and Handling Practices

Section D: Buy-Back Center Practices

Section E: Risks, Challenges, and Support Requirements

Introduction: This survey is about aerosol cans example: deodorant sprays, insect sprays, spray paint cans, and air freshener cans. The aim is to understand awareness, handling, risks, and support needs.

Your answers will remain confidential.

Section A: Background information

1. What type of work do you mainly do?

☐ Landfill waste picker / reclaimer

☐ Street waste picker / reclaimer

☐ Informal trader / buyer

☐ Both

☐ Other: _____

2. Where do you work?

☐ Municipality: _____

☐ Province: _____

3. How long have you been doing this work?

☐ Less than 1 year

☐ 1–5 years

☐ 6–10 years

☐ More than 10 years

4. What types of recyclable materials do you mainly collect or buy? (Select all that apply)

☐ Aluminium aerosol cans (deodorants)

☐ Steel aerosol cans (household)

☐ Aluminium used beverage cans

☐ Steel cans (food, paint, polish, other)

☐ Aluminium foil and trays

☐ Plastics

☐ Paper/cardboard

☐ Glass

☐ Other (Specify): _____

5. How many days in a normal week do you work with recyclable materials?

- ☐ 1–2 days
- ☐ 3–4 days
- ☐ 5–6 days
- ☐ Every day

Section B: Awareness of aerosol cans

6. How often do you collect / sell aerosol cans?

- ☐ Regularly
- ☐ Sometimes
- ☐ Never

7. What materials are aerosol cans made from? (More than one option can be selected)

- ☐ Aluminium
- ☐ Steel
- ☐ Not sure

8. Aerosol cans can be dangerous because they may still contain pressurised gas or chemicals.

- ☐ Yes
- ☐ No
- ☐ Not sure

9a. Have you ever received training or information about the safe handling of aerosol cans?

- ☐ Yes
- ☐ No

9b. If yes, from whom?

- ☐ Municipality
- ☐ Recycling company
- ☐ Non-Government Organisation
- ☐ Aerosol Manufacturers Association
- ☐ Buy-back center
- ☐ Other (Specify): _____

10. How much do you know about aerosols can safety?

- ☐ Nothing
- ☐ A little
- ☐ Some
- ☐ A lot

11. Which of these do you think can make an aerosol can dangerous? (Select all that apply)

- ☐ Gas still inside
- ☐ Chemical still inside
- ☐ Heat or fire
- ☐ Puncturing the can
- ☐ Crushing the can
- ☐ Not sure

Section C: Collection and handling practices

12. How do you collect or buy aerosol cans? (Select all that apply)

- ☐ With other metal cans
- ☐ Separately from other recyclables
- ☐ Steel and aluminium aerosols together
- ☐ Steel aerosol mixed with higher grade steel
- ☐ Do not collect or buy aerosols

13. When handling aerosol cans, what do you usually do? (Select all that apply)

- ☐ Check if they are empty
- ☐ Puncture them
- ☐ Crush them
- ☐ Dismantle and separate the parts
- ☐ Do nothing
- ☐ Other (Specify): _____

14a. Do you use personal protective equipment (PPE) when handling aerosol cans?

- ☐ Yes
- ☐ No
- ☐ Sometimes

14b. If yes or sometimes, what do you use? (Select all that apply)

- ☐ Gloves
- ☐ Boots
- ☐ Mask
- ☐ Eye protection
- ☐ Other (Specify): _____

15. Puncturing aerosol cans (making a hole in them) can be dangerous.

- ☐ Yes
- ☐ No
- ☐ Not sure

16. Do you keep aerosol cans away from heat or fire?

- ☐ Yes
- ☐ No
- ☐ Sometimes

17. Where do you keep aerosol cans before selling them?

- ☐ With other metal items
- ☐ Separately from other items
- ☐ At home
- ☐ At a storage place
- ☐ I sell them the same day
- ☐ Other (Specify): _____

18a. Have you ever experienced any of the following when handling aerosol cans?

(Select all that apply)

- ☐ Explosion
- ☐ Fire
- ☐ Gas release
- ☐ Chemical smell/leak
- ☐ Injury
- ☐ None

18b.If yes, when did this last happen?

- ☐ In the past month
- ☐ In the past 6 months
- ☐ In the past 12 months
- ☐ More than 12 months ago
- ☐ Not sure

Section D: Buy-back center practices

19. Do buy-back centers or scrap dealers accept aerosol cans from you?

- ☐ Yes
- ☐ No
- ☐ Sometimes

20. If aerosol cans are not accepted, what do you usually do?

- ☐ Throw them in general waste bins
- ☐ Leave them at landfill sites
- ☐ Find another buy-back center or scrap dealer
- ☐ Do not collect aerosol cans in future
- ☐ Other (Specify): _____

21. Why do you think some buyers do not accept aerosol cans? (Select all that apply)

- ☐ They are dangerous
- ☐ They may still be full
- ☐ The price is too low
- ☐ The buyer does not want them
- ☐ Not sure
- ☐ Other (Specify): _____

22. When buyers reject aerosol cans, how often does this happen to you?

- ☐ Often
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

Section E: Risks, challenges, and support requirements

23. What risks or challenges do you face when handling aerosol cans? (Select all that apply)

- ☐ Risk of explosion
- ☐ Lack of knowledge about safe handling
- ☐ Buy-back centers or scrap dealers do not accept aerosol cans
- ☐ Low price for aerosols/metal
- ☐ Lack of storage space
- ☐ Lack of PPE
- ☐ Other (Specify): _____

24. Which one is the biggest problem for you?

- ☐ Risk of explosion
- ☐ Lack of knowledge about safe handling
- ☐ Buy-back centers or scrap dealers do not accept aerosol cans
- ☐ Low price for aerosols/metal
- ☐ Lack of storage space
- ☐ Lack of PPE
- ☐ Other (Specify): _____

25. Do you think aerosol cans are dangerous in recycling or waste collection?

- ☐ Yes
- ☐ No
- ☐ Not sure

26. Have you received warnings about aerosol can safety from any of the following?

(Select all that apply)

- ☐ Buy-back centers or scrap dealers
- ☐ General public
- ☐ Landfill authorities
- ☐ Municipalities
- ☐ No one

27. What kind of support would help improve the safe disposal of aerosol cans?

(Select all that apply)

- ☐ Training
- ☐ Safety equipment
- ☐ Clear aerosol handling guidelines
- ☐ Higher prices for aerosols at buy-back centers
- ☐ Dedicated collection points
- ☐ Other (Specify): _____

28. Which support would help you the most?

- ☐ Training
- ☐ Safety equipment
- ☐ Clear aerosol handling guidelines
- ☐ Higher prices for aerosols at buy-back centers
- ☐ Dedicated collection points
- ☐ Other (Specify): _____

29. Do you have any suggestions on how aerosol cans could be handled or recycled more safely?

- _____
- _____
- _____

Thank you for taking the time to complete this questionnaire—your participation is greatly appreciated and will help improve recycling practices and safety within the waste management sector.

Regards

MetPac-SA Team