Material change for a better environment

Environment Agency

Quality Protocol

Flat glass

The quality protocol for the production of processed cullet from waste flat glass

This Quality Protocol was funded by Defra as a business resource efficiency activity. It was developed by the Environment Agency and WRAP (Waste & Resources Action Programme) in consultation with Defra, industry, and other regulatory stakeholders. It is applicable in both England and Wales. It sets out criteria for the production of processed cullet from waste flat glass.

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Foreword

Background

The Waste Protocols Project is a Department for Environment, Food and Rural Affairs (Defra) funded business resource efficiency activity run as a joint initiative between the Environment Agency and WRAP (Waste & Resources Action Programme).

Uncertainty over the point at which waste has been fully recovered and ceases to be waste within the meaning of Article 1(1)(a) of the EU Waste Framework Directive (WFD) (2006/12/EC) has inhibited the development and marketing of materials produced from waste which could be used beneficially without damaging human health and the environment. In some cases, this uncertainty has also inhibited the recovery and recycling of waste and its diversion from landfill.

Interpretation of EU legislation is ultimately a matter for the European Court of Justice and there is now a substantial body of case law on the interpretation of the definition of waste in Article 1(1)(a) of the WFD. Drawing on the principles established in this case law, it is possible to identify the point at which certain wastes cease to be waste and thus when the WFD's waste management controls no longer apply. This identification is the purpose of the waste protocols project.

More specifically, depending on the circumstances of the waste stream concerned, the project seeks to achieve the following outcomes:

- to produce a Quality Protocol identifying the point at which waste, having been the subject of a complete recovery operation, may become a non-waste product or material that can be either reused by business or industry, or supplied into other markets, enabling such fully recovered products to be used without the need for waste management controls; and
- to produce a statement that confirms to the business community what legal obligations they must comply with to use the treated waste material.

What is a Quality Protocol?

A Quality Protocol sets out criteria for the production of a product from a specific waste type. Compliance with these criteria is considered sufficient to ensure that the fully recovered product may be used without harm to human health or the environment and therefore without the need for waste management controls. In addition, the Quality Protocol indicates how compliance may be demonstrated and points to best practice for the use of the fully recovered product.

The Quality Protocol further aims to provide increased market confidence in the quality of products made from waste and so encourage greater recovery and recycling.

1. Introduction

1.1 What is this Quality Protocol?

1.1.1 This Quality Protocol has been developed by WRAP (Waste & Resources Action Programme) and the Environment Agency in consultation with industry and other regulatory stakeholders. It is applicable in both England and Wales.

1.1.2 The Quality Protocol sets out criteria for the production of *processed cullet* from *waste flat glass*. If these criteria are met, the processed cullet will normally be regarded as having been fully recovered and to have ceased to be waste when it has been despatched to the customer.

1.1.3 *Producers* and *users* are not obliged to comply with the Quality Protocol. If they do not, the processed cullet will be considered to be waste and *waste management controls* will apply to its handling, transport and application.

1.1.3 Definitions for terms that appear in *italics* when they are first used in the Quality Protocol are provided in Appendix A.

1.2 The purpose of the Quality Protocol

1.2.1 This Quality Protocol has three main purposes:

- to clarify the point at which waste management controls are no longer required;
- to provide users with confidence that the processed cullet they purchase conforms to an *approved standard*; and
- to protect human health and the environment by setting standards for the production and use of processed cullet in specified end uses and describing acceptable good practice for its use.

1.3 Complying with the Quality Protocol

1.3.1 Processed cullet will normally be regarded as having been fully recovered and to have ceased to be waste, and therefore no longer subject to waste management controls when despatched to the customer, provided it:

- has been produced using only those input materials specified in section 2.2.3;
- has been processed so as to meet an approved standard specified in section 2.2.4; and
- is destined for appropriate use in one of the *designated market sectors* listed in Appendix B.

Processed cullet must not be used in such a way as to adversely affect human health or the environment, thus not undermining the aims of the Waste Framework Directive and Water Framework Directive.

1.3.2 Producers must be able to demonstrate that these criteria have been met. They can do this by producing and keeping copies of the customer supply documentation which include a *declaration of conformance* with this Quality Protocol as set out in Section 3.

1.3.3 Producers of processed cullet should note that, regardless of whether the criteria set out in 1.3.1 are met, the processing of waste flat glass to produce processed cullet and its storage on the site of production will continue to be covered by a *permit*. However, if processed cullet is produced and used in accordance with this Quality Protocol it will cease to be waste and waste management controls will not apply once it is despatched to a customer.

1.3.4 If processed cullet is mixed with waste materials, the resulting material will be considered to be a waste and will be subject to waste management controls.

1.3.5 If processed cullet that complies with the Quality Protocol is blended with non-waste materials the blend will not be waste.

1.4 Failure to comply with the Quality Protocol

1.4.1 Where this Quality Protocol is not complied with, for example the processed cullet does not meet an approved standard, or the producer cannot demonstrate evidence of compliance, the processed cullet produced will be considered to be waste. In such circumstances, the producer/user must comply with the appropriate waste management controls for the transportation, storage and use of the processed cullet, and failure to do so would constitute an offence.

1.4.2 Detailed guidance on waste management controls can be obtained from the Environment Agency's National Customer Contact Centre on 08708 506 506 or from its website (www.environment-agency.gov.uk).

1.4.3 It must be demonstrated that the processed cullet will actually be used in one of the designated market sectors. Producers, processors and users of processed cullet should note that, even if the Quality Protocol is complied with, the material will still be waste and subject to waste management controls if, for example, it is at any stage:

- disposed of;
- used for any market other than those specified in Appendix B;
- stored indefinitely with little prospect of being used; and
- used in a way that poses a risk to human health or the environment.

1.5 Updating the Quality Protocol

1.5.1 It is proposed to review and update this document in April 2010 and every two years thereafter.

1.5.2 However, this document may be subject to change before the review dates. Triggers for change could include a change in the market and a change in legislation or case law.

1.5.3 This Quality Protocol may be withdrawn if it becomes apparent that it is generally being misapplied and/or misused.

1.5.4 This Quality Protocol will be adopted as a technical regulation under Technical Standards and Regulations Directive 98/34/EC as amended[1]. We recognise that there may be codes of practice or standards which apply in *European Economic Area* (EEA) States other than the UK setting out requirements for the production of processed cullet from waste flat glass. We accept that processed cullet may cease to be waste when despatched to a customer provided that it has been produced in compliance with:

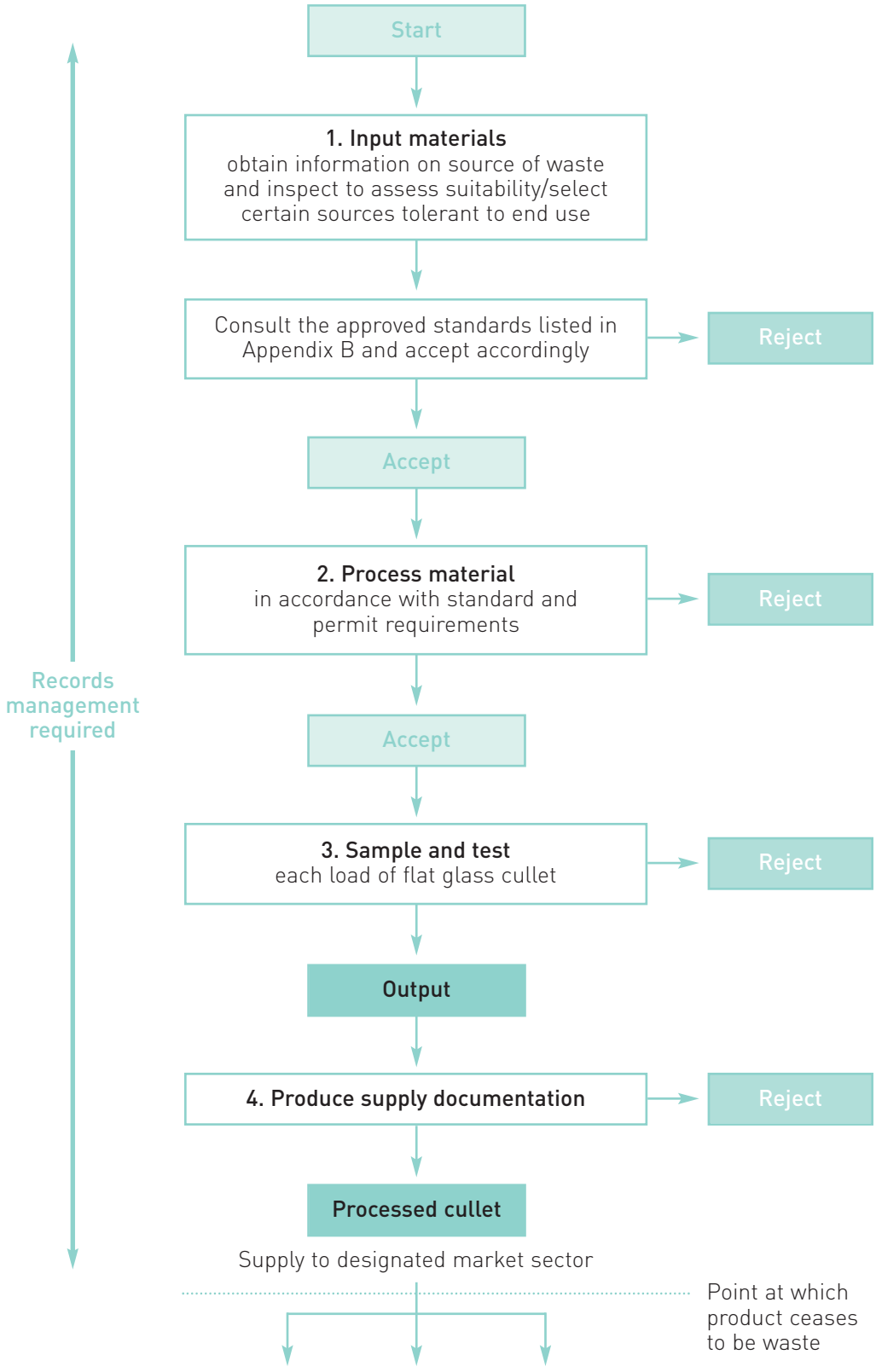
- a relevant standard or code of practice of a national standards body or equivalent body of any EEA State; or
- any relevant international standard recognised for use in any EEA State; or
- any relevant technical regulation with mandatory or de facto mandatory application for marketing or use in any EEA State

giving levels of product performance, protection of human health and the environment which are equivalent to those required to ensure compliance with this Quality Protocol.

1.5.5 An outline of the main stages and control mechanisms of the Quality Protocol is presented in Figure 1. These are described further in Sections 2 and 3.

1 The Technical Standards and Regulations Directive 98/34/EC seeks to ensure the transparency of technical regulations and is intended to help avoid the creation of new technical barriers to trade within the European Community.

Figure 1 Key stages and control mechanisms of the Quality Protocol



2. Producing processed cullet from waste flat glass

2.1 Regulating the production processes

2.1.1 The process of turning waste flat glass into processed cullet is classified as a waste recovery operation and is subject to the waste management controls in the Waste Framework Directive. This Quality Protocol does not affect the obligation by producers to comply with all the conditions of the permit that applies to the processing of waste flat glass.

2.2 Criteria for producing processed cullet that has been fully recovered and ceased to be waste

2.2.1 Waste flat glass from any source has the potential to be used in a wide variety of applications. However, whether this is achievable will depend on the systems in place for its collection, segregation and processing.

2.2.2 The following criteria must be met in order to produce a processed cullet that will normally be regarded as having been fully recovered and to have ceased to be waste when despatched to the customer:

2.2.3 Input controls:

- The cullet must be produced using only those input materials[2] specified in:
  a. The approved standard relevant to the market into which the cullet will be sold, and
  b. The relevant good practice guides listed in Appendix C.
- To ensure that only the appropriate types of waste flat glass are accepted, the producer must have, and maintain, procedures in the form of *acceptance criteria*.

2.2.4 Requirements of an approved standard to be observed:

- The producer must comply with all the requirements of an approved standard applicable to the designated market into which the processed cullet will be sold. Appendix B lists the standards that apply to processed cullet for various end uses at the time of publishing this Quality Protocol.
- In order to achieve one of the approved standards listed in Appendix B, waste flat glass must undergo sufficient processing. In some cases, the approved standard dictates the level of processing that must be undertaken. Where processing levels are not detailed, it is expected that, as a minimum, the processing steps detailed in Appendix D will be undertaken to enable physical contamination to be removed. These steps will vary depending on the source of the input materials.
- Tools and machinery containing nickel should not be used for the processing and transport of cullet. Nickel contamination will produce defects within the glass which are impossible to detect on the production line but can cause critical failure of products later in the products life.
- If the sampling indicates that the material does not meet the approved standard, the load must be rejected or, if appropriate, put back through the production process.
- Producers should be aware that any standard may be subject to regular review and they must ensure they comply with the latest revision. Changes to any of the standards in Appendix B should take immediate and automatic effect. Additional standards may be approved for inclusion in the Quality Protocol when it is reviewed.

2 Types of waste flat glass that are likely to be suitable for the production of processed cullet are classified under *European Waste Catalogue (EWC) codes*: 10 11 99; 16 01 20; 17 02 02; 19 12 05; and 20 01 02.

2.2.5 Designated market sectors:

- Processed cullet must be destined for appropriate use within one of the market sectors set out in Appendix B.
- This Quality Protocol does not include the use of processed cullet as an aggregate as this falls within the scope of the Quality Protocol for the production of aggregates from inert waste[3]. Please note that this includes processed cullet intended for use in the sports turf market as a sand substitute.
- This Quality Protocol does not apply to container glass, glass bead, foam glass, paint filler and fibre glass as publicly available specifications for these end uses are not currently available.

3 http://www.wrap.org.uk/downloads/0083_Quality_Protocol_A4.3233efb3.pdf

3. Providing evidence of compliance with the Quality Protocol

3.1 Producers must be able to demonstrate compliance with the requirements of this Quality Protocol and of the approved standard. Evidence of compliance must be provided by retaining copies of supply documentation issued to the customer.

3.2 Supply documentation is provided to the customer and should include the following information:

- date of supply;
- quantity by weight/volume and *batch*;
- name and address of receiving business/establishment;
- nature of receiving business/establishment;
- a *quality statement* to the approved standard to which the material has been produced; and
- statement of conformance to this Quality Protocol.

3.3 Records must also be kept of incoming wastes. As a minimum, a record of each load delivered to site must be kept giving:

- date;
- European Waste Catalogue (EWC) code and description;
- place of origin (where known);
- quantity of weight/volume;
- carrier;
- supplier; and
- whether the load was accepted.

3.4 Records of all testing carried out for compliance with the approved standard must be made and retained.

3.5 All records must be made available by the producer and must be retained for a minimum of two years.

3.6 These requirements are additional to any statutory record-keeping requirements under waste management controls. However, operators should note that some records may be used to fulfil both a regulatory and evidence of compliance function.

Appendix A: Definitions

In this Quality Protocol the words and phrases below have the following meanings.

Term	Description
Acceptance criteria	Written procedures that set out the process for identifying types and quality of waste which may be accepted as an input to the production process. The process for rejecting loads will also be included in acceptance criteria. As a minimum, acceptance criteria should fulfil the requirements of the relevant standard.
Approved standard	The standards listed in Appendix B and any other standard that is approved by the Environment Agency for inclusion in this Quality Protocol. Approved standards may be supplemented by more comprehensive customer specifications.
Batch	Quantity of product manufactured by the same process under the same conditions, labelled in the same manner and assumed to have the same characteristics. Where the processing system operates on a continuous basis, batches may also be referred to as 'portions of production'.
Clear cullet	Clear broken or waste glass from flat glass or window manufacturing, waste window glass and some tinted glass.
Conformance statement	A statement issued by the producer to state that the material to which the declaration applies has been produced in conformance with this Quality Protocol. May be part of the Quality Statement.
Designated market sectors	The sector(s) in which this Quality Protocol enables processed cullet to be sold without the requirement to comply with relevant waste legislation.
European Economic Area (EEA)	The EEA States consist of the members of the EU (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK) together with Iceland, Liechtenstein, Norway and Switzerland. Although the Channel Islands and the Isle of Man are part of the UK, they are not part of the EU and businesses registered there are subject to different licensing legislation.
European Waste Catalogue (EWC) code	European Waste Catalogue (EWC 2002 and amendments) – comprehensive list of waste codes and descriptions based on waste source and type.
Mixed cullet	Coloured or tinted broken or waste glass from flat glass or windows which may be tinted or laminated.
Permit	Environmental permits or exemptions issued under the Environmental Permitting (England and Wales) Regulations 2007, which came into force on 6 April 2008, or a position adopted by the Environment Agency in accordance with its guidance on the regulation of low-risk activities. From 6 April 2008, the following automatically became environmental permits: ■ PPC permits issued under the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended); and ■ Waste Management Licences (WMLs) issued under the Environmental Protection Act 1990 (as amended). Exemptions from the need for a Waste Management Licence, registered under Regulation 18 and Schedule 3 of the Waste Management Licensing Regulations 1994 (as amended) will now come under schedule 3 of the Environmental Permitting (England and Wales) Regulations 2007.

continued

Term	Description
Processed cullet	Waste flat glass that has been processed in accordance with this Quality Protocol and which will normally be regarded as having been fully recovered and to have ceased to be waste when it has been despatched to the customer.
Producer(s)	The operator who undertakes the production process.
Quality Statement	Documentation accompanying each load or consignment of processed cullet, which details the standard to which the product complies, the batch number. May include a conformance statement.
User(s)	The individuals or organisations that obtain flat glass cullet from a producer.
Waste flat glass	Unprocessed waste flat glass as collected or which has undergone minimal processing.
Waste management controls	Controls under legislation that govern the treatment, handling, containment and storage of waste.

Appendix B: Standards to which this Quality Protocol applies

Market	Standard
Brick and ceramics	BSI PAS 102: 2004 Sections 4 and 5
Abrasive	BSI PAS 102: Section 8 and ISO 11127[4]
Flat glass	BREW Waste Protocols Project, 2007 *Specification for flat glass cullet waste used in flat glass manufacture*.

Processed cullet destined for the aggregate or sports turf markets falls within the scope of the Protocol for the production of aggregates from inert waste. This can be downloaded from the WRAP website (www.wrap.org.uk).

Copies of PAS 102[5] can be obtained free from WRAP (e-mail: helpline@wrap.org.uk or call 0808 100 2040). An introduction to PAS 102 can be downloaded from the WRAP website (www.wrap.org.uk).

A copy of the flat glass specification is available to download from the Environment Agency website (www.environment-agency.gov.uk).

It is recognised that the customer may specify particular requirements in addition to those within the approved standard.

4 ISO 11127 *Preparation of steel substrates before application of paints and related products. Test methods for non-metallic blast cleaning abrasives*.

5 PAS102 *Specification for processed glass for selected secondary end markets*. Although this standard refers primarily to container glass, it can equally be applied to flat glass.

Appendix C: Sources of guidance on good practice for the collection, segregation, recovery and recycling of waste flat glass

- BSI PAS 101: 2003 *Recovered container glass – specification for quality and guidance for good practice in collection*[6]
- BSI PAS 102: 2004 *Specification for processed glass for selected secondary end markets*[7]
- WRAP – *Recycling your window waste: a good practice guide*. Available from: www.wrap.org.uk/downloads/FlatGlassGoodPracticeGuide.01812236.pdf [Accessed 28th April 2008].
- Waste Protocols Project, 2007a *Collection of flat glass for use in flat glass manufacture – a good practice guide*. Waste Protocols Project Report. Bristol: Environment Agency; Banbury: WRAP. [anticipated publication by June 2008 – draft available at www.environment-agency.gov.uk/subjects/waste/1019330/1334884/1900973/?lang=_e
- Waste Protocols Project, 2007b *Specification for flat glass cullet waste used in flat glass manufacture*. Waste Protocols Project Report. Bristol: Environment Agency; Banbury: WRAP. [anticipated publication by June 2008 – draft available at www.environment-agency.gov.uk/subjects/waste/1019330/1334884/]

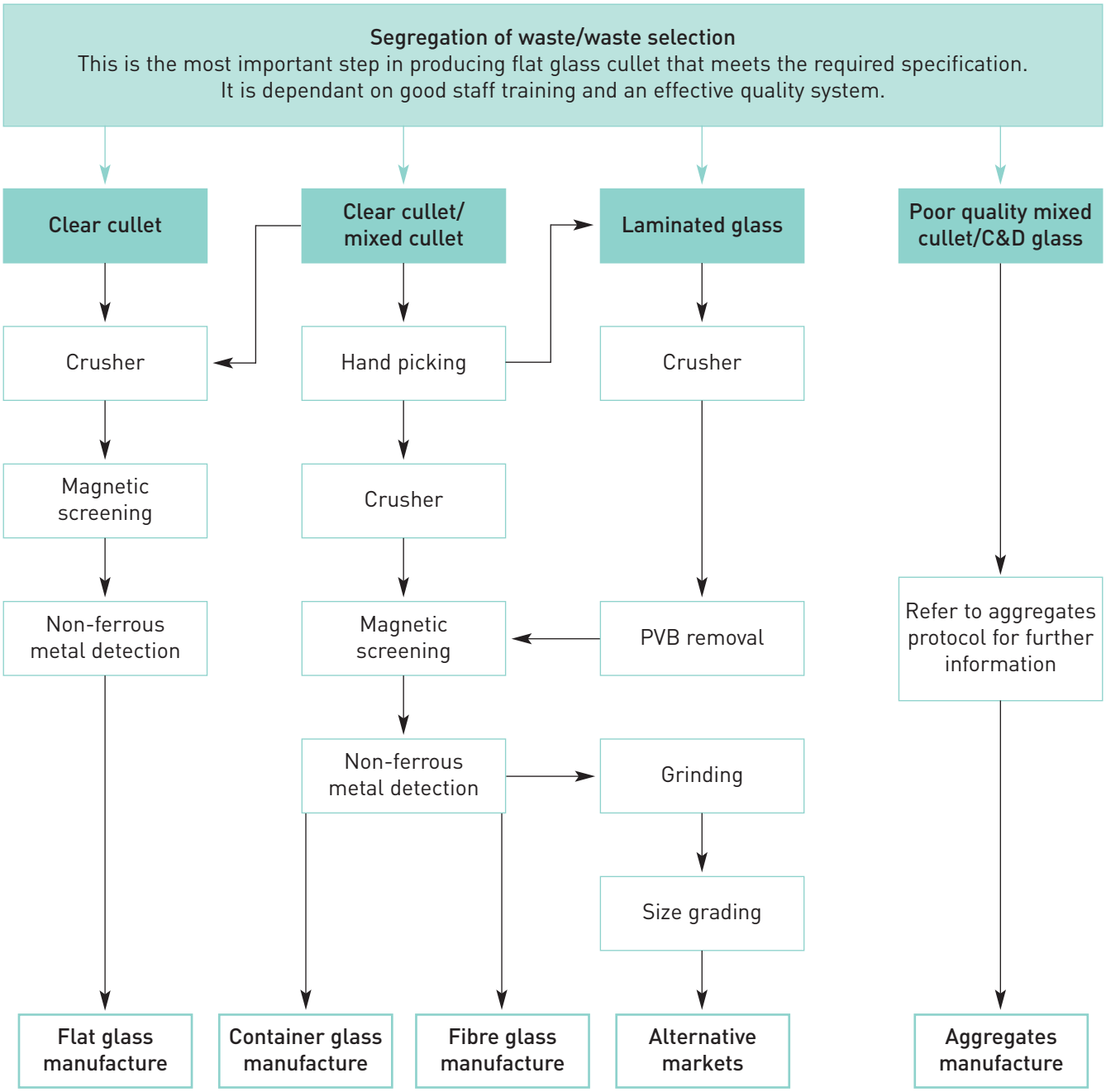
Where guidance for flat glass is not available, equivalent guidance for container glass has been cited. It is considered that good practice and specifications which relates to container glass can equally be applied to flat glass.

6 PAS 101 refers to container glass but is considered can be equally applied to flat glass.

7 PAS 102 refers to container glass but is considered can be equally applied to flat glass with the exception of the water filtration media application where plate (flat) glass, amongst other materials, are excluded from the allowable input wastes.

Appendix D: Minimum processing steps required to produce cullet for end markets

Figure 2 Minimum processing steps required to produce cullet for end markets



Please note: The point at which product ceases to be waste is shown in detail in Figure 1 on page 4.

Waste & Resources Action Programme

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recycle