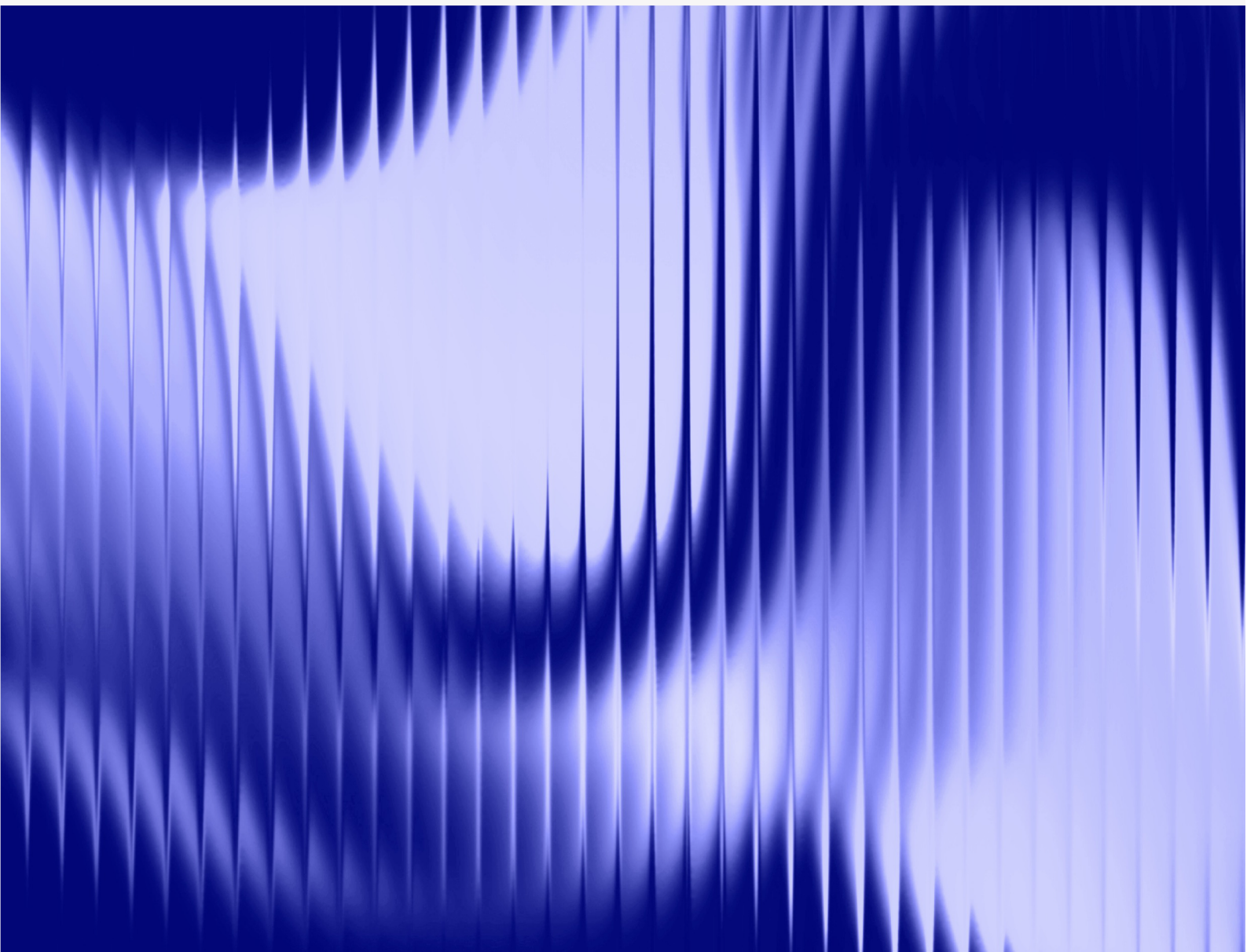
Responsible Glass

Sustainability standards

# RESPONSIBLEGLASS INTERNATIONAL STANDARD FOR GLASSMAKING

## DRAFT STANDARD

**Draft 1-0** | 20 July 2026



Responsible Glass
Sustainability standards

Version History

| No. | Date | Description |
|---|---|---|
| | | References to section numbers follow the section numbers of the listed (i.e. later) version. Note that section numbers may change between successive revisions. |
| Draft 1-0 | 20 July 2026 | First Draft Standard for Public Consultation |

Disclaimer

The official language of this document is English. The definitive version is held on the ResponsibleGlass website https://www.responsibleglass.org/ Any discrepancy between copies, versions or translations shall be resolved by reference to the definitive English version.

Responsible Glass
Sustainability standards

## About ResponsibleGlass

ResponsibleGlass is a not-for-profit company established in England in 2025 with the objectives of:

(a) maximising the contribution of glass to a sustainable society;

(b) enhancing the responsible sourcing, production, use and recycling of glass by:

(i) providing a multi-stakeholder forum to build trust and achieve consensus in relation to responsible production, processing, transportation, use and recycling of glass including aspects associated with the responsible production, processing and supply of raw materials used for glassmaking;

(ii) developing international standards and certification and related tools; and

(iii) driving positive change through the recognition and use of responsible glass;

(c) acting as a forum to exchange information and experience between multiple stakeholders;

(d) collaborating, where appropriate, with other national and international associations and standards setting organisations to promote responsible glass.

## The ResponsibleGlass Vision

The vision of ResponsibleGlass is a world where glass is made, used and re-used or recycled responsibly, protecting people and planet.

## About this document

This document is the first draft of the ResponsibleGlass International Standard for Glassmaking. It has been written by the ResponsibleGlass Secretariat for public consultation with businesses up and down the glass supply and value chain, and with stakeholders and rightsholders affected by or interested in the impacts of glassmaking, in conformity with the requirements of the ResponsibleGlass International Standards Development Procedures, Version 1.0.

Comments or suggestions are welcome and should be sent to the ResponsibleGlass Secretariat at: standards@responsibleglass.org, with the subject line 'Comment: ResponsibleGlass Preliminary Standard'.

This document, as well as the terms of reference for its development, and the ResponsibleGlass standards development procedures are publicly available, and may be downloaded without charge from the ResponsibleGlass website at www.responsibleglass.org/.

Responsible Glass
Sustainability standards

## Table of Contents

Responsible Glass
Sustainability standards

## Status of this document, and next steps [FOR INFORMATION NOT PART OF STANDARD]

This document presents the first draft version (v1-0) of the ResponsibleGlass International Standard for Glassmaking ('the Standard'). It has been written by the ResponsibleGlass Secretariat, taking account of stakeholder feedback on the ResponsibleGlass International Standard for Glassmaking: Preliminary Proposals, published on 9 April 2026, in conformity with the requirements of the ResponsibleGlass International Standards Development Procedures, Version 1.0.

The Standard is intended to meet the International Standard for Glassmaking: Terms of Reference V1-0, published on 19 February 2026, and available for download from the ResponsibleGlass website.

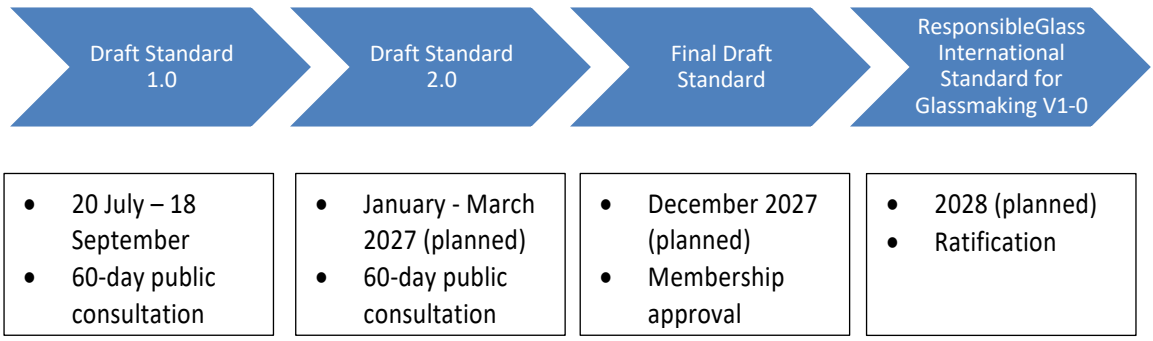
This draft Standard is intended to provide a basis for discussions with businesses up and down the glass supply and value chain, and with stakeholders and rightsholders affected by or interested in the impacts of glassmaking.

The proposals put forward in this draft do not represent positions or commitments taken by any ResponsibleGlass Members, Supporters or stakeholders. Nor do they represent policy or other positions of ResponsibleGlass Board Members, or of ResponsibleGlass as an organization.

This draft Standard will be available for a 60-day period from 20 July 2026 through to 18 September 2026 for public comment and feedback. Comments or suggestions are welcome from all parties, whether or not they are ResponsibleGlass Members or Supporters, and should be sent to the ResponsibleGlass Secretariat at: standards@responsibleglass.org, with the subject line 'Comment: ResponsibleGlass Glassmaking Standard'. Comments received will be collated and published at the end of the consultation period, together with a record of all parties submitting comments. Comments will be attributed unless otherwise requested.

The ResponsibleGlass Secretariat will then be carrying out further consultations and discussions with ResponsibleGlass Members, Supporters and other interested parties on this draft through to the end of December 2026. The feedback and further research will be used as the basis for the development of a second draft, planned for publication early in 2027.

The second draft Standard will then also be available for a 60-day period of public consultation, prior to further consultation, review and revision. A final draft will be submitted to the ResponsibleGlass membership for a vote on its approval, prior to ratification by the ResponsibleGlass Board of Directors, planned for 2028.



Responsible Glass
Sustainability standards

# ResponsibleGlass International Standard for Glassmaking DRAFT Version 1-0

## i. Introduction

### Objectives

The ultimate aim of the ResponsibleGlass International Standard for Glassmaking ('the Standard') is to maximise the contribution of glass to a sustainable society, as described in the ResponsibleGlass Vision and Mission. The intended sustainability outcomes of the Standard are to mitigate the negative impacts of glassmaking and enhance its positive impacts in relation to: occupational health & safety; labour rights; human rights; local communities; greenhouse gas (GHG) emissions; noise, emissions, effluent, waste; water stewardship; biodiversity; and circularity.

In order to achieve its sustainability outcomes, the Standard specifies requirements relating to:

- Policy and Management Systems
- Responsible Business Aspects
- Responsible Sourcing of Input Materials
- Responsible Production: Environmental and Social Aspects
- Design for Sustainability and Circularity

Conformity with the requirements of the Standard is voluntary. The Standard is designed to achieve the intended sustainability outcomes through the recognition and use of glass that has been made in conformity with the Standard's requirements, and the value such recognition generates for glassmakers, their customers, and other stakeholders and rightsholders.

Requirements specified in the Standard go beyond minimum legal requirements in many countries. Where the requirements of the Standard are more stringent than legal minimum requirements, or vice versa, the more stringent requirements shall prevail.

If there is a direct conflict between the requirements of the Standard and a facility's legal obligations the legal obligations shall prevail, even if this may preclude a facility from achieving certification.

**Scope of application**

Figure 1 illustrates the processes for the production of glass products, from the extraction of raw materials through to the manufacture of assembled or composite products containing glass.

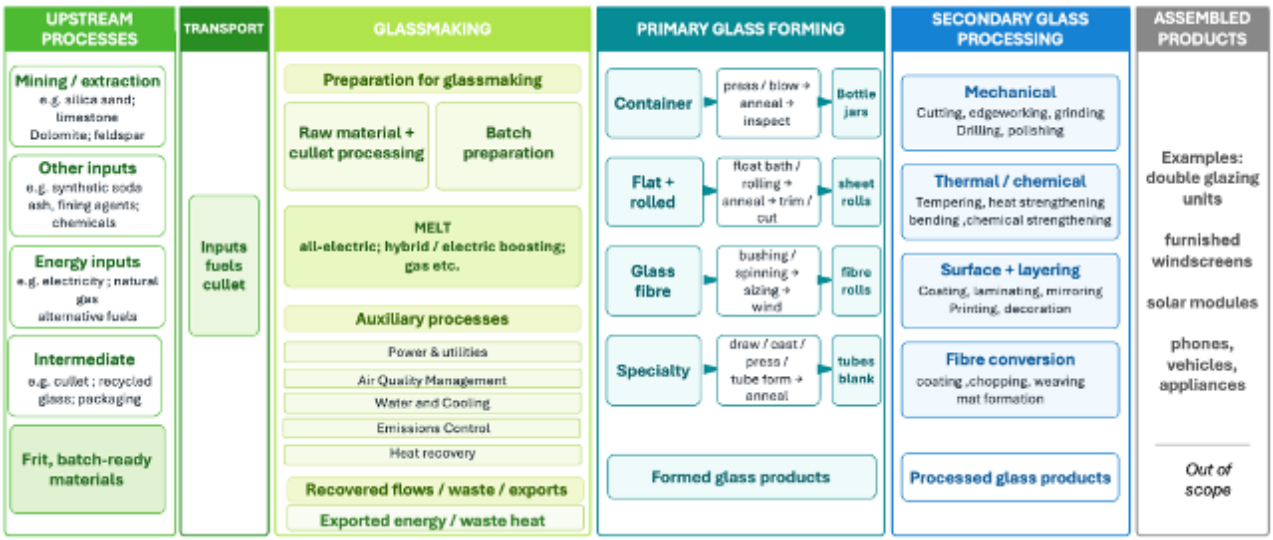



***Figure 1.*** *Illustration of processes for the production of glass.*

The Standard is directly applicable to glassmaking facilities, defined as facilities where glass is produced from raw materials at an industrial scale, including facilities making flat glass, container glass and glass fibre, as well as facilities making glass for other product categories.

The range of activities taking place within the boundary of a facility will vary. The requirements of the Standard apply to all processes and activities taking place within the glassmaking facility boundary including the preparation of input materials, the production of glass in the furnace, and its further processing at the facility, as illustrated in the simplified schematic in Figure 2.

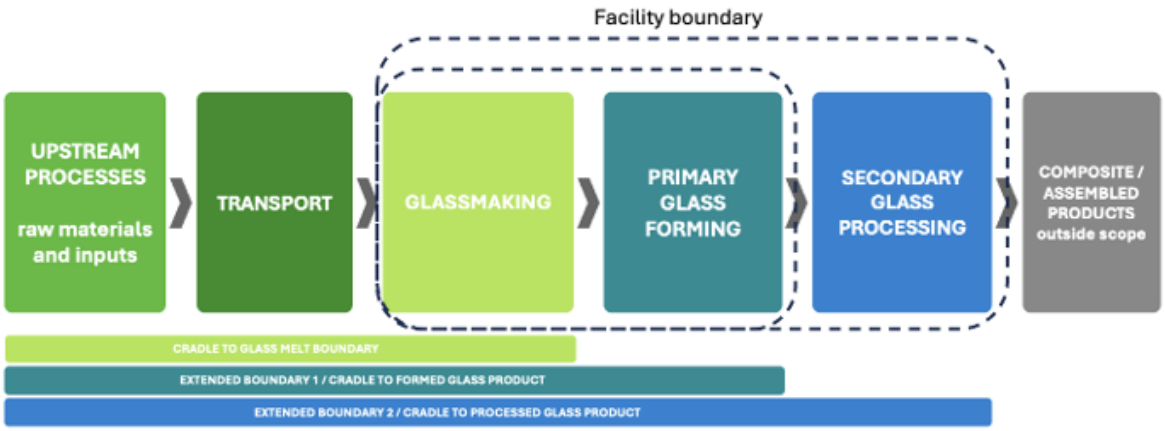



***Figure 2.*** *Schematic of glassmaking facility and facility scope boundary*

The Standard is not applicable to facilities where glass is not produced from raw materials – i.e. sites without a furnace for melting glass, such as upstream sites processing input materials, or downstream sites in which glass is subject to further processing or manufacturing.

The scope of assessment at a glassmaking facility includes:

- The application of policies and management systems for environmental, social and governance responsibility
- The facility's sourcing of materials and energy for glassmaking
- The social and environmental impacts of the processes and activities taking place at the facility, including in relation to the preparation of materials for glassmaking, glassmaking itself, and further processing activities taking place at the facility
- The facilities engagement with external stakeholders and rights holders, as specified in the Standard
- The disclosure of sustainability data relating to the facilities operations, as specified in the Standard

The 'ESG scope boundary' therefore includes consideration of upstream impacts through the specification of requirements for responsible sourcing, as illustrated in Figure 3, but does not require the direct assessment of upstream sites in order to verify conformity with the requirements of the Standard.

In some cases, the Standard specifies aspects that relate to the facility, but for which policies may be specified by, and/or for which the responsibility for implementation may rest with, other parties such as the facility's corporate owner(s), its suppliers of input materials, or service providers. In such cases the facility under assessment shall be able to demonstrate that the requirements are effectively implemented at the facility itself, as specified in the Standard.

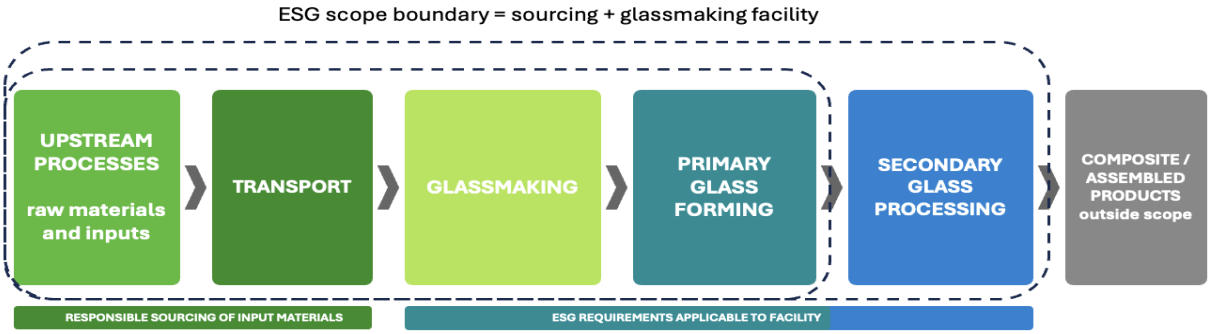



***Figure 3.*** *Illustration of the 'ESG Scope Boundary' including consideration of upstream processes*

The scope of assessment does not include the activities of sites outside of the facility's boundary, for example in relation to further processing and manufacturing of the facility's outputs. The social and environmental aspects of such further processing and manufacturing may be covered in future, within the scope of the ResponsibleGlass Downstream Chain of Custody Standard as illustrated in Figure 4, planned for separate development.

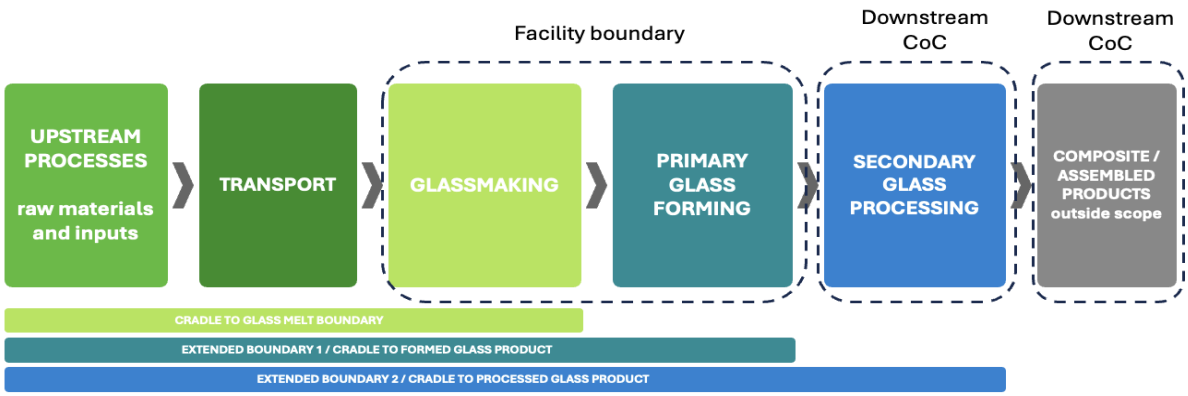



***Figure 4.*** *Illustration of relationship between the facility boundary for a glassmaking facility, and organisational boundaries for downstream manufacturing sites.*

The Standard is not intended to apply to service providers, mine sites, sites processing or manufacturing input materials for glassmaking, or sites carrying out further processing or manufacturing of glass or glass products, unless these activities take place within the boundaries of the glassmaking facility under assessment.

Where requirements are applicable only to specific categories of users (for example users making flat, container, fibre or other categories of glass, this is specified. Additional guidance may be developed and published as experience of implementation is built up over time.

**Standard Layout**

The requirements of the Standard are organised into five parts, A to E, and 19 sections, as shown in Table 1.

Responsible Glass
Sustainability standards

| Part A: Policy and Management Systems<br>Section 1: Management Systems | | | | |
|---|---|---|---|---|
| **Part B: Responsible Business Aspects:** | **Part C: Responsible Sourcing of Materials & Energy** | **Part D: Responsible Production** | | **Part E: Design for Sustainability and Circularity** |
| | | **Environmental Aspects** | **Social Aspects** | |
| Section 2: Legal compliance and Anti-Corruption<br>Section 3: Stakeholder Engagement and Communication<br>Section 4: Transparency and Reporting | Section 5: Mined/ extracted input materials<br>Section 6: Synthesised input materials<br>Section 7: Recovered input materials<br>Section 8: Energy inputs<br>Section 9: Packaging materials | Section 10: Greenhouse Gas Emissions<br>Section 11: Water Stewardship<br>Section 12: Biodiversity<br>Section 13: Noise, Emissions, Effluents and Waste Management | Section 14: Occupational Health and Safety<br>Section 15: Labour Rights<br>Section 16: Human Rights<br>Section 17: Local Communities and Rights Holders | Section 18: In-use impacts<br>Section 19: End-of-life impacts |

**Table 1.** Layout of the ResponsibleGlass International Standard for Glassmaking

Part A (Management Systems) provides the foundation and framework for all other aspects of the Standard. The intent is to establish the 'Plan Do Check Act' approach as the basis for implementation of all aspects of the Standard. Parts B, C, D and E then specify standardised social and environmental requirements, methodologies and such like, which can be integrated into the management systems specified in Part A.

### Verification of Conformity

The requirements of the Standard are designed for independent verification. Each Section consists of a number of requirements. For a facility to achieve and maintain certification it must meet all the specified requirements.

Minor non-conformities with the specified requirements do not preclude certification but must be corrected within a specified period of time. Major conformities, or minor conformities which are not corrected within the specified timeframe, will prevent the issue of a certificate, or result in a certificate being suspended or withdrawn.

### Claims, Product Labelling and Chain of Custody

The proposed approach to claims, product labelling and Chain of Custody is illustrated in Figure 5. Draft proposals in relation to the development of the ResponsibleGlass Downstream Chain of Custody and Claims Standard are provided in Annex 2, for information only.

Conformity with the requirements of the Standard applies at the level of a certified facility, and supports claims to the effect that 'Facility X has been certified as conforming with the requirements of the ResponsibleGlass International Standard for Glassmaking, Version X.X'.

Conformity with the requirements of the ResponsibleGlass International Standard for Glassmaking, on its own, does not allow a certified facility to make claims about the glass products produced at the site, nor to use ResponsibleGlass Trademarks to label or market its products.

In order to make claims about glass products produced at the facility, and/or to use the ResponsibleGlass Trademarks to label glass products produced at the facility, the facility must meet additional chain of custody requirements, specified in the ResponsibleGlass Downstream Chain of Custody and Claims Standard, and sign a trademark licensing agreement with ResponsibleGlass.

Downstream customers wishing to use the ResponsibleGlass Trademarks themselves, either to promote their use of ResponsibleGlass certified glass products, or to label their own products (made with ResponsibleGlass certified glass), must themselves be certified as meeting the requirements of the ResponsibleGlass Downstream Chain of Custody and Claims Standard, and sign a trademark licensing agreement with ResponsibleGlass.

Downstream customers selling products that have already been labelled with the ResponsibleGlass trademark by their suppliers are not themselves required to be chain of custody certified. However, they will be required to sign a Trademark licensing agreement with ResponsibleGlass if they wish to use the ResponsibleGlass trademarks themselves, to market or promote their sales of ResponsibleGlass certified glass products.

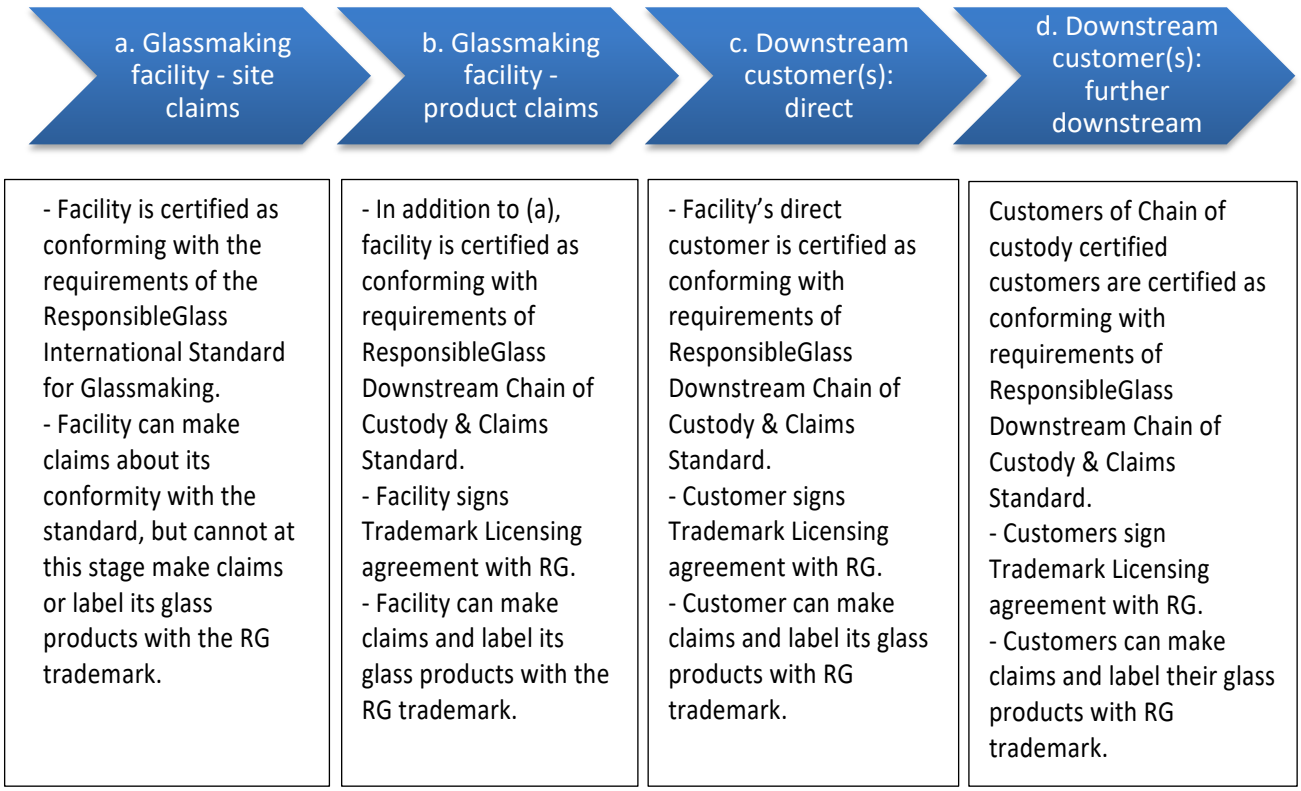



**Figure 5.** Illustration of proposed approach to ResponsibleGlass claims and product labelling.

## ii. ResponsibleGlass Glossary of Terms

The specific meaning of terms used in ResponsibleGlass Standards may be highly significant to the understanding of the Standards.

ResponsibleGlass maintains a Glossary of Terms ('Glossary') intended to provide a consistent reference point for terms used in all ResponsibleGlass Standards, Guidance, Policies and Procedures documents across the ResponsibleGlass programme. This is to avoid duplication and ensure that consistency is maintained across all ResponsibleGlass documents over time.

The Glossary is published as a separate document and is consulted on at the same time as draft versions of Standards. The Glossary will continue to be updated regularly to include new terms as they are used and defined after the glassmaking Standard has been finalized.

The definitions of terms in the ResponsibleGlass Glossary are definitive for the purpose of interpreting ResponsibleGlass Standards, Guidance, Policies and Procedures.

Where possible, definitions and explanations have been adopted (or modified) from existing international or other standards and widely referenced sources, and references have been provided.

The ResponsibleGlass Glossary of Terms is publicly available, and the current version may be downloaded without charge from the ResponsibleGlass website at www.responsibleglass.org/.

Responsible Glass
Sustainability standards

# Requirements

## Part A: Management Systems

### 1. Management Systems

Formal management systems are widely recognised as providing a robust framework for achieving an organisation's goals, without prescribing what those goals should be. In addition, the implementation of an effective management system provides the basis for verification of performance over time.

ISO management system standards are widely respected and broadly implemented by glassmaking businesses.

**Overview**

ResponsibleGlass certified glassmaking facilities conform with the requirements of core ISO management systems standards (or equivalent) in relation to: quality management; environmental management; and occupational health and safety management.

**Requirements**

1.1 The facility meets the requirements of *ISO 9001:2026 Quality management systems — Requirements* (or equivalent).

1.2 The facility meets the requirements of *ISO 14001:2026 Environmental management systems — Requirements with guidance for use* (or equivalent).

1.3 The facility meets the requirements of *ISO 45001:2018 Occupational health and safety management systems — Requirements with guidance for use* (or equivalent).

NOTE: the proposed requirement to meet the requirements of *ISO 45001:2018* is closely related to the requirements of Section 14 on Occupational Health & Safety – please refer to Section 14.

1.4 The facility has integrated the requirements of the other sections of the ResponsibleGlass International Standard for Glassmaking into its quality management systems.

**Consultation Questions**

**1a.** General comments on the content of this section.

**1b.** Do you agree that conformity with the requirements of these management system standards should be a requirement?

**1c.** Are there any other international standards that you believe facilities should be required to meet in order to achieve ResponsibleGlass certification?

Responsible Glass
Sustainability standards

# Part B: Responsible Business Aspects

## 2. Legal compliance and Anti-Corruption

Corruption and illegal activities undermine local and international efforts designed to promote more sustainable practices, in addition to undermining broader social structures.

**Overview**

The section includes three key elements: that the facility operates under a general policy to comply with applicable laws and regulations; that the facility operates under a formal anti-corruption policy; and that the facility discloses historical as well as ongoing legal cases made against it.

**Requirements**

2.1 The facility operates under a documented code of ethical conduct or similar instrument, which includes a commitment to comply with all applicable laws, regulations and formal agreements in the countries where they operate.

2.2 The facility operates under a documented anti-corruption policy that:

i. Addresses the management of conflicts of interest and political and charitable contributions

ii. Prohibits extortion, embezzlement, bribery, facilitation payments and money laundering

iii. Grants protection to employees from demotion, penalty or other adverse consequences for refusing to participate in corruption, even if such refusal may result in the site losing business

2.3 The glassmaking facility maintains a publicly accessible listing of historical and ongoing legal cases in relation to environmental and related matters affecting the facility. For historical cases the listing includes:

i. The outcome of the case, or if applicable whether the case was settled out of court

ii. Any fines, damages or other penalties levied as a result of the case

iii. If the company managing the facility was found liable, an explanation of actions taken by the facility to avoid similar cases arising in the future

**Consultation Questions**

**2a.** General comments on the content of this section.

**2b.** ISO 37001: 2025 *Anti-bribery management systems — A practical guide* is designed to help organizations prevent, detect, and respond to bribery, as well as comply with anti-bribery laws and voluntary commitments applicable to their activities. It covers various forms of bribery (direct and indirect) within public, private, and not-for-profit sectors. The Standard could require that facilities meet the requirements of ISO 37001: 2025(or equivalent). Would you agree or disagree with such a requirement?

**2c.** Do you agree or disagree with the proposal to maintain a public listing of historical as well as ongoing legal cases relating to environmental or related matters, and their outcomes?

**Notes**

Section 1 requires facilities to meet the requirements of ISO 9001, ISO 14001 and 45001 (or equivalent).

- ISO 9001 requires compliance with statutory and regulatory requirements that directly affect product and service quality. However, it is not a comprehensive legal management standard and does not require a company to comply with all general laws (such as employment or tax law) to achieve certification.
- ISO 14001 mandates that organisations establish processes to identify, understand, and comply with relevant legal requirements. This alignment ensures that organisations systematically manage their environmental responsibilities and avoid legal penalties.
- ISO 45001:2018 requires organizations to maintain procedures to monitor, evaluate, and fulfil all applicable legal and regulatory requirements for worker safety.

## 3. Stakeholder Engagement and Communication

Companies increasingly recognise that poor relationships with stakeholders can increase business and reputational risk. The process of engagement and communication can be viewed as a low priority when there is no current conflict or crisis but if a conflict or crisis occurs, the absence of established relationships and channels of communication makes it more difficult to manage the situation.

Proactive stakeholder engagement can also contribute to positive sustainability outcomes where collective or collaborative actions are required, for example in relation to the implementation of water stewardship, and collaborative efforts to increase the recovery of pre- and post-consumer cullet.

ResponsibleGlass certified glassmaking facilities understand that effective engagement between a facility and its stakeholders is an inclusive and continuous process. Engagement is based on openness and fairness and focuses on issues that are most important to the parties concerned.

**Overview**

Section 3 of the Standard requires that facilities have identified key stakeholder groups who may be affected by, or take an interest in, the facility's activities, including consideration of potential negative impacts the facility may have, as well as the potential to achieve positive sustainability outcomes through stakeholder engagement. The facility communicates with its stakeholders on material social and environmental issues in a consistent and balanced manner, and offers a grievance mechanism to address concerns and consider remediation where it has caused or contributed to adverse impacts.

**Requirements**

3.1 The facility maintains a register of stakeholders and rights holders who may be affected by, or take an interest in, the site's activities in relation to Sections 5 to 19 of this Standard, including the names and contact details of contact persons for the identified stakeholder organisations.

3.2 The facility engages proactively with listed stakeholders on issues, operations or activities that are relevant to their interests including by:

i. Providing relevant information in a manner that is timely, easy to understand and comprehensive enough to assess the matter at hand

ii. Providing feedback on how the facility has taken account of proposals made or concerns expressed

3.3 The facility keeps records of the key activities it conducts as part of its stakeholder engagement, as well as the material inputs it receives, and actions taken in response.

3.4 There is no evidence of efforts to coerce or intimidate stakeholders.

**Consultation Questions**

**3a.** General comments on the content of this section.

**Notes**

Specific aspects of stakeholder engagement and communication are identified in other sections, for example in relation to: Recovered input materials (Section 7); Water stewardship (Section 11); Communities and Rights Holders (Section 12); Design for sustainability and circularity (Sections 18 & 19).

## 4. Transparency and Reporting

Transparency and reporting are key drivers of improved sustainability performance. The public disclosure of key sustainability metrics builds trust in the ResponsibleGlass brand and provides the basis for customers to exercise preferences, creating business value for improved sustainability performance. Transparency requires standardised terminology, definitions, measurement methodologies and sustainability metrics, so that reported levels of sustainability performance can be compared on a like-for-like basis.

**Overview**

The section requires facilities to maintain a publicly accessible table, in a standardised format, of the key sustainability performance indicators as specified in other sections.

**Requirements**

4.1 The facility collates the sustainability data as specified in Table 2.

4.2 The facility updates the data specified in Table 2 annually.

4.3 The facility publishes the data specified in Table 2 on a publicly accessible website.

| Section of Standard | Sustainability performance indicators | Units |
|---|---|---|
| Section 1 | Link(s) to ISO 9001, 14001 and 45001 (or equivalent) certificates | NA |
| Section 2: Legal compliance and Anti-Corruption | Link(s) to facility website:<br>• Ethical Code of Conduct (or similar)<br>• Anti-corruption policy<br>• Listing of legal cases and outcomes | NA |
| Section 3: Stakeholder Engagement and Communication | No public indicators. The register of stakeholders and rights holders is confidential to the facility. | NA |
| Section 4: Transparency and Reporting | Link(s) to facility website:<br>• This table. | NA |
| Section 5: Mined/ extracted input materials | For each category of mined/ extracted material identified as a key material:<br>a. Proportion of input material sourced from known extraction/ mine sites:<br>b. Proportion of input material sourced from extraction/ mine site participating in a listed site level ESG assurance programme. | <br>%<br>% |
| Section 6: Synthesised input materials | For each category of synthetic material identified as a key material:<br>a. Proportion input material sourced from a manufacturing site participating in a listed site level ESG assurance programme. | <br>% |
| Section 7: Recovered input materials | a. Average recovered material content of glass produced at facility<br>b. Average post-consumer recovered material content of glass produced at facility<br>c. Proportion of recovered material sourced from recycling sites or manufacturing sites operating a listed ESG programme.<br>d. Facility short-term target for use of all recovered material<br>e. Facility short-term target for use of post-consumer recovered material | %<br>%<br>%<br>%, year<br>%, year |
| Section 8: Energy inputs | For each category of energy input:<br>a. Quantity used (annual)<br>b. Upstream indirect GHG emissions per unit used<br>c. Proportion of total facility energy requirements met<br>d. Proportion of category sourced under a listed ESG programme. | <br>Units tbd<br>$CO_2e$/ unit<br>%<br>% |

| Section of Standard | Sustainability performance indicators | Units |
|---|---|---|
| Section 9: Product packaging materials | For each category of packaging material:<br>• Quantity used (annual)<br>• Proportion of category sourced under a listed ESG programme. | Units tbd<br>% |
| Section 10: Greenhouse Gas Emissions | a. Corporate Net-Zero target date<br>b. Facility-level GHG emissions intensity of glass melted, cradle-to-glass-melt<br>c. Facility-level short-term GHG emissions intensity target and target date | Year<br>Mt $CO_2e$/ Mt glass melted<br>Mt $CO_2e$/ Mt glass melted, year |
| Section 11: Water Stewardship | a. Total water withdrawal<br>b. Water use efficiency for glass melted<br>c. WRI Aqueduct water-risk status of catchment<br>d. Water stewardship certification status | $m^3$ water/ yr<br>$m^3$ water/ tonne glass melted<br>Water-risk class<br>AWS certification status |
| Section 12: Biodiversity | None proposed | NA |
| Section 13: Noise, Emissions, Effluents and Waste Management | To be determined | To be determined |
| Section 14: Occupational Health and Safety | Standardised metrics on:<br>a. work-related injuries<br>b. fatalities from work-related accidents<br>c. work-related ill health<br>d. fatalities from work-related ill health | Tbd |
| Section 15: Labour Rights | Link(s) to policies on:<br>• Child labour<br>• Forced or compulsory labour<br>• Non-discrimination<br>• Association and collective bargaining<br>• Disciplinary practices<br>• Remuneration<br>• Working time | |
| Section 16: Human Rights | Link(s) to policies on:<br>• Respect for human rights<br>• Security arrangements and human rights | |

| Section of Standard | Sustainability performance indicators | Units |
|---|---|---|
| | • Conflict-affected and high-risk areas (if applicable) | |
| Section 17: Local Communities and Rights Holders | Link to public commitment to safeguard the legal and customary rights and interests, cultures, customs and values of local communities regarding lands, their use of natural resources and their livelihoods. | |
| Section 18: In-use impacts | None required. The facility may provide a link to description of its programmes/ projects to reduce in-use impacts. | NA |
| Section 19: End-of-life impacts | Estimated destination of the facility's glass production at end of its life in use:<br>a. Recovered and re-used<br>b. Recovered and recycled for glassmaking<br>c. Recovered and used to substitute for other materials (e.g. for production of concrete, asphalt, etc)<br>d. Landfill or unaccounted for<br><br>The facility may provide a link to description of its programmes/ projects to increase end-of-life recovery and re-use or recycling. | <br><br>%<br>%<br>%<br><br>% |

**Table 2.** Template for reporting sustainability data as specified in the Standard

**Consultation Questions**

**4a.** General comments on the content of this section.

**4b.** Do you agree that facility level disclosure of sustainability data should be a requirement of the Standard? Another option could be that the Standard requires the facility to collate the specified data, but that public disclosure is only a requirement if the facility wishes to market or sell its glass products to customers as ResponsibleGlass certified – as such, the requirement for public disclosure of sustainability data could be specified as an aspect of the ResponsibleGlass Downstream Claims and Chain of Custody Standard, rather than as part of the ResponsibleGlass International Standard for Glassmaking. Comments are requested on this issue.

**4c.** Do you have any comments on the proposed sustainability reporting indicators? Do you have alternative / additional suggestions?

Responsible Glass
Sustainability standards

## Part C: Responsible Sourcing of Materials and Energy

Part C of the Standard covers the sourcing of materials and energy. Input materials are the materials imported to the facility from outside the facility's boundary. The requirements of the Standard apply to the sourcing of raw materials for glassmaking, including mined/ extracted materials, synthesised materials, and recovered materials, as well as energy inputs and packaging materials.

The Standard does not currently include materials for coatings or treatments for glass products manufactured at the facility, such as metallic or other coatings or laminates for flat glass products, or polymer coatings for glass fibre products. This is due to the number and variety of such materials, and the likely complexity of specifying requirements for their responsible sourcing. Requirements for the responsible sourcing of these materials may however be added to the scope of the Standard at a future revision.


**Figure 6.** Schematic illustrating scope of input materials for glassmaking.

Requirements for the responsible sourcing of input materials are specified separately for the different categories of materials. For each category, the same general approach is applied, such that ResponsibleGlass certified facilities are expected:

- to know the original sources of their input materials
- to understand the ESG risks associated with their supplies of input materials, including in relation to processing and transportation
- to be taking effective actions to mitigate such risks
- to be transparent in reporting on their progress towards controlling these risks over time

**Consultation Question**

**Part C:** Do you agree that requirements for the responsible sourcing of materials for glass coatings or treatments should be excluded from the scope of the Standard initially.

## 5. Mined/ quarried input materials

Glass manufacturing depends fundamentally on mined and quarried raw materials — chiefly silica sand, along with soda ash, limestone, dolomite and feldspar — which together with cullet form the batch that is melted to produce glass. Additional minerals are used in smaller quantities as stabilisers, fining agents, colourants and to control the chemical and physical properties of glass for specific purposes. The extraction of these materials carries environmental and social risks, as well as being associated with significant emissions of greenhouse gases. Mined materials are often traded through intermediaries, creating challenges for the identification of the exact origin and conditions of extraction. Managing and controlling sustainability risks associated with the extraction, processing and transportation of mined and quarried materials is an essential aspect of responsible glassmaking.

**Overview**

Section 5 of the Standard requires that the facility has identified and maintains a register of the original extraction sites for the key **mined/ quarried materials** it uses for glassmaking, as well as the sites at which further processing/ refining takes place prior to delivery to the facility. The Standard requires that sites on the register are either participating in an ESG Standards Programme listed in the Standard, or that the glassmaking facility has carried out its own due diligence process, in line with the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), to assess and mitigate potential environmental and social risks. The facility must also collect data on the embodied GHG emissions associated with its supplies of mined materials, including emissions associated with their transportation to the facility.

**Requirements**

5.1 Register of mining/ quarrying and processing/ refining sites.

5.1.1 The facility maintains an up-to-date register of the original extraction sites and further processing/ refining sites for the key **mined/ quarried materials** used for the production of glass at the facility, including key process materials.

Key mined/ quarried input/ process materials are defined as:

- Any mined/ quarried input material which constitutes more than 1% by mass of the input material for any glass product category produced at the facility.
- Key process materials including tin used in float-glass baths and/or other significant sector-specific process material

Examples of materials that are likely to reach this threshold at some facilities include alumina, dolomite, feldspar, kaolin clay, limestone, silica sand, trona (natural soda ash)

NOTE: It is proposed to include tin on the list of key mined/ quarried materials due to its key role in the production of float glass, and the recognised social and environmental risks associated with its extraction and

smelting.

5.1.2 The register includes accurate and up-to-date data on:

i. The quantity of material sourced from each original extraction site

ii. The legal entity responsible for mining/quarrying the material at each original extraction site

iii. Whether the mine/ extraction site is participating in a listed ESG standards and assurance programme.

iv. The quantity of material processed or refined at each processing/ refining site

v. The legal entity responsible for processing/ refining the material at each processing/ refining site

vi. Whether the processing/ refining site is participating in a listed ESG standards and assurance programme, and if so the name of the programme, and as applicable: the performance level that has been achieved, certificate issuer, the site's certificate number, and certificate issue and expiry date

5.1.3 The register includes the estimated distance the material is transported from the extraction site or refining processing site supplying the material to the glassmaking facility, disaggregated by road, rail, sea or air transport.

The register includes the estimated water use efficiency of the material supplied from each listed site, including:

i. whether the data is primary or secondary data

ii. if the data is secondary, the source of the data

iii. whether the data is independently validated

5.1.4 The register includes the estimated embodied GHG emissions intensity (carbon footprint) of the material supplied from each listed site, including GHG emissions associated with transportation from the site supplying the material to the glassmaking facility, and including:

i. whether the data is primary or secondary data

ii. if the data is secondary, the source of the data

iii. the GHG measurement methodology used

iv. whether the data is independently validated

5.2 Due diligence

5.2.1 In the case of any mine/ quarrying site or processing site on the register which is not participating in a listed ESG standards and assurance programme, the facility has carried out a site-specific 'due diligence' assessment which addresses the social and environmental risks identified in the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), in accordance with the prescribed six-step due diligence process that:

- Embeds responsible business conduct into policies and management systems
- Identifies and assesses actual and potential adverse impacts

- Ceases, prevents, or mitigates adverse impacts
- Tracks implementation and results
- Communicates how impacts are addressed
- Provides for or cooperates in remediation when appropriate

**Listed ESG standards and assurance programmes**

Mining / quarrying and processing/ refining sites participating in one of the following standards and assurance programmes are deemed to satisfy the due diligence requirements for risk assessment and mitigation in relation to the sourcing of input materials.

- IRMA assurance programme
- The International Tin Association (ITA) Tin Code
- ITA-RMI Assessment Criteria for Tin Smelting Companies
- The Responsible Minerals Initiative (RMI) Responsible Minerals Assurance Process (RMAP)

**References**

- OECD (2023), OECD Guidelines for Multinational Enterprises on Responsible Business Conduct, OECD Publishing, Paris, https://doi.org/10.1787/81f92357-en.

**Consultation Questions**

**5a.** General comments on the content of this section.

**5b.** Do you agree that facilities should be required to identify their sources of key mined/ quarried materials, as proposed?

**5c.** Do you agree with the proposed list of 'key mined/ quarried materials, and the proposed 1% content threshold?

**5d.** Do you agree with the proposed approach to due diligence, including the recognition of participation in recognised, site-specific ESG standards and assurance programmes as an effective mechanism for exercising due diligence in relation to sourcing of input materials?

**5e.** Are the listed ESG standards and assurance programmes appropriate / adequate programmes to address the level of social/ environmental risks associated with the sourcing of mined/ quarried input materials? Are there other programmes that should be considered for inclusion?

**5f.** The draft Standard does not specify any requirement for sites supplying mined materials to be certified against any specified ESG standards. One option would be to require them to meet the requirements of ISO 14001 and ISO 45001, to establish basic levels of social and environmental responsibility. Participation in a listed ESG standards and assurance programme would then indicate an additional level of commitment. Do you think that it should be a requirement that suppliers of mined / quarried materials should have to meet the requirements of ISO 14001 and ISO 45001?

**5g.** Should the Standard require that mined/ quarried input materials are supplied with an EPD or similar data sheet covering a broader range of issues than just the material's carbon footprint?

## 6. Synthesised input materials

Synthesised (manufactured) input materials—such as soda ash (sodium carbonate), synthetic silica, and various refined additives—are important to modern glassmaking as alternatives to natural sources, or because there are no natural sources. Synthesised input materials may allow tighter control over purity, particle size, and chemical consistency than naturally sourced raw materials, letting manufacturers control the melting temperature, clarity, strength, and workability of glass more precisely, supporting everything from architectural glazing to precision optics and pharmaceutical packaging.

However, producing these synthetic inputs can have material environmental and social impacts. Manufacturing soda ash and other synthetic input materials is energy-intensive, typically relying on fossil fuels and generating significant carbon dioxide emissions; some processes also produce chemical by-products such as calcium chloride waste or ammonia-related effluents that require careful management to avoid water and soil contamination.

**Overview**

Section 6 of the Standard requires that the facility has identified and maintains a register of sites manufacturing key synthesised input materials for glassmaking. The Standard requires that sites on the register are either participating in an ESG standards programme listed in the Standard, or that the glassmaking facility has carried out its own due diligence process, in line with the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), to assess and mitigate potential environmental and social risks. The facility must also collect data on the embodied GHG emissions associated with its supplies of mined materials, including emissions associated with their transportation to the facility, and embodied water.

**Requirements**

6.1 Register of manufacturing sites producing synthesised input materials for glassmaking.

6.1.1 The facility maintains an up-to-date register of the manufacturing sites producing key synthesised materials used for the production of glass at the facility.

Key synthesised materials are defined as:

- Any synthesised input material which constitutes more than 1% by mass of the input material for any glass product category produced at the facility

Examples of synthesised materials that may reach this threshold at some facilities include: sodium carbonate ($Na_2CO_3$, soda ash), silica ($SiO_2$), potassium carbonate ($K_2CO_3$), boric oxide/borax ($B_2O_3$), lead oxide (PbO), synthetic alumina ($Al_2O_3$).

6.1.2 The register includes accurate and up-to-date data on:

i. The quantity of each material sourced from each manufacturing site

ii. The legal entity responsible for manufacturing the material at each manufacturing site

iii. Whether the manufacturing site is participating in a listed ESG standards and assurance programme and, if so, the name of the programme, and as applicable: the performance level that has been achieved, certificate issuer, the site's certificate number, and certificate issue and expiry date

6.1.3 The register includes the estimated distance the material is transported from the manufacturing site to the glassmaking facility, disaggregated by road, rail, sea or air transport.

6.1.4 The register includes the estimated water use efficiency of the material supplied from each listed site, including:

i. whether the data is from primary or secondary sources

ii. if the data is secondary, the source of the data

iii. whether the data is independently validated

6.1.5 The register includes the estimated embodied GHG emissions intensity (carbon footprint) of the material supplied from each listed site, including GHG emissions associated with transportation from the site supplying the material to the glassmaking facility, and including:

i. whether the data is from primary or secondary sources

ii. if the data is secondary, the source of the data

iii. the GHG measurement methodology used

iv. whether the data is independently validated

6.2 Due diligence

6.2.1 In the case of any manufacturing site on the register which is not participating in a listed ESG standards and assurance programme, the facility has carried out a site-specific 'due diligence' assessment which addresses the social and environmental risks identified in the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), in accordance with the prescribed six-step due diligence process that:

- Embeds responsible business conduct into policies and management systems
- Identifies and assesses actual and potential adverse impacts
- Ceases, prevents, or mitigates adverse impacts
- Tracks implementation and results
- Communicates how impacts are addressed
- Provides for or cooperates in remediation when appropriate

**Listed ESG standards and assurance programmes**

Manufacturing sites participating in one of the following standards and assurance programmes are deemed to

satisfy the due diligence requirements for risk assessment and mitigation in relation to the sourcing of synthesised input materials.

- ResponsibleCare© programme

**Consultation Questions**

**6a.** General comments on the content of this section.

**6b.** Do you agree that facilities should be required to identify their sources of synthesised input materials, as proposed?

**6c.** Do you agree with the proposed list of key synthesised input materials on the basis of the proposed 1% content threshold?

**6d.** Do you agree with the proposed approach to due diligence, including the recognition of participation in recognised, site-specific ESG standards and assurance programmes as an effective mechanism for exercising due diligence in relation to sourcing of input materials?

**6e.** Is the ResponsibleCare© programme an appropriate / adequate ESG standards and assurance programme to address the level of social/ environmental risks associated with the sourcing of synthesised input materials? Are there other programmes that should be considered for inclusion?

**6f.** The draft Standard does not specify any requirement for sites supplying synthesised materials to be certified against any specified ESG standards. One option would be to require them to meet the requirements of ISO 14001 and ISO 45001, to establish basic levels of social and environmental responsibility. Participation in a listed ESG standards and assurance programme would then indicate an additional level of commitment. Do you think that it should be a requirement that suppliers of mined / quarried materials should have to meet the requirements of ISO 14001 and ISO 45001?

**6g.** Should the Standard require that synthesised input materials are supplied with an EPD or similar data sheet covering a broader range of issues than just the material's carbon footprint?

## 7. Recovered input materials

Recovered materials—primarily cullet (crushed recycled glass)—play a central role in modern glassmaking. Cullet melts at a lower temperature than raw silica, soda ash, and limestone, and reduces process gas emissions, so incorporating it into furnace batches cuts energy consumption significantly and reduces the associated greenhouse gas emissions. It also extends furnace lifespan, reduces mining of virgin raw materials, and diverts waste from landfills. The environmental benefits of cullet use, and the potential to increase cullet content in glassmaking are dependent on the processes for collecting, cleaning and sorting cullet. As well as cullet, recovered materials such as calumite (blast furnace slag) may be used for glassmaking.

The recovery and recycling process has its own environmental and social impacts. Collection and transport of glass waste consume fuel and generate emissions. Processing facilities, particularly in low-income or informal recycling economies, can expose workers to health and safety risks from glass dust, sharp fragments, and heavy machinery. Communities near sorting and processing plants may also face noise, dust, and traffic burdens. Additionally, informal waste-picking sectors—common in many developing regions—raise concerns about fair

wages and labour rights, even as they provide vital economic livelihoods and keep material out of landfills. Balancing the clear environmental benefits of cullet use with these social and operational risks requires investment in cleaner collection infrastructure, worker protections, and quality-control systems throughout the recycling chain.

**Overview**

The requirements of Section 7 of the Standard are intended to support the use of recovered material for glassmaking, as well as manage associated social and environmental risks. It requires that the facility has identified and maintains a register of the recycling or other facilities from which it receives recovered material.

The Standard requires that sites on the register are either participating in an ESG Standards Programme listed in the Standard, or that the glassmaking facility has carried out its own due diligence process, in line with the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), to assess and mitigate potential environmental and social risks.

Data on the quantity of recovered material used by the site must follow standardised definitions, distinguishing between cullet generated at the glassmaking facility itself, cullet generated from downstream manufacturing processes, and cullet generated from the recovery of glass after its use as a final product.

The facility must also collect data on the embodied GHG emissions associated with its supplies of recovered materials, including emissions associated with their transportation to the facility.

**Requirements**

7.1 Register of sites supplying recovered materials for glassmaking.

7.1.1 The facility maintains an up-to-date register of the sites supplying recovered materials used for the production of glass at the facility. Recovered material includes both pre- and post-consumer material, and includes less frequently used material such as calumite and novel materials such as spent foundry sand (SFS), as well as cullet.

7.1.2 The register includes accurate and up-to-date data on:

i. The quantity of recovered material sourced from each listed supplier site disaggregated according to the quantity of material which is:
   - Pre-consumer cullet (see Glossary for definition)
   - Other pre-consumer recovered material (see Glossary for definition)
   - Post-consumer cullet (see Glossary for definition)

ii. The legal entity responsible for managing each supplying site

iii. Whether the supplying site is certified as meeting the requirements of ISO 14001 and ISO 45001, and if so the name of the certificate issuer, the site's certificate number, and certificate issue and expiry date

7.1.3 The register includes the estimated distance the material is transported from the supplying site to the

glassmaking facility, disaggregated by road, rail, sea or air transport.

7.1.4 The register includes the estimated embodied GHG emissions intensity (carbon footprint) of the material supplied from each listed site, including GHG emissions associated with transportation from the site supplying the material to the glassmaking facility, and including:

i. whether the data is from primary or secondary sources

ii. if the data is secondary, the source of the data

iii. the GHG measurement methodology used

iv. whether the data is independently validated

NOTES on determination of embodied GHG emissions of recovered material:

1: The embodied GHG emissions of post-consumer cullet shall be specified as zero at the point they are received at a recycling facility.

2. The GHG emissions associated with the recovery and transportation of materials prior to the recycling facility or other site supplying the material to the glassmaking facility do not need to be included in the determination of GHG emissions.

3: The GHG emissions associated with processing recovered materials at a recycling facility shall be included in the determination of embodied GHG emissions for the material, allocated to recycling facility co-products by mass, if applicable.

7.2 Due diligence

7.2.1 In the case of any manufacturing site on the register which is not participating in a listed ESG standards and assurance programme, the facility has carried out a site-specific 'due diligence' assessment which addresses the social and environmental risks identified in the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), in accordance with the prescribed six-step due diligence process that:

- Embeds responsible business conduct into policies and management systems
- Identifies and assesses actual and potential adverse impacts
- Ceases, prevents, or mitigates adverse impacts
- Tracks implementation and results
- Communicates how impacts are addressed
- Provides for or cooperates in remediation when appropriate

7.3 Determination of facility-level use of recovered material

7.3.1 The facility shall determine its annual use of recovered material, and its annual use of post-consumer recovered material

7.3.2 The annual use of recovered material by the facility is calculated as:

Facility-level annual use of recovered material (%) = (Dry mass of allowable recovered material supplied to furnace over 12-month period ÷ Total dry mass of allowable batch materials over 12-month period) × 100.

7.3.3 The annual use of post-consumer recovered material by the facility is calculated as:

Facility-level annual use of post-consumer recovered material (%) = (Dry mass of post-consumer cullet supplied to furnace over 12-month period ÷ Total dry mass of allowable batch materials over 12-month period) × 100.

7.3.4 Allowable recovered material includes:

- Pre-consumer cullet
- Other pre-consumer recovered material
- Post-consumer cullet

7.3.5 Allowable recovered material excludes cullet recovered from production processes at the facility and recycled at the facility itself (internal or home cullet). Internal or home cullet does not count towards the determination of facility-level use of recovered material.

7.3.6 Allowable batch material includes the dry mass of all inputs to the glass furnace, minus the dry mass of material recovered from production processes at the facility and recycled at the facility (internal or home cullet).

NOTES on determination of the facility-level use of recovered material:

1. The exclusion of internal or home cullet from the determination of facility-level recovered content, together with variations in the range of post forming activities that may take place at different glassmaking facilities, creates the possibility that internal or home cullet from one glassmaking facility could be exported to another, and count as recovered content, despite the fact that equivalent material would not count towards the recovered content at the facility that produced it.

2. Similarly, cullet imported from a downstream manufacturing site would count towards recovered content, but material generated from the equivalent manufacturing process within the facility boundary of an integrated glassmaking and manufacturing site would be classified as internal or home cullet, and would not count towards its determination of recovered content.

3. Note that the same rules for the determination of recovered content at the facility level are also applicable to the determination of recycled content that may be claimed for glass products (see 10.5.4).

7.4 Increasing the use of recovered material

7.4.1 The facility has benchmarked its usage of pre-consumer and post-consumer recovered materials compared to usage by producers of similar glass products, has reviewed the reasons for any significant differences in performance, in consultation with other stakeholders, and has documented the findings.

7.4.2 The facility has publicly available short-term targets to increase its facility-level use of:

i. Total recovered material

ii. Post-consumer recovered material

NOTES on determination of targets to increase the use of recovered material:

1. It is recognised that the potential to use, or to increase the use of, recovered material may be constrained by a variety of technical, legal or other considerations for specific categories of glass production. In such cases the facility shall publish an explanation of these constraints in lieu of a target

to increase its facility-level use of recovered materials, and accompanying implementation plan (see below).

7.4.3 The facility's short-term targets to increase its use of total recovered material and pre-consumer recovered material are supported by a credible, documented implementation plan.

NOTES on plan to increase the use of recovered material:

1. The plan to increase the use of recovered material may include actions to collaborate with other stakeholders including local government, national government (e.g. in relation to focused taxation, waste collection policies, etc), recyclers and processors, waste collector associations, key actors in specific supply chains (e.g. windscreen repair companies, demolition companies, restaurants and bars, drinks brands), etc.

**Listed ESG standards and assurance programmes**

- *ISO 14001:2026 Environmental management systems — Requirements with guidance for use* (or equivalent).
- *ISO 45001:2018 Occupational health and safety management systems — Requirements with guidance for use* (or equivalent).

**Consultation Questions**

**7a.** General comments on the content of this section.

**7b.** The draft Standard does not specify any requirement for sites supplying recovered materials to be certified against any specified ESG standards, and at this point no sector specific ESG standards and assurance programmes have been identified for consideration, beyond the generic ISO 14001 and ISO 45001 standards.

One option would be to *require* suppliers of recovered materials to meet the requirements of ISO 14001 and ISO 45001, to establish basic levels of social and environmental responsibility, rather than, as at present, for this to be a voluntary measure which is tracked. Do you think that sites supplying recovered materials should be required to meet the requirements of ISO 14001 and ISO 45001 standards?

**7c.** Do you agree with the proposed approach to due diligence, including the proposal that if the site supplying pre- or post-consumer cullet or other recovered material meets the requirements of ISO 14001 and ISO 45001, then they would not be subject to further due diligence assessment by the glassmaking facility?

**7d.** Should the Standard require that recovered input materials are supplied with an EPD or similar data sheet covering a broader range of issues than just the material's carbon footprint?

## 8. Energy inputs

Glassmaking is an energy-intensive process, requiring temperatures around 1,400–1,600°C to melt raw materials to form glass. Today, natural gas powers most furnaces, although some manufacturers rely on coal. Electric melting, increasingly paired with renewable electricity, offers a lower-emission alternative. Emerging

approaches like hydrogen combustion, co-firing of natural gas and biogas, or hybrid electric-gas furnaces aim to cut emissions further. All sources of energy have social and environmental impacts, but glassmakers can mitigate their contribution to those impacts by exercising preferences for sources with reduced impacts.

**Overview**

Section 8 of the Standard focusses on the upstream impacts of fuel sources for glassmaking, including those related to the extraction and transportation of fossil fuels, and the production of biofuels and hydrogen. This section of the Standard does not consider the direct GHG emissions of fuel consumption at the glassmaking facility, which are addressed in Section 10, nor does it consider direct emissions of pollutants or particulates to the atmosphere, addressed in Section 14.

The Section follows the same approach as the previous sections on inputs, requiring glassmaking facilities to collate and report data on their different energy sources, and for each category of energy input to record and report on their progress towards sustainable sourcing. The Section requires facilities to meet the requirements of *ISO 50001:2018 Energy management systems - Requirements with guidance for use*, both as a measure to improve overall energy efficiency, and to provide a stable, effective system for monitoring and reporting on energy-related data. The Section includes requirements for collecting data and reporting on the upstream emissions of energy sources, both for fuels (extraction and transportation), and electricity generation.

**Requirements**

8.1 Energy management system

8.1.1 The facility meets the requirements of ISO 50001:2018 Energy management systems - Requirements with guidance for use.

8.2 Register of energy inputs.

8.2.1 The facility maintains an up-to-date register of its energy inputs, including its use of biogas, coal-derived fuels, electricity, fuel oil, hydrogen, or natural gas.

8.2.2 The register includes accurate and up-to-date data on:

i. The quantity of fuel or electricity supplied

ii. The organisation responsible for the supply

iii. Whether the supply is covered by a listed ESG standards and assurance programme, and if so the name of the programme, and as applicable: the performance level that has been achieved, certificate issuer, the site's certificate number, and certificate issue and expiry date

8.2.3 The register includes the estimated distance fuel is transported from the point of extraction to the glassmaking facility, disaggregated by road, rail, sea, or pipeline.

8.2.4 The register includes the estimated embodied GHG emissions intensity (carbon footprint) of the fuel or electricity supplied, including GHG emissions associated with transportation from the site of extraction to the glassmaking facility, and including:

i. whether the data is from primary or secondary sources

ii. if the data is secondary, the source of the data

iii. the GHG measurement methodology used

iv. whether the data is independently validated

NOTES on determination of embodied GHG emissions:

1: GHG emissions for imported electricity shall be determined in accordance with requirements of *ISO 14064-1: 2018 Annex E.2 Treatment of Imported Electricity* and include transmission and distribution losses, as well as emissions associated with the extracting, transporting and processing the fuel for generating the electricity.

2: The GHG emissions intensity of hydrogen shall be determined in conformity with the requirements of ISO 19870-1:2026 Hydrogen technologies — Methodology for determining the greenhouse gas emissions associated with the hydrogen supply chain. Part 1: Emissions associated with the production of hydrogen up to the production gate.

3: The GHG emissions intensity for biogas shall be determined in conformity with the requirements of the *EU Renewable Energy Directive 2018/2001 (RED II) Annex VI, Part B*.

4: The GHG emissions intensity for natural gas shall be determined in conformity with the requirements of MiQ Standard for Greenhouse Gas Emissions Performance for Petroleum and Natural Gas Operations - Carbon Intensity Standard (v1.0).

8.2.5 The register lists the use of environmental attribute certificates (EACs) such as renewable energy certificates (RECs), power purchase agreements, green tariffs by the facility.

8.3 Due diligence

8.3.1 In the case of any supply of fuel on the register which is not supplied under a listed ESG standards and assurance programme, the facility has carried out a 'due diligence' assessment which addresses the social and environmental risks identified in the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (and the accompanying OECD Due Diligence Guidance for Responsible Business Conduct), in accordance with the prescribed six-step due diligence process that:

- Embeds responsible business conduct into policies and management systems
- Identifies and assesses actual and potential adverse impacts
- Ceases, prevents, or mitigates adverse impacts
- Tracks implementation and results
- Communicates how impacts are addressed
- Provides for or cooperates in remediation when appropriate

**Listed ESG programmes**

Biogas

- ISCC – International Sustainability & Carbon Certification (https://iscc-system.org/)

Coal

- Better Coal (https://www.bettercoal.org/)

Hydrogen

- CertifHy EU RFNBO Voluntary Scheme: GHG Emissions and Sustainability (https://www.certifhy.eu/)
- The GH2 Green Hydrogen Standard (https://gh2.org/)

Natural Gas

- Equitable Origin (https://www.equitableorigin.org/)

**Consultation Questions**

**8a.** General comments on the content of this section.

**8b.** The Standard does not prohibit the use of coal-derived fuels, despite the risk of high social and environmental impacts associated with coal's extraction, and the high GHG and other emissions associated with its use. Instead, it is treated on the same basis as other sources of energy, requiring facilities to measure and disclose its use, and disclose whether the original source of the coal is managed under a recognised ESG standards and assurance programme. It is assumed that requirements to manage direct emissions of particulates and pollutants (under Section 14), and demand from glass users for glass with a low carbon footprint (measured and disclosed under Section 10) will encourage the replacement of coal-derived fuel with other, cleaner fuels. Do you have any comments on this proposed approach?

**8c.** Is it appropriate to apply a 'due diligence' approach to the sourcing of energy inputs that are not covered by an ESG standards and assurance programme?

## 9. Packaging materials

A range of materials are used to protect glass products from dust, moisture or shock during transportation from the glassmaking facility to customers for further manufacturing or use. Packaging materials include corrugated cardboard, moulded fibre products, plastic films and wraps, interleavants, and wood or metal pallets. Glassmakers recognise that their choices of packaging materials can have significant sustainability impacts, and may be recognised by customers as being intrinsic to the 'glass product' they are supplied with.

**Overview**

The section specifies requirements to consider the life cycle impacts of the packaging materials used by the facility, including consideration of upstream impacts, downstream impacts, and the potential for recycling recovered packaging materials.

**Requirements**

9.1 Register of packaging materials

9.1.1 The facility maintains an up-to-date register of the packaging materials it purchases including, as

applicable its use of: timber or other materials for pallets; plastic or other wrappers; cardboard or moulded fibre; interleavants for flat glass.

9.1.2 The register includes accurate and up-to-date data on:

i. The quantity of packaging materials supplied

ii. The entity(ies) responsible for the supply

iii. Whether the supplied packaging material is made of recycled material

iv. Whether the supply is certified under a listed ESG standards and assurance programme, and if so the name of the programme, and as applicable: the performance level that has been achieved, certificate issuer, the site's certificate number, and certificate issue and expiry date.

v. Whether the facility recovers the packaging material from its customers for re-use

9.2 Life cycle assessment

9.2.1 The facility has assessed the sustainability impacts of its packaging materials on a life cycle basis, including consideration of the sustainability impacts of production, use and disposal of the material, as well as its effectiveness in protecting the glass from breakage, moisture or chemical damage during transportation or storage, etc.

NOTE: assessment could be on the basis of review of generic LCA studies or representative product category EPDs for the packaging material options.

9.2.2 Mitigating sustainability impacts of packaging materials

9.2.3 The facility has considered the potential to reduce negative sustainability impacts of its choices of packaging materials, as well as the potential to support positive impacts, by considering:

i. alternative materials with a better life cycle sustainability profile

ii. sourcing packaging materials that are made of recycled material

iii. sourcing packaging materials that are certified under a listed sustainability programme

iv. recovering packaging materials from customers for re-use

**Listed ESG standards and assurance programmes**

Timber, paper, cardboard, moulded fibre etc

- Forest Stewardship Council.

Steel

- ResponsibleSteel

Aluminium

- Aluminium Stewardship Initiative

**Consultation Questions**

**9a.** General comments on the content of this section.

**9b.** Do you agree that requirements for packaging materials should be included in the scope of the Standard?

**9c.** Should the use of interleavant poymer powders be prohibited at ResponsibleGlass certified facilities, or be permitted subject to a phase out date (e.g. 2030)?

**9d.** Should the Standard require that packaging materials are supplied with an EPD or similar data sheet?

## Part D: Responsible Production

Part D of the Standard covers Responsible Production, and is split into two groups, covering environmental and social issues respectively.

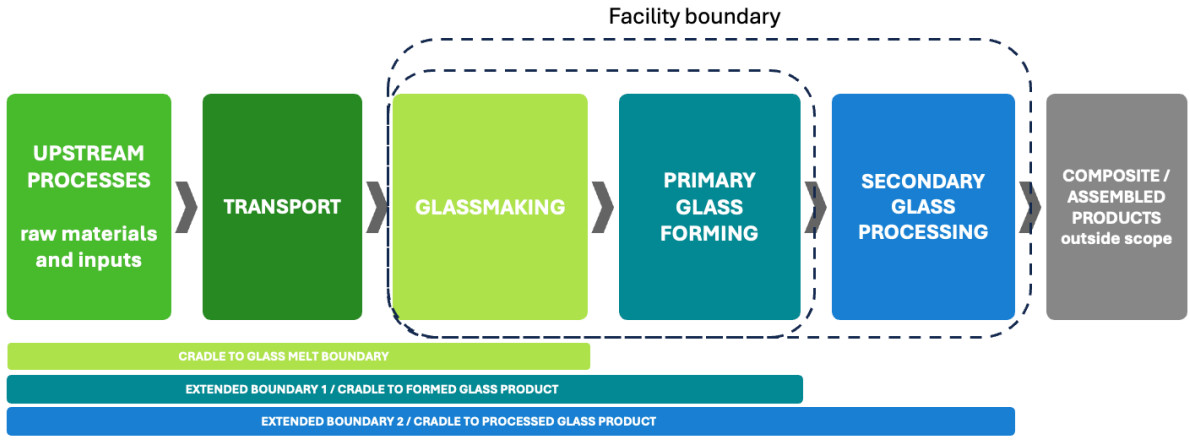



**Figure 7.** Illustration of glassmaking facility boundary. The boundary includes primary and/or secondary activities that take place at the glassmaking facility.

Requirements are applicable to all activities taking place within the glassmaking facility boundary, including activities relating to the preparation of materials for melting, glassmaking and auxiliary processes, and primary or secondary glass forming also taking place at the facility. In relation GHG emissions, an additional internal boundary is specified for the determination of GHG emissions up to the point at which melted glass is first produced, to provide a point of more direct comparison than for final glass products at the factory gate.

Responsible Glass
Sustainability standards

# Responsible Production: Environmental Aspects

## 10. Greenhouse Gas Emissions (GHG)

Glassmaking is an energy-intensive process. Melting raw materials — silica sand, soda ash, limestone and other constituents — in furnaces operating continuously at temperatures above 1500°C requires large quantities of thermal energy, currently supplied predominantly by the combustion of natural gas. The glass sector's direct GHG emissions arise principally from two sources: the combustion of fossil fuels to heat and maintain furnace temperatures, and the process emissions released when carbonate raw materials (primarily soda ash and limestone) decompose during melting. Upstream indirect emissions associated with the extraction or synthesis and subsequent transportation of input materials can also be significant. Together these make the glass industry a significant industrial emitter, with global flat and container glass production estimated to account for approximately 0.3–0.5% of global GHG emissions. Further emissions associated with the melting and shaping of glass downstream of its initial manufacture, can also be significant.

**Overview**

ResponsibleGlass certified glassmaking facilities:

- Are operated by companies with credible, publicly available plans to achieve net zero emissions for their glassmaking operations by 2050 or earlier
- Have a publicly available, facility-level short-term GHG emissions intensity target
- Measure and disclose their GHG emissions at the facility level in accordance with credible, standardised GHG emissions measurement methodologies and metrics
- Publishes Environmental Product Declarations (EPDs) for any products that it sells or markets using environmental, social or 'green' claims

Requirements

10.1 Corporate level Net-Zero GHG emissions target

10.1.1. The facility is operated under the control of a company that meets the requirements of *ISO 14060: 2026 Net zero aligned organizations*, or the requirements of the SBTi Corporate Net-Zero Standard (Version 2-0).

10.2 Facility-level GHG emissions intensity target

10.2.1 The facility has a publicly available short-term target to reduce the GHG emissions intensity for its production of **glass melted (**'Cradle to Glass Melted' scope boundary), specified in accordance with the GHG emissions measurement methodology and metrics in 10.3.

10.2.2 The facility's short-term GHG emissions reduction target is supported by a credible, documented implementation plan.

NOTE: 'short-term' is defined as 3 to 5 years.

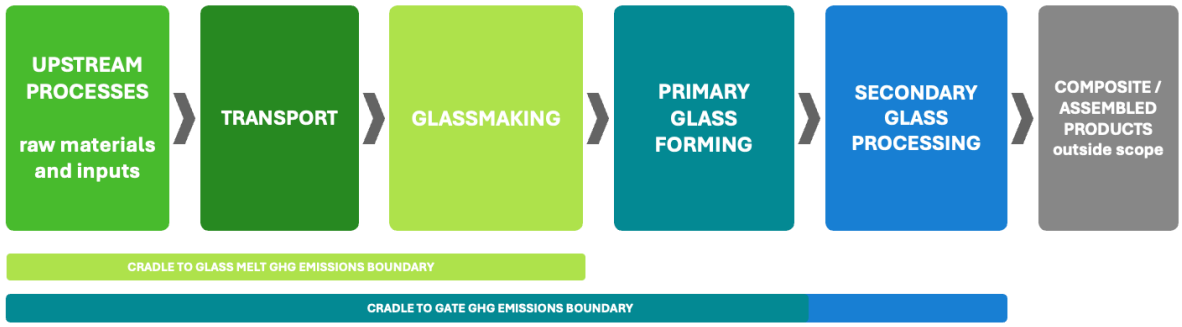



**Figure 8.** Illustration of 'Cradle to Glass Melt' GHG emissions boundary, and 'Cradle to Gate' GHG emissions boundary.

10.3 Facility-level GHG emissions measurement

10.3.1 The facility measures its GHG emissions in accordance with the requirements of ISO 14064-1: 2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals, and with additional specifications to ensure consistency across all glassmaking facilities.

NOTE: the determination of these additional specifications is a key subject for further work. Topics for clarification include the use of primary and secondary data for upstream indirect (Scope 3) emissions; the treatment of emissions from auxiliary processes; the treatment of energy indirect (Scope 2) emissions and associated power purchasing agreements, 'green' tariffs, renewable energy certificates (RECS) and other instruments; the treatment of emissions associated with exported energy or waste heat; etc.

10.3.2 GHG emissions for the facility are determined for a 'Cradle to Glass Melted' internal scope boundary, as well as for the full 'Cradle to Gate' scope boundary.

10.4 Facility level GHG emissions disclosure

10.4.1 The facility publicly reports the GHG emissions intensity per metric tonne of glass melted ('Cradle to Glass Melted' scope boundary) over a regular 12-month period.

10.4.2 The facility publicly reports its total GHG emissions ('Cradle to Gate' scope boundary) over a regular 12-month period.

10.5 Environmental Product Declarations

10.5.1 The facility prepares Environmental Product Declarations (EPDs) for any products that it sells or markets using environmental, social or 'green' claims in accordance with the requirements of the listed EPD and supporting standards.

10.5.2 The determination of global warming potential (GWP) values for the product shall be based on the

same GHG measurement rules and methodologies as specified for the measurement of facility-level GHG emissions in 10.3.

10.5.3 EPDs shall be prepared on the basis of the organisational boundary of the facility itself. If additional facilities are included in the scope of the EPD prepared for the product, the values for each facility shall be reported separately.

10.5.4 The EPDs for any products that the facility sells or markets using environmental, social or 'green' claims shall include, in addition to the requirements of the EPD programme itself:

i. The glass melted GHG emissions intensity of the glass in the product (as determined in 10.3.2)

ii. The recycled content of the glass in the product, using the same measurement rules as specified in Section 7 (see Section 7)

iii. The values that have been applied in relation to embodied emissions of input materials, if these are based on secondary rather than primary data

iv. A table specifying the rules that have been applied in relation to such aspect as:

- The allocation of GHG emissions to co-products
- The use of market- or location-based electricity or contractual instruments
- Whether the determination of emissions associated with imported electricity has included upstream indirect emissions for extraction and transportation of fuel prior to electricity generation
- Details of offsets, credits or insets that have been included in the determination

NOTE: the determination of these specifications is a key subject for further work.

**Listed EPD and supporting standards**

- To be determined

**Consultation Questions**

**10a.** General comments on the content of this section.

**10b.** Do you agree that the corporate owners of ResponsibleGlass certified glassmaking facilities should have 'net zero' GHG emission targets?

**10c.** Do you agree that ResponsibleGlass certified glassmaking facilities should have short-term facility-level GHG emission reduction targets?

Responsible Glass
Sustainability standards

## 11. Water Stewardship

Glass manufacturing uses water at several stages of the production process. Water is used for cooling furnace components, conditioning and cooling formed glass, dust suppression during batch handling and storage, cleaning and washing of equipment, and in some processes for cutting and grinding. While glassmaking is not among the most water-intensive manufacturing sectors, its water use can be locally significant — particularly where facilities are located in water-stressed catchments or where cooling water is drawn from and returned to sensitive surface or groundwater bodies. The quality of water discharges is also important: cooling water returned at elevated temperatures can affect aquatic ecosystems, and process water may contain suspended solids, oils or traces of chemicals used in downstream glass processing (such as tin from the float bath, or polishing compounds).

**Overview**

ResponsibleGlass certified glassmaking facilities:

- Understand their water use in the context of the catchment in which the facility is located.
- Measure and disclose key water use metrics
- Have assessed the level of water-related risk in the context of the catchment in which they are located, and, if the level of risk is high, they implement a comprehensive water stewardship approach as developed by the Alliance for Water Stewardship

**Requirements**

11.1 Water catchment context

11.1.1 The facility has a plan or map showing:

i. The facility boundaries

ii. On-site water sources and abstraction points

iii. Areas and sites within the facility where water is used

iv. Water-related infrastructure, including wells, piping network and any water treatment, recycling or storage systems owned or managed by the facility

v. On-site wastewater and stormwater discharge points

vi. Potential sources of water pollution

11.1.2 The facility has a map at a scale equivalent to level 6-10 of the HydroBASINS dataset showing:

i. the surface water catchment and, where applicable, the groundwater catchment in which the facility is located

ii. the location of the site's water service provider (if applicable) and water source(s)

iii. the location of the site's wastewater service provider (if applicable) and receiving water body or bodies

NOTE: HydroBASINS is a data layer that has been generated as part of the HydroSHEDS database. HydroSHEDS is a database that provides high-resolution information on the world's surface water and drainage features. HydroBASINS is a data layer which depicts consistently sized and hierarchically nested sub-basin boundaries at a global scale. There are 12 levels of HydroBASINS – with 1 being continental divides, and 12 being very small sub-subcatchments.

11.2 Water use

11.2.1 The facility monitors and records its:

i. total water consumption

ii. total water withdrawal

iii. total water discharge

iv. total water recycled and reused

v. total water stored

vi. water use efficiency

11.3 Water-related risk

11.3.1 The facility has identified its overall water risk level according to the WRI Water Risk Atlas, Aqueduct.

11.4 Water Stewardship

11.4.1 If facility location is considered to have 'high' or 'extremely high' overall water risk according to the WRI Water Risk Atlas the facility meets the core requirements of the Alliance for Water Stewardship (AWS) International Water Stewardship Standard (Version 3.0) or equivalent.

**References**

- Hydrosheds: https://www.hydrosheds.org/
- HydroBASINS: https://www.hydrosheds.org/products/hydrobasins
- WRI Water Risk Atlas, Aqueduct
- Alliance for Water Stewardship (AWS) International Water Stewardship Standard (Version 3.0): https://a4ws.org/aws-standard/

**Consultation Questions**

**11a.** General comments on the content of this section.

**11b.** Do you have any comments on the proposed requirement to meet the core requirements of the AWS International Water Stewardship Standard (Version 3.0) or equivalent if the facility is located in a High or Extremely High-Risk catchment?

Responsible Glass
Sustainability standards

## 12. Biodiversity

Glass manufacturing's relationship with biodiversity operates at two levels. At the facility level, glassmaking facilities occupy industrial land and their operations — including emissions to air and water, noise, lighting and water abstraction — can affect habitats and species in the surrounding area. At the supply chain level, the extraction of raw materials for glassmaking — principally silica sand, soda ash, limestone and dolomite — through quarrying, mining and dredging can have significant direct impacts on habitats, soils, watercourses and species. Supply chain issues are addressed in Section 5. This Section focuses on the protection of biodiversity at glassmaking facilities.

**Overview**

Section 12 requires that the facility has identified sensitive biodiversity areas that could be impacted by the facility's operations. The facility then manages its activities to avoid adverse impacts on such sensitive areas, in accordance with a documented biodiversity management plan validated by a competent body.

**Requirements**

12.1 Biodiversity context

12.1.1 The facility has a plan or map showing:

i. The facility boundaries

ii. Biodiversity sensitive areas that are within the area of influence of the facility's activities including:

- World Heritage sites
- Protected areas of the IUCN protected area management categories I-VI and conservation areas protected under national or local law
- Indigenous and community-conserved areas (ICCAs)
- Ramsar sites
- Key Biodiversity Areas (KBAs)
- Areas that were categorised as above but that have been downgraded, downsized or degazetted in the preceding 10-year period

NOTE: The area of influence can be determined by applying buffer distances specific to the undertaking's type of activity following regulatory requirements, science-based recommendations and industry best practice.

12.2 Biodiversity and ecosystem impact assessment and management

12.2.1 There is no evidence that the construction or subsequent extensions of the facility over the preceding 10-year period had negative impacts on biodiversity sensitive areas in the categories listed in 12.1.1

12.2.2 The site has identified and assessed the biodiversity risks and adverse impacts in its area of influence that result from its activities. The assessment has taken account of risks to, and adverse impacts on, the following:

- Protected and community-conserved areas and Ramsar sites
- Species on the IUCN Red List of Threatened Species, categorised as vulnerable, endangered or critically endangered
- Key Biodiversity Areas
- Natural and critical habitat, as well as modified habitat with significant biodiversity value

12.2.3 The site implements a documented management plan to address biodiversity risks and impacts in its area of influence that result from its activities.

12.2.4 A competent body verifies that the site's biodiversity risks and impacts assessment and the management plan are adequate and comprehensive.

12.2.5 Where a World Heritage site, Ramsar site or officially protected area has been established in, around or adjacent to the glassmaking facility after its own establishment, a competent body verifies that the facility's activities do not adversely impact the values for which the World Heritage site, Ramsar site or protected area was designated.

**Consultation Questions**

**12a.** General comments on the content of this section.

**12b.** Is the proposed approach appropriate to the level of biodiversity risk from glassmaking facilities?

## 13. Noise, Emissions, Effluents and Waste Management

Glass manufacturing generates noise, emissions to air, effluents and waste that can have significant adverse impacts on communities and the environment. Impacts may arise at different stages of the production process — from raw material handling through melting, forming, annealing and downstream processing. The combustion of natural gas at temperatures above 1500°C produces nitrogen oxides and particulates; batch materials may release sulphur dioxide, hydrogen fluoride and heavy metals during melting; continuous 24-hour operations create persistent noise; and furnace rebuilds generate spent refractory waste. Responsible management of these impacts is fundamental to the ResponsibleGlass programme's credibility and to maintaining each facility's social licence to operate.

**Overview**

Section 13 requires facilities to have policies and procedures integrated into their ISO management systems covering the following:

- **Noise and vibration:** the facilitate implements plans to prevent and reduce adverse impacts from noise and vibration on communities or the environment.
- **Emissions to air:** the facility implements plans to prevent and reduce emissions to air that have adverse impacts on communities or the environment

- **Spills and leaks:** the facility works to effectively prevent, detect, mitigate and remedy spills and leaks that cause harm to communities or the environment.
- **Waste, by-product and production residue management:** the facility applies the waste management hierarchy to reduce the impact of its waste and residues and takes account of full life cycle impacts to find the waste management option with the lowest environmental impact.

**Requirements**

13.1 Noise and vibration

The facility implements plans to prevent and reduce adverse impacts from noise and vibration on communities or the environment.

13.1.1 The facility has an ongoing monitoring programme that covers the facilities and plants it owns or fully or partly controls, and that establishes baseline values so that changes to noise and vibration levels can be identified.

13.1.2 The facility:

i. Reviews its operational and maintenance processes and identifies potential opportunities to prevent or reduce noise and vibration

ii. Analyses the feasibility of the identified opportunities and provides a clear rationale for why prevention and reduction opportunities are taken or not

13.1.3 Based on its analyses in 13.1.2.ii, the facility defines target levels and time-bound action plans to prevent and reduce noise and vibration.

13.1.4 The facility tracks its performance against the noise and vibration action plans. Where progress in achieving the targeted noise and vibration levels is lacking, the facility revises and amends its reduction plans.

13.1.5 A competent body regularly verifies the effectiveness of the facility's noise and vibration reduction plans. Where the facility has been the subject of controversy in relation to noise and vibration, it implements a mitigation plan. The effectiveness of the plan is verified by a competent body.

13.2 Emissions to air

The facility implements plans to prevent and reduce emissions to air that have adverse impacts on communities or the environment

13.2.1 For emissions to air with adverse impacts on communities or the environment, the facility has an ongoing programme or is taking part in a regional programme that monitors its point source emissions from the facilities and plants that the facility owns or fully or partly controls, and that establishes baseline values so that changes to air emission levels can be identified.

13.2.2 The facility:

i. Reviews its operational and maintenance processes and identifies potential opportunities to prevent or reduce point-source, diffuse and fugitive adverse emissions to air

ii. Analyses the feasibility of the identified opportunities and provides a clear rationale for why

prevention and reduction opportunities are taken or not

13.2.3 Based on its analyses in 13.2.2.ii, the facility:

i. Defines target levels and time-bound plans to prevent and reduce point-source adverse emissions to air

ii. Implements measures to prevent and reduce diffuse and fugitive adverse emissions to air

13.2.4 The facility tracks its performance against the air emissions reduction plans. Where progress in achieving the targeted air emissions levels is lacking, the facility revises and amends its reduction plans.

13.2.5 A competent body regularly verifies the effectiveness of the facility's air emissions reduction plans. Where the facility has been the subject of controversy in relation to air emissions, it implements a mitigation plan. The effectiveness of the plan is verified by a competent body.

### 13.3 Spills and leaks

The facility works to effectively prevent, detect, mitigate and remedy spills and leaks that cause harm to communities or the environment.

13.3.1 The facility implements a preventive maintenance programme aimed at preventing spills and leaks. The programme includes:

i. Identification of structures, equipment and systems that apply to the programme

ii. Regular inspections of identified structures, equipment and systems

iii. Regular testing of such structures, equipment and systems

iv. Corrective and preventive action plans, where needed, to ensure structures, equipment and systems are in proper working order

v. Records of preventive maintenance work

13.3.2 The facility has documented procedures for managing the impacts from spills and leaks. The procedures define how the facility will:

i. Analyse and assess the impact from spills and leaks

ii. Mitigate and remediate the impact of spills and leaks

iii. Quantify mitigation and remediation progress when a spill or leak has occurred

13.3.3 A competent body regularly verifies the effectiveness of the facility's prevention programme and management procedures for spills and leaks. Where the facility has been the subject of controversy in relation to spills and leakage, it implements a mitigation plan. The effectiveness of the plan is also verified by a competent body.

### 13.4 Waste, by-product and production residue management

The facility applies the waste management hierarchy to reduce the impact of its waste and residues and takes account of full life cycle impacts to find the waste management option with the lowest environmental impact.

13.4.1 The facility implements a waste and production residues management plan that applies the waste management hierarchy, informed by Life Cycle Thinking, to reduce adverse impacts from waste, by-products and production residues on humans and the environment. As part of its waste management strategy, the facility:

i. Characterises accruing waste and production residues to identify their potential for waste avoidance and recovery, as well as the disposal routes that pose the least risk and impact on humans and the environment for each type of accruing waste and production residue

ii. Outlines measures for avoiding and mitigating risks and impacts from generation, storage, handling, treatment, transportation and disposal of the different types of accruing waste and production residues

iii. Defines targets and time-bound plans to reduce the amount of waste that is sent to landfill, on- or off-facility

iv. Applies a policy that prohibits the discharge of production residues to riverine, submarine and lake environments. Only where riverine, submarine and lake discharge is socially and environmentally the best option, does the policy grant an exception. These exceptional circumstances are documented with reasons for the exception clearly explained

13.4.2 The facility addresses risks and impacts on humans and the environment associated with the off-facility movement and transportation of its accrued waste and production residues. Where the facility contracts third parties to carry out these activities on its behalf, the facility takes action to ensure that it addresses the risks and impacts on humans and the environment.

13.4.3 When third parties conduct hazardous waste and production residues storage, transportation and disposal on a facility's behalf, the facility requires chain of custody and ownership documentation to the final destination.

13.4.4 Any on- or off-facility storage areas that the facility uses:

i. Must effectively prevent the release of production residues and leachates to the environment, considering potentially catastrophic events such as floods and earthquakes

ii. Are routinely checked and controlled by competent parties to ensure their integrity

13.4.5 Where the facility practices waste and production residues storage, it has established a timeline and a roadmap to phase this out in the mid-term.

13.4.6 The facility tracks its performance on managing waste and production residues and has evidence that it is implementing its strategy effectively.

13.4.7 Effective implementation of the facility's waste and residues management plan is regularly verified by a competent body. Where the facility has been the subject of controversy in relation to waste and production residues, it implements a mitigation plan. The effectiveness of the plan is then verified by a competent body.

**Consultation Questions**

**13a.** General comments on the content of this section.

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Sustainability standards

## Responsible Production, Social Aspects

# 14. Occupational Health and Safety

Glass manufacturing involves inherently hazardous processes — high-temperature furnaces operating continuously at 1400°C - 1600°C, molten glass handling, batch mixing with fine particulates (silica dust, soda ash, limestone), use of hazardous materials (hydrofluoric acid in some processes, tin in float glass), heavy machinery, confined spaces, and significant noise levels. When accidents or occupational illnesses occur, they can have serious or fatal consequences. The top priority at any responsible glassmaking facility is therefore health and safety. A clear, senior-management-endorsed policy provides the foundation for all occupational health and safety (OHS) activities and signals the facility's commitment to its workers, contractors, communities and regulators.

**Overview**

The content of this section is contingent on whether it is a requirement to implement ISO 45001: 2018, as proposed in Section 1.

The requirements below are drafted on the basis that facilities are NOT required to implement ISO 45001: 2018. In other words, these requirements would be an alternative to ISO 45001: 2018 certification.

If it is decided that facilities must be certified to meet the requirements of ISO 45001: 2018, as proposed in Section 1, this section would be substantially revised.

Currently, this Section covers:

- **Occupational Health and Safety Policy:** the facility has an Occupational Health and Safety (OHS) policy that recognises the rights of workers and acknowledges the obligations of employers to protect the health and safety of workers.
- **Occupational Health and Safety management system:** the facility establishes, implements, maintains and continually improves its OHS management system.
- **Leadership and worker engagement on Occupational Health and Safety:** the facility demonstrates leadership and commitment with respect to OHS, trains and educates workers on OHS-related matters on an ongoing basis and has an effective mechanism for worker engagement and participation in key OHS decisions.
- **Support and compensation for work-related injuries or illness:** the facility provides workers with support and compensation for work-related injuries or illness and cares for their dependants in case of work-related death.
- **Safe and healthy workplaces:** the facility's plants, infrastructure, workplaces, equipment and tools are safe and maintained in good working order.
- **Occupational Health and Safety performance:** the facility monitors and discloses key aspects of its OHS performance and works to improve it over time.
- **Emergency preparedness and response:** the facility has identified and assessed emergency situations

and has tested emergency preparedness and response processes in place to avoid and minimise the impact of accidental and emergency situations.

**Requirements**

14.1 OHS policy

The site has an OHS policy that recognises the rights of workers and acknowledges the obligations of employers to protect the health and safety of workers.

14.1.1 The site has a public formal OHS policy that:

i. Provides a framework for the setting of objectives for OHS

ii. Is applicable to all workers

iii. Has been formally endorsed by the site's senior management and workers are consulted when changes are made to the policy

iv. Is communicated to workers using languages, methods and channels that are understood and are easily accessible to them

14.1.2 The OHS policy includes the following commitments:

i. To aim for elimination of OHS risks through the identification, elimination or control of hazards and for reduction of risks

ii. To provide a healthy and safe working environment

14.2 Health and Safety (OHS) management system

The site establishes, implements, maintains and continually improves a OHS management system.

14.2.1 The site implements a documented OHS management system that:

i. Assigns accountability for OHS to senior management and documents OHS responsibilities

ii. Covers the full scope of the site's processes, activities, products and services

iii. Shows that the site has taken account of the needs and expectations of workers, local communities and other parties that are affected by its activities

iv. Aligns with a recognised national or international OHS management system standard or recognised guidelines

14.2.2 The OHS management system includes effective documented procedures to:

i. Identify all applicable OHS laws and regulations in relation to OHS and ensure that relevant requirements are effectively implemented

ii. Identify and assess potential hazards and associated OHS risks, including health and wellbeing risks, using competent persons and considering emerging and critical OHS risks

iii. Determine and implement preventive and protective control measures aimed at eliminating hazards and reducing risks to levels that are as low as reasonably practicable, giving due

consideration to industry best practice in determining and implementing control measures

iv. Consult with workers to ensure they have information on and comprehensive participation in OHS matters and decisions that affect them

v. Determine and implement education and training programmes for workers on OHS matters

vi. Report incidents including near-misses and occurrences of occupational diseases on an ongoing basis, undertake investigations, including reviewing absent or failed control measures, and implement effective actions to prevent similar incidents re-occurring in the future

14.3 Leadership and worker engagement on OHS

The site demonstrates leadership and commitment with respect to OHS, trains and educates workers on OHS-related matters on an ongoing basis and has an effective mechanism for worker engagement and participation in key OHS decisions.

14.3.1 The site's senior management has processes in place to demonstrate personal leadership and commitment with respect to OHS, including:

i. Setting of OHS objectives and targets

ii. Engaging workers in key OHS-related decisions

iii. Regular and effective management review of OHS risks, opportunities and performance (see 14.6 below)

14.3.2 The site has an effective mechanism that brings together site management and workers to discuss OHS-related issues and to engage workers in decisions on key OHS matters:

i. The purpose, structure, scope and formal rules of procedure of the mechanism, as well as the roles and responsibilities of those participating in the mechanism are documented

ii. Individual workers participating in the mechanism have been freely chosen by workers

iii. The mechanism has a balanced composition where neither site management nor worker interests dominate

iv. There are processes to build and ensure the competence of individuals participating in the mechanism

v. There are processes to ensure the timely provision of comprehensive and accurate information to enable effective discussion and decision-making by participants

14.3.3 Beyond the worker-management mechanism, the site implements processes to encourage worker participation to improve OHS outcomes and provides a mechanism for workers to raise, discuss and participate in the resolution of OHS concerns with senior management.

14.4 Support and compensation for work-related injuries or illness

The site provides workers with support and compensation for work-related injuries or illness and cares for their dependents in case of work-related death.

14.4.1 The site has processes in place to provide care and support to injured or ill workers and support rehabilitation, including health and wellbeing.

14.4.2 In countries in which compensation for work-related injury, illness or death is not provided through a government scheme, collective bargaining agreement or mandatory benefits by law, the site has a commitment to cover the costs and losses associated with work-related injury, illness or death.

14.4.3 To implement 14.4.2., the site has documented procedures for:

i. Determining and providing compensation to workers for work-related injury or illness, considering medical expenses, wages during the recovery and rehabilitation period, suitable duties during recovery and rehabilitation and, where recovery is not possible, lost future earnings

ii. Determining and providing compensation to workers if an occupational illness connected to the worker's duties manifests after a worker has retired

iii. Determining and providing compensation to worker's dependents in the event of work-related death

14.4.4 The site keeps records on:

i. Incidents of work-related injury, illness or death

ii. Received claims to compensate for work-related injury, illness or death and how they have been dealt with

iii. Paid compensation and how the compensation amount was determined

## 14.5 Safe and healthy workplaces

The site's facilities, plants, infrastructure, workplaces, equipment and tools are safe and maintained in good order.

14.5.1 The site provides facilities, plants, infrastructure, equipment, materials and tools that do not pose risk to health and risk of incidents and ensures they are maintained in safe working order.

14.5.2 The site ensures that workers are provided with a safe and healthy working environment, which includes but is not limited to:

i. Clean and hygienic workplaces, including factory, offices, sanitation areas, food storage and meals break areas with seating

ii. Safe and accessible drinking water, free of charge

iii. Sanitation facilities commensurate with the number of workers and adequate for the gender of workers

14.5.3 If workers are provided with on-site housing, the site ensures that such housing is maintained to a reasonable standard of safety, security, repair and hygiene, and is provided with sufficient and proper sanitation facilities, drinking water, and access to an adequate power supply.

## 14.6 OHS performance

The site monitors and discloses key aspects of its OHS performance and works to improve it over time.

14.6.1 The site monitors OHS performance through a combination of leading and lagging indicators and keeps performance records. Performance is reviewed by senior management and by the worker-management mechanism on a regular basis and necessary actions are taken to improve OHS outcomes.

14.6.2 The site has a process to verify its performance data and regularly discloses key aspects of its OHS performance to the public.

14.7 Emergency preparedness and response

The site has identified and assessed emergency situations and has tested emergency preparedness and response processes in place to avoid and minimise impact of accidental and emergency situations.

14.7.1 The site has processes in place to identify and assess emergency situations on a regular basis.

14.7.2 The site has documented emergency preparedness and response procedures in place to avoid and minimise loss of life, injuries and damage to property, health and social well-being of its workers, local communities and the environment in the event of accidental and emergency situations.

14.7.3 The documented emergency preparedness and response procedures are developed and regularly tested with workers. Where potential emergency situations might affect local communities or neighbouring organisations, local authorities and emergency responders are engaged in the development and testing of the processes.

14.7.4 The emergency preparedness and response procedures are included in worker and emergency responder training programmes and communication plans. Where relevant, the emergency preparedness and response processes are communicated to local authorities, local communities and neighbouring organisations.

14.7.5 The site tests the effectiveness of its emergency preparedness and response procedures. Where necessary, the site defines and implements actions to ensure the processes are effective.

14.7.6 The site anticipates and insures against the cost of reparation for accidents and emergency situations to ensure that funds are available for implementing effective emergency response, pay compensation for damages, injury or loss of life, and for the site to fund recovery and reconstruction in a timely and efficient manner.

**Consultation Questions**

**14a.** General comments on the content of this section.

**14b.** Do you think that it should be a requirement of the Standard to meet the requirements of ISO 45001: 2018?

Responsible Glass
Sustainability standards

## 15. Labour Rights

Glass manufacturing relies on a diverse workforce — from highly skilled furnace operators and engineers to general operatives, maintenance teams, and contracted and agency workers. The sector operates in many countries with varying legal frameworks, labour market conditions and cultural contexts. Seeking to ensure that all workers are treated with dignity and respect, and that their fundamental rights are protected, is a core commitment of the ResponsibleGlass programme.

**Overview**

ResponsibleGlass certified glassmaking facilities will have policies and procedures integrated into their ISO management systems covering the following.

- **Child and juvenile labour:** the facility does not use or tolerate child labour, effectively addresses any detected incidents of child labour, and cares for juvenile workers.
- **Forced or compulsory labour:** the facility does not use or tolerate forced or compulsory labour and effectively addresses any detected incidents of forced or compulsory labour.
- **Non-discrimination:** the facility's hiring decisions and employment relationships are based on the principle of equal opportunity, and actively prevent all forms of discrimination and promote workforce diversity and inclusion.
- **Association and collective bargaining:** the facility respects and supports workers' rights to freedom of association and collective bargaining.
- **Disciplinary practices:** the facility does not use, threaten to use or tolerate disciplinary practices that undermine workers' dignity and effectively addresses any detected incidents of such disciplinary practices.
- **Hearing and addressing workers' concerns:** the facility ensures that workers' concerns are resolved. Workers and their representatives can communicate openly and safely with management regarding working conditions.
- **Communication of terms of employment:** the facility ensures that workers understand their current employment terms with regards to wages, working hours and other employment conditions.
- **Remuneration:** the facility pays workers fairly, regularly and on time, there are no inappropriate deductions from wages and overtime is rewarded.
- **Working time:** the facility complies with applicable law and industry standards on working time, overtime, public holidays and paid leave.
- **Worker wellbeing:** the facility promotes worker wellbeing through offers to reconcile work and private life, support the health of workers and advance their qualifications.

**Requirements**

15.1 Child and juvenile labour

The facility does not use or tolerate child labour, effectively addresses any detected incidents of child labour, and cares for juvenile workers.

15.1.1 The facility has a public policy declaring that it does not use or tolerate child labour.

15.1.2 The facility has effective procedures in place to:

i. Assess the risk of using or tolerating the use of child labour

ii. Analyse if there are children working at its facility and document the results

15.1.3 Where there is a risk of child labour being used or tolerated at the facility, there are effective procedures in place to:

i. Address these risks

ii. Record, investigate and address any identified concerns related to child labour

iii. Take action to remove child labour where it is detected, with provisions to ensure the continued welfare of the child and, where the child is a primary provider, its family

15.1.4 The facility's contracts with employment and recruitment agencies and with other external providers of workers explicitly prohibit the use of child labour.

15.1.5 In relation to juveniles, the facility has an effective procedure in place to:

i. Identify and document the types of work that juveniles should not perform, such as work that requires significant experience or specialist training, to ensure they are not exposed to activities that might be hazardous or harmful to their health or safety

ii. Ensure that juveniles do not perform the work outlined in 15.1.5.i

15.2 Forced or compulsory labour

The facility does not use or tolerate forced or compulsory labour and effectively addresses any detected incidents of forced or compulsory labour.

15.2.1 The facility has a public policy declaring that it does not use or tolerate forced or compulsory labour.

15.2.2 The facility has effective procedures in place to:

i. Analyse if there is forced or compulsory labour at its facility, and document the results

ii. Identify and document the risk of forced or compulsory labour at the facility

15.2.3 Where there is a risk of forced or compulsory labour at the facility, there are effective procedures to:

i. Address these risks

ii. Record, investigate and address any allegations related to forced or compulsory labour

iii. Take action to remove forced and compulsory labour where it is detected, with provisions to ensure the continued welfare of the workers in question

15.2.4 The facility's contracts with employment and recruitment agencies and other external providers of workers explicitly prohibit the use of forced and compulsory labour.

15.3 Non-discrimination

The facility's hiring decisions and employment relationships are based on the principle of equal opportunity, and actively prevent all forms of discrimination and promote workforce diversity and inclusion.

15.3.1 The facility has a public policy stating that it:

i. Prohibits discrimination in its hiring and other employment practices

ii. Provides equal pay for work of equal value

iii. Ensures, where relevant, that migrant workers are engaged on equivalent terms and conditions as non-migrant workers carrying out similar work

15.3.2 The facility has effective procedures in place to analyse the risk of workers being affected by discrimination and documents the results.

15.3.3 Where there is a risk that workers are affected by discrimination, the facility has effective procedures to:

i. Address these risks

ii. Document, investigate and address any incidents or allegations of discrimination

15.3.4 The facility's contracts with employment and recruitment agencies and other external providers of workers explicitly prohibit discrimination.

15.3.5 The facility implements a programme to promote inclusion, workforce diversity, gender equality, and to create a culture of non-discrimination among workers.

15.3.6 The facility collects data demonstrating that it provides equal pay for work of equal value.

15.4 Association and collective bargaining

The facility respects and supports workers' rights to freedom of association and collective bargaining

15.4.1 The facility has a public policy stating that it allows workers to associate freely with others, form or join organisations of their choice and bargain collectively, without interference, opposition, discrimination, retaliation or harassment.

15.4.2 Where national law restricts workers' organisations, the facility has evidence showing that it respects and does not obstruct legal alternative means for workers to associate freely.

15.4.3 There is a documented process for engaging in collective bargaining processes that shows the facility:

i. Participates in good faith

ii. Provides workers' representatives and workers' organisations with the information needed for meaningful negotiation, and does so in a timely manner

iii. Does not hire replacement workers or use agency workers as a strategy to prevent or break up a legal strike, support a lockout, or avoid negotiating in good faith

15.4.4. Where collective bargaining agreements exist, the facility has evidence showing that it adheres to their

provisions.

15.4.5 The facility:

i. Respects the right for employment and recruitment agency workers to collectively bargain, and their freedom of association

ii. Provides information on the provisions of any collective bargaining agreements that apply to facility workers carrying out similar work, for employment and recruitment agencies to review and consider

iii. Requires employment and recruitment agencies to comply with 15.4.1 of this Standard

iv. Requires employment and recruitment agencies to adhere to collective bargaining agreements that apply to them. In the absence of an applicable collective bargaining agreement, the legal minimum wage or prevailing industry standard conditions, whichever is greater, will apply

v. Ensures that when using employment and recruitment agencies, the facility has demonstrable processes in place to ensure it protects workers' health and safety.

15.4.6 Workers' representatives have access to suitable facilities to carry out their functions, such as designated non-work areas for communicating with workers.

15.5 Disciplinary practices

The facility does not use, threaten to use or tolerate disciplinary practices that undermine workers' dignity and effectively addresses any detected incidents of such disciplinary practices.

15.5.1 The facility has a public policy that prohibits threats or use of disciplinary practices that undermine workers' dignity (called 'undignified disciplinary practices', hereafter).

15.5.2 The facility has effective procedures in place, developed together with workers and their legitimate representatives, to analyse the risk of undignified disciplinary practices being used or threatened and documents the results.

15.5.3 Where there is a risk that the facility causes or tolerates undignified disciplinary practices, the facility has effective procedures to:

i. Address these risks

ii. Document, investigate and address any incidents and allegations of undignified disciplinary practices being used or threatened

15.5.4 The facility's contracts with employment and recruitment agencies and other external providers of workers explicitly prohibit the use or threat of using undignified disciplinary practices.

15.6 Hearing and addressing workers' concerns

The facility ensures that workers' concerns are resolved. Workers and their representatives can communicate openly and safely with management regarding working conditions.

15.6.1 The facility has documented and effective procedures in place that can be used by workers and

workers' representatives to voice concerns and by the facility to investigate those concerns. The procedures:

i. Allow workers and their representatives to report concerns without fear of reprisal, intimidation or harassment. Workers and their representatives can choose to report concerns in an anonymous manner, where this is legally accepted, and via a third-party mechanism

ii. Ensure that concerns are investigated and resolved in an impartial and timely manner, and that complainants are informed of the outcomes of the investigation

iii. Require that records of raised concerns, investigation processes and outcomes are maintained, ensuring that the confidentiality of the party or parties who raised the concern is protected

15.6.2 Workers and their representatives are made aware of the facility's procedures and how to access reporting mechanisms using languages, methods and channels that are understood and easily accessible to them.

15.6.3 The facility provides mechanisms to workers and their representatives for suggesting improvements or changes to the workplace and to working conditions. The facility keeps records of received suggestions and how they are considered.

### 15.7 Communication of terms of employment

The facility ensures that workers understand their current employment terms with regards to wages, working hours and other employment conditions.

15.7.1 The terms of employment are laid out in written contracts for all workers. These are communicated to them at the beginning of the working relationship and when changes are made to the terms, using languages, methods and channels that are understood and easily accessible to workers. The terms of employment include:

i. Workers' rights under national labour and employment law

ii. Days and hours of work, payment, overtime, compensation and benefits

iii. Applicable collective agreements

iv. Pay structure and pay periods

15.7.2 The facility's contracts with employment and recruitment agencies and other external providers of workers explicitly ask for the terms of employment to be communicated to workers at the beginning of the working relationship and when changes are made to the terms, using languages, methods and channels that are understood and are easily accessible to workers.

### 15.8 Remuneration

The facility pays workers fairly, regularly and on time, there are no inappropriate deductions from wages and overtime is rewarded.

15.8.1 The facility has a public remuneration policy that commits the facility to:

i. Pay at least the applicable legal minimum wage to all workers or the wage set through a collective agreement, whichever is higher. Where there is no legal minimum wage and no

collective agreement, the facility pays the prevailing industry standard. The facility also pays any benefits required by law or contract

ii. Reward workers for overtime hours at a premium

iii. Pay workers in monetary means only and in full

15.8.2 The facility has an effective procedure in place to ensure that workers are paid accurately and on time and that there are no wage deductions other than deductions permitted by law.

15.8.3 For each pay period, workers are provided with a timely and understandable pay statement that includes sufficient information to verify accurate payment for performed work.

15.8.4 The facility's contracts with employment and recruitment agencies and other external providers of workers require them to pay all workers performing activities at the facility:

i. The applicable legal minimum wage or, where there is no legal minimum wage, the prevailing industry standard, plus any benefits required by law

ii. In monetary means only, in full and on time

15.8.5 Where there are on-site shops, the facility ensures that goods and services are not offered above the regional market price and that workers are not coerced into buying goods and services from these shops.

15.8.6 Where accommodation is provided by the facility or on behalf of the facility, it is offered at no more than the appropriate market rate.

15.8.7 If requested by the workers' representatives, the facility commits to introducing a living wage for its workers. The commitment requires the facility to:

i. Work with the regional government, other companies and, where they exist, trade unions to define the regional living wage, unless it has already been defined

ii. Develop a time-bound plan to implement the living wage over time

### 15.9 Working time

The facility complies with applicable law and industry standards on working time, overtime, public holidays and paid leave.

15.9.1 The facility has a public policy stating that:

i. Effective fatigue management is key in determining working time, shift patterns and time off for workers

ii. Activities requiring overtime work are accepted voluntarily by workers

iii. All workers are provided with appropriate time off for meals and breaks, demonstrating effective processes for fatigue management

iv. The facility provides all workers with paid annual leave of at least three working weeks after the worker reaches one year of service

15.9.2 The facility's contracts with employment and recruitment agencies and other external providers of workers explicitly bind them to the provisions of the facility's public policy on working time.

15.9.3 The facility grants paid maternity leave of at least 12 weeks.

15.9.4 Where its activities allow this, the facility offers flexi-time working and reduction of working time to care for children or other dependants.

15.10 Worker wellbeing

The facility promotes worker wellbeing through offers to reconcile work and private life, support the health of workers and advance their qualifications.

15.10.1 The facility promotes worker wellbeing through offers to reconcile work and private life, support the health of workers and advance their qualifications.

15.10.2 The measures to promote worker wellbeing are available to all workers employed directly by the facility. Workers are made aware of the measures to promote worker wellbeing and how to access them, using languages, methods and channels that are understood and are easily accessible to them.

**Consultation Questions**

**15a.** General comments on the content of this section.

## 16. Human Rights

Companies can have a profound impact on human rights. The UN Guiding Principles on Business and Human Rights establish that businesses must avoid causing or contributing to adverse human rights impacts through their own activities and seek to prevent or mitigate impacts directly linked to their operations, products or services through business relationships. The glassmaking sector has supply chains and operations spanning many countries with varying legal frameworks, and faces human rights risks at multiple stages. Supply chain issues are addressed in Section 5. This Section focuses on the protection of human rights at glassmaking facilities.

**Overview**

ResponsibleGlass certified glassmaking facilities will have policies and procedures integrated into their ISO management systems covering the following.

- **Human rights due diligence:** the facility acts diligently to avoid infringing on the rights of others and to address adverse human rights impacts.
- **Security practice:** the facility does not support public or private security providers engaged in illegal practices and works to ensure that security providers respect human rights.
- **Conflict-affected and high-risk areas:** the facility does not contribute directly or indirectly to armed conflict, human rights abuses or risks for workers and communities in conflict-affected or high-risk areas.

**Requirements**

16.1: Human rights due diligence

The facility acts diligently to avoid infringing on the rights of others and to address adverse human rights impacts.

16.1.1. There is a public policy on the facility's commitment to respect human rights.

16.1.2. In line with a specified procedure, the facility has identified and assessed the human rights-related risks and adverse impacts that it causes or contributes to. The identification and assessment of human rights-related risks and impacts is updated on a regular basis and is informed by input from internal and external stakeholders.

16.1.3. Where it causes or contributes to human rights-related risks or adverse impacts, the facility implements effective procedures to identify the root causes and define actions to prevent and mitigate these risks and adverse impacts.

16.1.4. The actions to prevent and mitigate human rights-related risks and adverse impacts are communicated to workers and local communities using languages, methods and channels that are understood and easily accessible to them.

16.1.5. A competent body regularly verifies the effectiveness of the facility's procedures for preventing and mitigating human rights-related risks and adverse impacts. Where the facility has been the subject of controversy in relation to human rights impacts, verification is conducted by a competent body.

16.2 Security practice

The facility does not support public or private security providers engaged in illegal practices and works to ensure that security providers respect human rights.

16.2.1 The facility has a public policy on security arrangements that commit to respect human rights and public freedoms.

16.2.2 In areas where there is a need for extensive measures to ensure security of people, property and assets, the facility:

i. Analyses the options for managing risk and avoiding threat to life of facility workers and visitors and uses armed security only when there is no reasonable alternative

ii. Consults with the government and local communities on security arrangements

iii. Communicates key aspects of the security arrangements to local communities using languages, methods and channels that are understood and easily accessible to them

16.2.3 The facility has documented procedures that cover:

i. Screening of security workers and public and private security providers regarding their involvement in human rights abuses and illegal practices

ii. Regular training of security workers and providers on their roles and appropriate behaviour

iii. Deployment of security workers and providers and the individuals working for them

iv. Monitoring of security workers and provider conduct

v. Investigation of allegations of human rights abuses by security providers

16.3 Conflict-affected and high-risk areas

The facility does not contribute directly or indirectly to armed conflict, human rights abuses or risks for workers and communities in conflict-affected or high-risk areas.

16.3.1 When operating in conflict-affected or high-risk areas, the facility has a public policy confirming that it does not tolerate any direct or indirect support to non-state armed groups or their affiliates who:

i. Illegally control mine sites, transportation routes and/or upstream actors in the supply chain

ii. Illegally tax or extort money or minerals at point of access to mine sites, along transportation routes or at points where minerals are traded

iii. Illegally tax or extort intermediaries, processing companies, export companies or international traders

16.3.2 For conflict-affected or high-risk areas, the facility has effective procedures in place to:

i. Monitor its transactions, flows of funds and resources to ensure it is not directly or indirectly providing funding or support to non-state armed groups

ii. Immediately suspend or discontinue engagement with business partners where the facility has identified a reasonable risk that it is linked to any party providing direct or indirect support to non-state armed groups

**Consultation Questions**

**16a.** General comments on the content of this section.

## 17. Local Communities and Rights Holders

Glassmaking facilities exist within communities, and their activities can affect a wide range of stakeholders. Poor relations with stakeholders increase business and reputational risk, while effective engagement builds trust and resilience. Particular attention must be paid where the operation of glassmaking facilities may affect the legal or customary rights of Indigenous Peoples or other rights holders.

**Overview**

ResponsibleGlass certified glassmaking facilities will have policies and procedures integrated into their ISO management systems covering the following

- **Commitment to local communities:** the facility is committed to respecting the health and safety, and the legal and customary rights and interests of local communities and supports their social and

economic wellbeing.

- **Free, Prior and Informed Consent (FPIC):** the facility considers activities that might affect the rights of indigenous peoples, the facility obtains the peoples' free and informed consent before carrying out such activities.
- **Cultural heritage:** the facility respects and safeguards cultural heritage within its area of influence.
- **Displacement and resettlement:** the facility strives to avoid the need for displacement or resettlement but, where unavoidable, minimises its scope and the resulting adverse impacts.

**Requirements**

17.1 Commitment to local communities

The facility is committed to respecting the health and safety, and the legal and customary rights and interests of local communities and supports their social and economic wellbeing.

17.1.1 The facility has a public commitment to:

i. Safeguard the legal and customary rights and interests, cultures, customs and values of local communities regarding lands, their use of natural resources and their livelihoods

ii. Maintain or improve the social and economic wellbeing of local communities affected by the facility's operations

17.1.2 In consultation with local community and local government representatives, the facility has developed a plan to deliver its commitment to maintaining or improving the social and economic wellbeing of local communities. The plan:

i. Outlines individual steps that the facility's management will take or support

ii. Contains timelines and the resources that will be made available to implement the plan

iii. Explains how the facility's support will contribute to the self-sustainment of the institutions, initiatives or projects receiving that support

iv. Shows that the facility has considered marginalised community members

v. Is made public in a clear and understandable manner, using channels that are easily accessible for local communities

17.1.3 Together with local community and local government representatives, the facility monitors the implementation of the plan and adjusts it where needed to ensure it continues to support the social and economic wellbeing of the local communities affected by the facility's operations.

17.2 Free, Prior and Informed Consent (FPIC)

Where the facility considers activities that might affect the rights of indigenous peoples, the facility obtains the peoples' free and informed consent before carrying out such activities.

17.2.1 Where new activities or changes to existing activities are planned, the facility and affected indigenous peoples agree and document a process for obtaining FPIC that is consistent with the indigenous peoples'

traditional decision-making processes, while respecting internationally recognised human rights.

17.2.2 The facility achieves FPIC before approving new activities or changes to existing activities that might affect the lands, natural resources or cultural heritage that are subject to traditional ownership or under customary use by indigenous peoples.

17.2.3 The outcomes of the negotiations and any agreements reached between the facility and the affected indigenous peoples are documented and approved by the parties, as outlined in the FPIC process, and are made accessible to the members of the affected indigenous peoples.

### 17.3 Cultural heritage

The facility respects and safeguards cultural heritage within its area of influence.

17.3.1 The facility has a documented procedure for identifying and dealing with cultural heritage sites and values in its area of influence that:

i. Has been developed in consultation with affected communities

ii. Follows the mitigation hierarchy of avoiding, minimising, restoring and offsetting adverse impacts from the facility's activities

iii. Ensures continued access rights for affected communities to cultural sites or values

17.3.2 Implementing the procedure is a collaborative effort between the facility and affected communities

17.3.3 Where critical cultural heritage exists in the facility's area of influence, the facility does not remove, significantly alter or damage it, or instruct another party to do so, unless the affected communities request its removal for the purpose of protection and preservation.

17.3.4 Where cultural heritage sites or values of indigenous peoples may be affected, the facility applies the FPIC process (see paragraph 17.2).

17.3.5 Where an impact on cultural heritage occurs, the effectiveness of mitigation measures is monitored and actions to address any issues are defined and implemented by the facility, in cooperation with affected communities.

### 17.4 Displacement and resettlement

The facility strives to avoid the need for displacement or resettlement but, where unavoidable, minimises its scope and the resulting adverse impacts.

17.4.1 Where physical and economic displacement of communities is being considered, the facility develops a procedure to:

i. Identify and assess the risks and potential adverse impacts of that displacement on affected community members

ii. Consider alternative operational set-ups to avoid or minimise physical and economic displacement

iii. Include affected communities in the process, paying particular attention to marginalised community members

17.4.2 When physical displacement is unavoidable, the facility develops a Resettlement and Compensation Action Plan, in consultation with the affected communities.

17.4.3 When economic displacement is unavoidable, the facility develops a Livelihood Restoration Plan, in consultation with the affected communities.

17.4.4 The facility applies the compensation standards outlined in the Resettlement and Compensation Action Plan and in the Livelihood Restoration Plan consistently to all affected community members and ensures that compensation is completed by the time of the displacement.

17.4.5 When indigenous peoples are involved, the facility applies the FPIC process (see paragraph 17.2).

17.4.6 The facility monitors implementation of the Resettlement and Compensation Action Plan and the Livelihood Restoration Plan together with affected communities. Where necessary, the facility modifies the way it implements the plan to ensure that livelihoods, livelihood security and living standards are improved or restored.

17.4.7 The facility commissions a competent body to conduct a completion audit of the Resettlement Action Plan and Livelihood Restoration Plan to verify that adequate mitigation measures have been put in place and communicates the audit results to the public.

**Notes**

Section 3 (Stakeholder Engagement and Communication) requires the facility to maintain a formal register of stakeholders and rights holders that may be affected by the facility's operations, with up-to-date contact information of appropriate contacts.

**Consultation Questions**

**17a.** General comments on the content of this section.

Responsible Glass
Sustainability standards

## Part E: Design for Sustainability and Circularity

The design of glass products (including both physical aspects of design, the chemical composition of the glass, and coatings, etc) can have significant downstream sustainability impacts, positive or negative, for the products in use as well as at the end of their lives in use.

Examples include:

- Designing glass containers for reduced weight, lowering the GHG emissions of transportation
- Designing glass products for strength or durability, increasing the potential for re-use
- Designing architectural glass with consideration for its thermal or acoustic properties
- Designing architectural glass with consideration for bird impacts
- Consideration of the chemical composition of glass, and the risk of harmful chemical constituents leaching into the environment in use or on disposal, for example antimony in solar glass.
- The potential to support end of life recovery and recycling through identifying marks applied at the time of production

Glassmakers are not responsible for the way their products are used and disposed of but do have a responsibility to address constraints that their production may impose on downstream users, and on eventual recovery for recycling, reuse or disposal. They should also be supported and rewarded in designing products that have the potential to generate positive sustainability impacts.

In order to achieve these objectives Sections 18 and 19 require that ResponsibleGlass certified glassmaking facilities consider the influence that glassmaking has on the downstream sustainability impacts of glass and glass products, and where possible take actions to mitigate potential downstream negative impacts and facilitate positive impacts of their glass and glass products, both in use and at the end of use.

## 18. In-use impacts

**Overview**

ResponsibleGlass certified glassmaking facilities:

- Have reviewed the sustainability impacts (positive and negative) of their glass or glass products in use
- Are taking actions to mitigate negative in-use impacts and enhance positive in-use impacts of products made with their glass

**Requirements**

18.1 The facility has reviewed and documented the in-use sustainability impacts (both positive and negative) of the glass products made with their glass, in consultation with customers and other relevant stakeholders and experts.

18.2 The facility has reviewed and documented the potential to reduce the negative in-use impacts and/or improve positive in-use impacts through changes to its manufacturing processes or product design. The review has included consultation with customers and other relevant stakeholders and experts.

18.3 The facility is implementing a programme of product development, specified in consultation with its customers and other relevant stakeholders and experts, with the aim of reducing identified negative in-use sustainability impacts and/or improving positive in-use impacts of products made using its glass.

18.4 The facility can demonstrate that the glass it produces (including consideration of coatings or treatments that it applies within the facility boundary) does not leach contaminants into the soil or water, in use.

**Consultation Questions**

**18a.** General comments on the content of this section.

**18b.** The proposed approach is 'soft' in comparison to some of the other sections of the Standard, to leave space for glassmakers to innovate. It takes a continuous improvement approach, leaving progress largely at the discretion of the glassmaking facility itself. The main driver of change would be the benefit that the company gains from being able to design and market more sustainable products over time, recognizing that there can be trade-offs between different aspects (for example, in relation to strength vs lightweighting in container designer). Does this approach have merit, or would it be more likely to create cost without sustainability impact? Are there better approaches?

**18c.** The main area in which a 'hard' approach is proposed is in relation to the risk of contamination of soil or water, or human health impact during a product's life in use. Is this a reasonable approach?

## 19. End-of-life impacts

**Overview**

ResponsibleGlass certified glassmaking facilities:

- Have reviewed the expected end of life fate of the glass they produce, taking account of the products it is used for, and current performance on recovery, re-use, recycling, downcycling or disposal of those products
- Are taking actions to mitigate negative impacts and enhance positive impacts of products made with their glass at the ends of their lives in use

**Requirements**

19.1 The facility has reviewed, in consultation with customers and other relevant stakeholders and experts, and documented the expected end-of-life destination of the glass it produces, taking account of the range of products it is used for, and current performance on recovery, reuse, recycling, downcycling or disposal of such categories of products.

19.2 The review includes quantitative estimates of the proportion of its production that ends life as:

i. Recovered and re-used

ii. Recovered and recycled for glassmaking

iii. Recovered and used to substitute for other materials (e.g. for production of concrete, asphalt, etc)

iv. Landfill or unaccounted for

19.3 The facility has reviewed and documented the potential for its own actions in relation to glassmaking to reduce the negative end of life impacts and/or improve positive end-of-life impacts. The review has included consultation with customers and other relevant stakeholders and experts.

19.4 The facility implements a programme of continuous improvement, designed in consultation with customers and other relevant stakeholders and experts, with the aim of improving the potential for its glass and glass products to be recovered, reused, recycled, or downcycled at the end of product life in use.

19.5 The facility can demonstrate that the glass it produces (including consideration of coatings or treatments that it applies within the facility boundary) does not leach contaminants into the soil or water on disposal.

**Consultation Questions**

**19a.** General comments on the content of this section.

**19b.** The proposed approach is 'soft' in comparison to some of the other sections of the Standard, intended to leave space for glassmakers to innovate. It takes a continuous improvement approach, leaving progress largely at the discretion of the glassmaking facility itself. The main driver of change would be the benefit that the company gains from being able to design and market more sustainable products over time. Does this approach have merit, or would it be more likely to create cost without sustainability impact? Are there better approaches?

**19c.** The main area in which a 'hard' approach is proposed is in relation to the risk of contamination of soil or water when glass is disposed of. If implemented as proposed glassmaking facilities would not be certifiable if the glass they produce is likely to result in such contamination at the end of its life in use. Is this a reasonable approach? An alternative could be to focus on the labelling of specific products, rather than on their production.

Responsible Glass
Sustainability standards

# ANNEXES

## Annex One: Bibliography

This annex lists documents and organisations that may be relevant to different sections of the Standard. References are not normative. The annex is intended as a resource for stakeholders and rights holders interested in the development of the Standard.

- Alliance for Water Stewardship (AWS)
- Aluminium Stewardship Initiative Performance Standard Version 3.1 (April 2023)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
- BetterCoal Bettercoal Code 2.0
- BS EN 15804:2012 + A2:2019 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products
- CEO Water Mandate
- Clean Energy Buyers Association (CEBA)/ Clean Energy Buyers Institute (CEBI)
- Cleaner Production Standard – Soda Ash Industry (HJ 474 2009) Ministry of Ecology and the Environment, People's Republic of China
- Cleaner soda ash production: A techno-economic assessment of electrochemically-based alternatives to the Solvay process. Wenzel et al (2026) Energy Conversion and Management Volume 348, 15 January 2026.
- Close the Glass Loop Initiative
- Coalition for Responsible Sands and Silicates (CRSS)
- Convention on Biological Diversity (CBD)
- Cradle to Cradle Product Standard (V4.0)
- CRAFT Code 2.0 (2024)
- Equitable Origin EO100™ Standard
- European Union BAT Reference Document for the Manufacture of Glass (BAT conclusions)
- European Union Batteries Regulation (EUBR) Regulation (EU) 2023/1542
- European Union Corporate Sustainability Due Diligence Directive 2024/1760
- European Union Deforestation Regulation (EUDR)
- European Union Industrial Emissions Directive (IED) 2010/75/EU
- European Union Water Framework Directive - Environmental Quality Standards
- Fair Circularity Initiative (FCI)

- GHG Protocol
- Global Living Wage Coalition methodology and benchmarks
- Global Reporting Initiative (GRI)
- Global Resources Information Database (GRID) Geneva
- IFC Environmental, Health and Safety Guidelines - Glass Manufacturing
- IFC Environmental, Health and Safety Guidelines - Noise Management
- IFC Performance Standards on Environmental and Social Sustainability, Performance Standard 8 and
- ILO Convention C1 - Hours of Work (Industry)
- ILO Convention C29 - Forced Labour
- ILO Convention C87 - Freedom of Association and Protection of the Right to Organise
- ILO Convention C98 - Right to Organise and Collective Bargaining
- ILO Convention C100 - Remuneration
- ILO Convention C105 - Abolition of Forced Labour
- ILO Convention C111 - Discrimination (Employment and Occupation)
- ILO Convention C120 – Hygiene (Commerce and Offices)
- ILO Convention C121 - Employment Injury Benefits Convention
- ILO Convention C138 - Minimum Age
- ILO Convention C148 – Working Environment (Air Pollution, Noise and Vibration)
- ILO Convention C155 - Occupational Safety and Health
- ILO Convention C169 - Indigenous and Tribal Peoples
- ILO Convention C181 - Private Employment Agencies
- ILO Convention C182 - Worst Forms of Child Labour
- ILO Convention C187 - Promotional Framework for Occupational Safety and Health
- ILO Convention C190 - Violence and Harassment
- ILO General Principles and Operational Guidelines for Fair Recruitment (2019)
- Indigenous and Community Conserved Areas (ICCA)
- Initiative for Responsible Mining Assurance (IRMA)
- International Code of Conduct for Private Security Service Providers (ICoCA)
- Intertek CarbonClear
- ISEAL: Making credible living wage claims - a framework to guide practice VERSION 1.0 (December 2023)

- ISO 14001:2015 Environmental management systems
- ISO 14021: 2016 Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)
- ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 14064 series: Greenhouse gases. Parts 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals; Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements; Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.
- ISO 14067:2018 Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication
- ISO 14068-1:2023 Climate change management — Transition to net zero. Part 1: Carbon neutrality.
- ISO 14069:2013 Greenhouse gases – Quantification and reporting of greenhouse gas emissions for organizations – Guidance for the application of ISO 14064-1.
- ISO 1996-1:2016 Acoustics — Description, measurement and assessment of environmental noise Part 1: Basic quantities and assessment proceduresISO 14001:2015 Environmental management systems
- ISO 20400:2017 Sustainable procurement — Guidance
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 26000, Guidance on social responsibility
- ISO 37001:2025 Anti-bribery management systems — Requirements with guidance for use
- ISO 37301:2021Compliance management systems — Requirements with guidance for useOECD Guidelines for Multinational Enterprises (2011)
- ISO 45001:2018 Occupational health and safety management systems
- ISO 50001:2018 Energy management systems - Requirements with guidance for use
- IUCN Red List of Threatened Species and IUCN Protected Area Categories
- Key Biodiversity Areas (KBA) database
- Minamata Convention on Mercury
- OECD Due Diligence Guidance for Responsible Business Conduct (2018)
- OECD Due Diligence Guidance for Responsible Supply Chains of Minerals
- OECD Guidelines for Multinational Enterprises (2011)
- OSHA Recordkeeping Standards (US) / HSE RIDDOR (UK) / equivalent national reporting requirements
- PACT (Partnership for Carbon Transparency) Methodology

- Ramsar convention of wetlands
- European Union Renewable Energy Directive 2023/2413
- Responsible Care ® (International Council of Chemical Associations), and associated Responsible Care Codes
- Responsible Minerals Initiative (RMI)
- ResponsibleSteel Production Standard (v2.1.1) (October 2024)
- Roundtable on Responsible Recycling of Metals (RRRM)
- Safety and Quality Assessment for Sustainability (SQAS)
- Science Based Targets Network (SBTN) guidance on monitoring nature targets
- Solar Stewardship Initiative (SSI)
- Sustainability Accounting Standards Boad (SASB)
- Taskforce on Nature-related Financial Disclosures (TNFD) reporting framework
- The Science Based Targets Initiative (SBTI)
- Transparency International
- UN Convention on the Rights of the Child
- UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007)
- UN Guiding Principles on Business and Human Rights - Principle 31 (effectiveness criteria for non-judicial grievance mechanisms)
- UNEP/ GRID Global Sand Monitoring and Governance Programme
- United Nations Guiding Principles on Business and Human Rights, 2011
- Voluntary Principles on Security and Human Rights
- WHO Air Quality Guidelines (2021)
- WHO Environmental Noise Guidelines for the European Region (2018)
- WRI Aqueduct Tool
- WWF Water Risk Filter

Responsible Glass
Sustainability standards

## Annex Two: Downstream Traceability, Chain of Custody and Claims [FOR INFORMATION ONLY, NOT PART OF DRAFT STANDARD]

This annex provides a brief explanation of the relationship between the ResponsibleGlass International Standard for Glassmaking, and the development of a separate ResponsibleGlass Standard for Downstream Chain of Custody.

1. The Terms of Reference for the development of the ResponsibleGlass International Standard for Glassmaking state that the standard:

- Is intended to support claims about the sustainability performance of certified glassmaking facilities, and, on that basis, about the sustainability attributes of glass made and processed at such facilities.
- Shall provide for the identification of different levels of performance by glassmaking facilities.
- Shall provide the basis for on-product labelling of the glass products made at ResponsibleGlass certified facilities
- But shall not specify the claims that may be made by glassmaking facilities or by their customers in relation to the level of sustainability performance achieved, or the rules for the use of ResponsibleGlass trademarks in support of such claims. Such claims and rules for trademark use shall be specified through a separate standard setting process that shall include consideration of traceability and 'chain of custody' requirements at the facility and between the facility and downstream manufacturers and users of the glass made at the facility.

2. There are a number of reasons why it is proposed to address issues relating to claims, traceability, and chain of custody in a separate standard:

- Specification of requirements for chain of custody control, traceability, labelling and claims options require different areas of stakeholder expertise, for example in relation to marketing, communications, 'green claims' and related legal considerations, rather than in relation to the technical aspects of sustainability performance that are the focus of the glassmaking standard;
- While the options for downstream claims are dependent on the nature of the glassmaking standard, as long as the glassmaking standard generates performance measures by which different levels of sustainability performance can then be defined (as specified in its ToR), these options are kept open;
- Consideration of different options in relation to downstream chain of custody, traceability, and performance thresholds for labelling and claims would be likely to distract from the specification of management requirements, sustainability metrics and measurement methodologies that are the focus of the standard for glassmaking;
- ISO guidance on the drafting of normative documents suitable for conformity assessment (ISO/IEC 17007: 2009) states that such normative documents should not contain 'specific indications of conformity', such as marks of conformity. ResponsibleGlass requirements for product claims and labelling will, however, need to consider specifications for the use of ResponsibleGlass trademarks as indications of conformity.

3. It is, however, important that stakeholders engaged in the development of the glassmaking standard are aware of the intended use of the standard as the basis for subsequent claims, and it will be essential for stakeholders engaged in the development of the standard(s) for claims and labelling to be fully aware of, and to have the potential to influence, the development of the glassmaking standard, so as to ensure that the two standards are fully aligned.

4. The process for developing the ResponsibleGlass standard (or, potentially, standards) for downstream traceability, chain of custody and claims will therefore take place in parallel with the process for developing the ResponsibleGlass International Standard for Glassmaking, with the intention that standards for glassmaking, and downstream chain of custody, traceability and claims are ready for approval at the same time.

5. The ResponsibleGlass Board has not yet specified the Terms of Reference for the development standard(s) for downstream chain of custody, traceability, claims and labelling, but the following principles are under discussion:

- While a range of claims may be possible in relation to the sourcing of glass from ResponsibleGlass certified glassmaking facilities, including consideration of claims based on so-called 'mass balance' or 'book and claim' approaches, the use of ResponsibleGlass logos or certification marks on product will only be permitted for glass products that are made with glass that is guaranteed to originate from glassmaking facilities that are ResponsibleGlass certified (the 'segregation' approach to chain of custody).
- Two options are currently under consideration:
    - **Data disclosure, with no minimum performance threshold.** Under this option glass products made with 100% ResponsibleGlass certified glass would be able to carry a ResponsibleGlass logo, together with a QR code linking customers to the sustainability data for the glass in the product.
    - **Data disclosure, with minimum threshold performance for labelling.** Under this option glass products made with 100% ResponsibleGlass certified glass would only be able to carry a ResponsibleGlass logo (and QR code linking customers to the sustainability data for the glass in the product) if the glass in the product has achieved minimum levels of performance in relation to key sustainability metrics, for example relating to the sourcing input materials, recycled content, GHG emissions intensity, etc.
    - In this latter case, minimum performance thresholds would be expected to differ for different glass product categories, to reflect differences in the challenges and constraints of achieving specified thresholds for different product categories. For example, minimum performance threshold for the use of ResponsibleGlass logos or certification marks on container glass products would be expected to be different to those for flat glass or fiber glass products, reflecting the different constraints on recovery and recycling of quality cullet as inputs for those product categories.
- In either case, a range of labelling options will be considered. However, the strong preference of the Board is that the ResponsibleGlass logo or certification mark should consist of a single mark and associated QR code linked to key sustainability data, although additional information may also be provided on product (for example about the level of recycled content).

6. Draft Terms of Reference for the development standard(s) for downstream chain of custody, traceability,

claims and labelling will be discussed with the relevant ResponsibleGlass working group prior to finalization by the Board, and drafting of the standard(s) will be carried out with the active participation of the working group.