START

Definitions, Methodology & Scope

Aluminium Certificate

Version: January 2025

The environmental metrics on the START Certificate are based on the data collected by Rio Tinto for internal and external reporting purposes. All site-level data are for Rio Tinto's managed operations (including QAL) and non-managed (Joint Venture) sites.

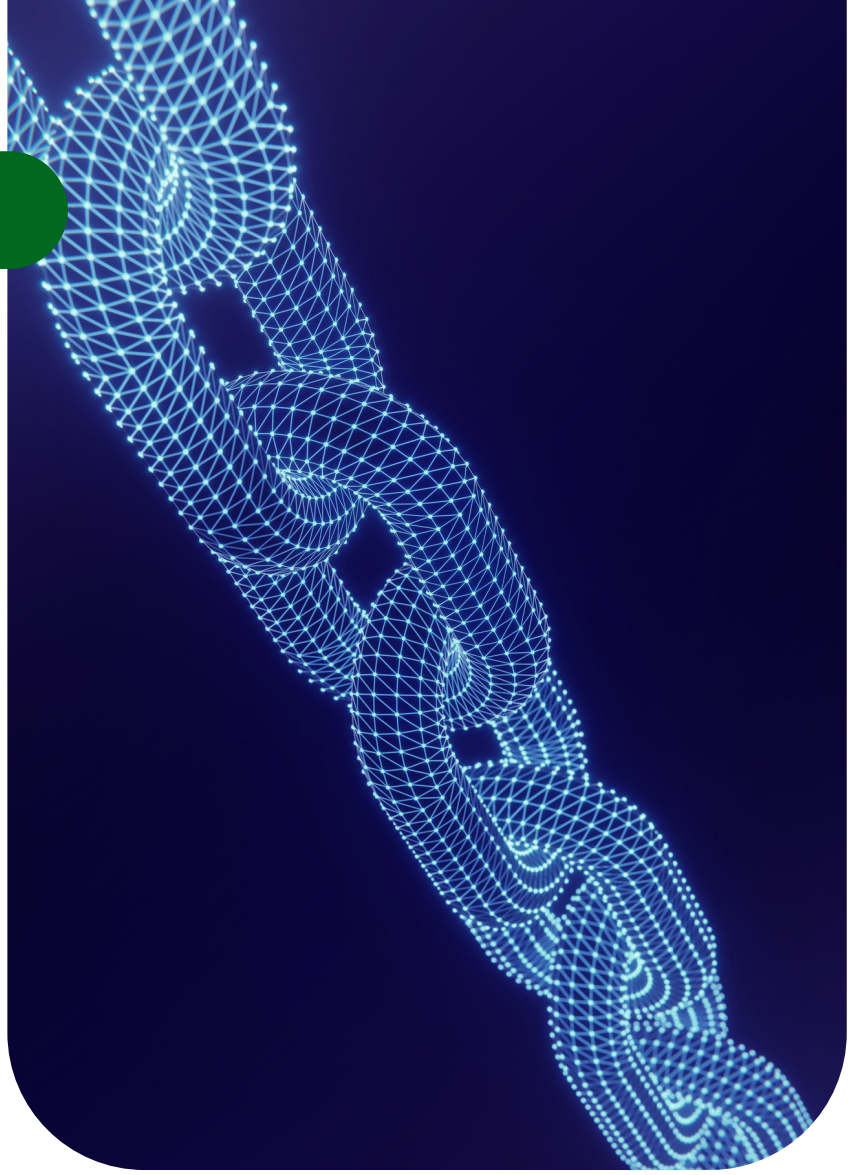
Introduction

Sustainability is personal, and we believe everyone should play a part. That is why we use the term **VCare – Value Chain Care**, to reiterate the importance of caring for sustainability, and use it throughout our documents.

This document seeks to define the metrics included in the **START Aluminium Certificate**, covering mainly provenance and environmental metrics.

Provenance

1. Mining
2. Alumina Refining
3. Aluminium Casting
4. Transportation
5. Destination



VCare - Chain

VCare Chain provides provenance from mine to metal, demonstrating the linkage between responsible production, responsible sourcing and procurement.

The bauxite and alumina provenance information is from 2019, and where there are multiple sources of supply, data is provided representing the highest percentage source country.

Aluminium Stewardship Initiative (ASI)

ASI is a global non-profit standards setting and certification organisation. ASI's mission is to to recognise and collaboratively foster responsible production, sourcing and stewardship of aluminium.

ASI acknowledges companies' performance by providing two types of certification:

- *Performance Standard*
- *Chain of Custody Standard*

Chain of Custody Standard Certification

- *Ensures traceability from mine to market*
- *Certify your aluminium supply chain throughout the whole value chain*

Environmental Metrics

VCare Planet

These metrics focus on Rio Tinto's performance as a steward of the natural environment.

Global Warming Potential (GWP)

Greenhouse Gases (GHG) are atmospheric gases that absorb and emit radiation within the thermal infrared range, contributing to the greenhouse effect and global climate change. Many different GHGs are produced as a result of human activities, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), nitrogen trifluoride (NF_3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).[1]

CO_2 equivalent (CO_2-e) is the universal unit of measurement to indicate the GWP of each of the seven greenhouse gases, expressed in one unit of CO_2. It is used to evaluate releasing (or avoid releasing) different greenhouse gases on a common basis.[2]

The emissions are expressed as tonnes of CO_2-e per tonne of aluminium produced.

The START Certificate presents Life Cycle Assessment (LCA) results and the RenewAl certification. The LCA include direct and indirects emissions from the bauxite extration to the casting of cold metal, whereas RenewAl certification is limited to scope 1&2 emissions of all the activities of the smelting site. Both are calculated on a location based-approach.

Life cycle assessment

The START Certificate's site data is based on third-party validated cradle-to-gate 2019 (2020 for Becancour) LCA[3] data for cold metal produced. The following stages are included in the LCA study: bauxite mining, alumina refining, coke calcining, anode production, electrolysis and casting.

ISO 14044 methodology is used to conduct the LCA. Exclusions include use, end-of-life, recycling, research and development activities, any secondary or tertiary packaging (e.g. pallets), business travel and office and personnel impacts. The emissions calculation for the sales order is based on cold metal. The global average is based on the International Aluminium Institute (IAI) 2015 data.

RenewAl™

RenewAl™ is an Industry's first certified low carbon aluminium. It's given to Rio Tinto Aluminium products with certified content of 4 tCO_2 -e / tAl or below for scope 1&2 emissions at smelting site. Rio Tinto low carbon aluminium certificate based (less than 4 tCO_2-e / tAl) on 3rd party data assurance. Certificate provided by Rio Tinto based on 3rd party limited assurance.

Recycled Content

The recycled content in the START Certificate includes pre-and-post-consumer scrap.

The label aligns with ISO standard 14021 definition of pre-consumer scrap (i.e., a material containing aluminium that is diverted from the waste stream from a manufacturing process) and post-consumer scrap (i.e., a material containing aluminium that is reclaimed from a consumer or commercial product that has been used for its intended purpose and which can no longer be used for its intended purpose)[4].

The pre-consumer scrap includes scrap from a secondary producer such as extrusion butts, defect scrap, and external scrap, including material from aluminium purchases from customers and other third-party entities for internal remelting. Post-consumer scrap is end of life recycling and can include drink cans, wheel recycling, construction, or scrap yard materials.

Excluded are internal scrap produced (drain cast or internal rejects), dross untreated (including cold metal returned from treatment), scrap from a smelter or lining containing aluminium, transfers, or exchanges, among other Rio Tinto sites, and scrap from the casthouse. The same scrap produced is also consumed on-site. Also excluded in the pre-consumer scrap is the reutilisation of materials such as rework, regrind or scrap (i.e., internal scrap) generated in a process capable of being reclaimed within the same process that generated it.

Smelting Electricity Source

The majority of our assets are using hydropower energy although we also have assets operating from coal. The use of hydropower is crucial to achieving low carbon emissions. The global average of GHG emissions in 2014 for coal was 820gCO_2-e / kWh, and for hydropower was 34gCO_2-e / kWh, about 24 times lower than coal-generated electricity.[5]

The percent source of renewable energy is taking a location-based approach.

1 Adapted from World Resource Institute / World Business Council for Sustainable Development's Greenhouse Gas Protocol: A Corporate Reporting and Accounting Standard, March 2004 (the GHG Protocol) (www.ghgprotocol.org)

2 https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

3 Available upon request

4 Adapted from ISO 14021:2016

5 Sovacool et al. (2016); and Markandya, A., & Wilkinson, P. (2007) data published in Our World in Data www.ourworldindata.org)

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