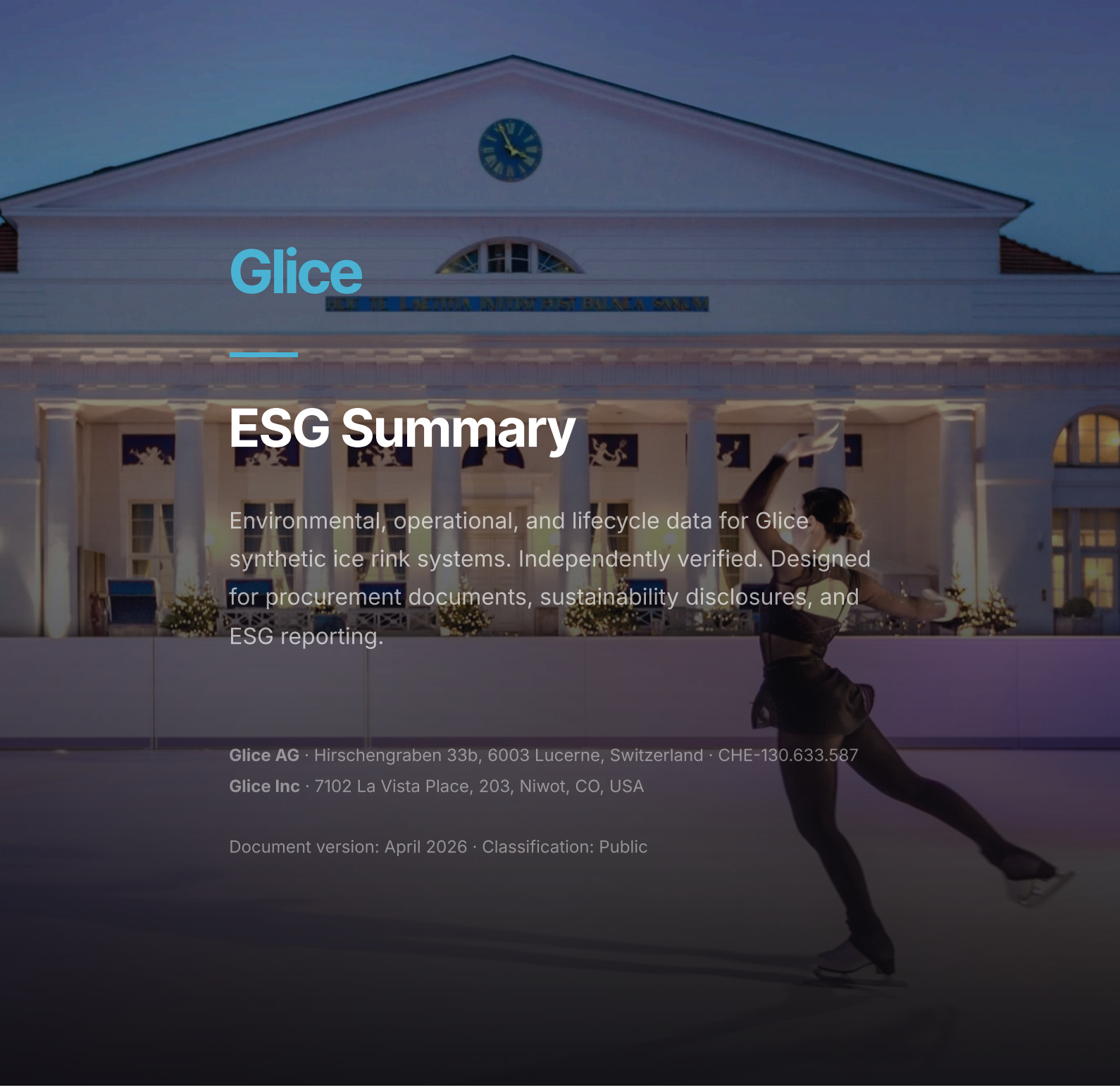

Glice

ESG Summary

Environmental, operational, and lifecycle data for Glice synthetic ice rink systems. Independently verified. Designed for procurement documents, sustainability disclosures, and ESG reporting.

Glice AG · Hirschengraben 33b, 6003 Lucerne, Switzerland · CHE-130.633.587
Glice Inc · 7102 La Vista Place, 203, Niwot, CO, USA

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1. WHAT TRADITIONAL ICE ACTUALLY COSTS

The hidden footprint of refrigerated ice

Refrigerated ice is one of the most resource-intensive surfaces in modern public space. Per square meter, every year, a traditional refrigerated rink consumes up to 840 kWh of electricity, 600 liters of water, and 1.8 liters of synthetic refrigerant - emitting roughly 285 kg of CO_2 in the process.

These are not Glice numbers. They are the industry's own benchmarks, sourced from ASHRAE and the Arena Guide Canada.

840 kWh	285 kg	600 L	1.8 L
per m² / per year	per m² / per year	per m² / per year	per m²
Electricity consumption[1]	CO_2 emissions[1]	Water consumption[2]	Synthetic refrigerant[3]

2. OPERATIONAL IMPACT - GLICE OPERATES AT ZERO

Per m² of conventional ice replaced, per year

A Glice rink uses no electricity to maintain its surface, no water to resurface, and no refrigerants to chill. The savings are not marginal - they are structural.

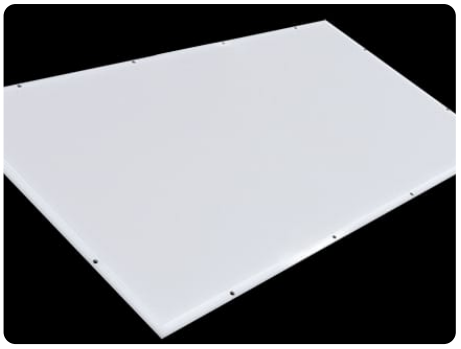
METRIC	200 M² (HOTEL)	600 M² (CITY CENTRE)	1,800 M² (FULL-SIZE)
Electricity avoided	168,000 kWh	504,000 kWh	1,512,000 kWh
CO_2 emissions avoided	57 t	171 t	513 t
Water saved	120,000 L	360,000 L	1,080,000 L
Refrigerant eliminated	360 L	1,080 L	3,240 L

3. MANUFACTURING, MEASURED

Every Glice panel pays back its production footprint in three weeks

Manufacturing a standard Glice panel (2 m²) produces approximately 30.96 kg of CO_2 - or 15.48 kg per square meter. That is the total embodied carbon: raw material extraction, polymerization, extrusion, finishing, and packaging.

A conventional refrigerated rink surface emits approximately 285 kg of CO_2 per m² per year. A Glice panel's entire production footprint is equivalent to roughly three weeks of operation of the ice surface it replaces. After that, every day of use is a net positive.



3 Weeks

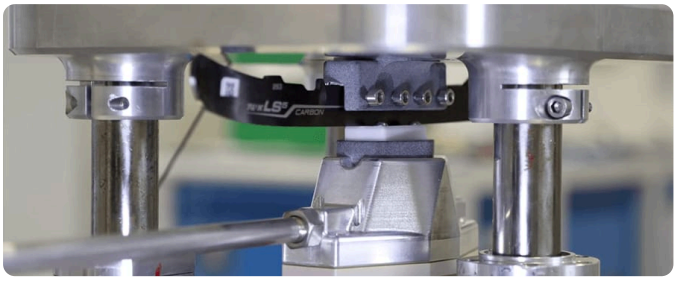
Full production CO_2 payback period

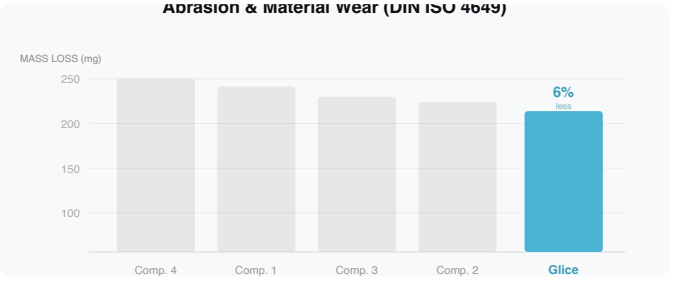
280x

More energy required for aluminum refrigeration piping vs. Glice panel production

4. MICROPLASTICS & ABRASION - INDEPENDENTLY VERIFIED

Less abrasion than competitors. 99% of it captured.





Left: Fraunhofer IWM tribometer testing setup. Right: DIN ISO 4649 abrasion comparison across synthetic ice brands.

Independent testing by the Fraunhofer Institute for Mechanics of Materials (Fraunhofer IWM) confirmed that Glice surfaces produce measurably less abrasion than competing synthetic ice products under identical test conditions.[4]

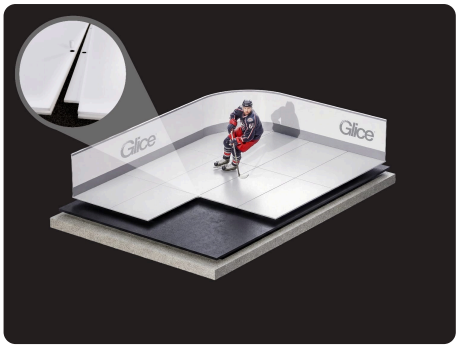
GLICE RINK	SHOE SOLES	CAR TIRES
0.0016 g	**0.3 g**	**3.36 g**
per skater / per use	per day	per day
Baseline	200x more	2,000x more

Glice operates an EcoProtocol system on every installation: integrated edge-capture barriers, a maintenance resurfacing process that collects shavings, and a documented disposal pathway ensuring 99% of all surface particulates are captured and recycled.[5,6]

Testing institutions: Fraunhofer IWM (Freiburg, Germany) · Wefapress (ISO-certified) · DIN ISO 4649

5. CIRCULAR ECONOMY

A panel that lasts 20 years, used on both sides, recycled at the end



Glice panels are engineered for a minimum 20-year service life, backed by a 12-year warranty - the longest in the synthetic ice industry. Each panel is designed to be flipped and used on both sides, effectively doubling the active skating surface over the product's lifetime.

When panels reach end of life, Glice operates a take-back and regrinding program. Used panels are reground into raw polyethylene feedstock and reprocessed at full grade - not downcycled. Panels retired from professional use but still functional are donated through partnerships including Habitat for Humanity.

PRODUCTION → 20-YEAR USE (BOTH SIDES) → REGRINDING / RECYCLING → HUMANITARIAN REUSE

6. SKATE FOR THE PLANET - REFORESTATION PROGRAM

Every panel we produce plants a tree

Since 2016, Glice has operated a one-panel-one-tree policy. Every synthetic ice panel manufactured triggers the planting of one tree through verified reforestation partners.

170,000+

trees planted and counting

The program began with Plant-for-the-Planet, transitioned to Eden Reforestation Projects, and currently operates through Trees for the Future - a USDA-supported nonprofit whose Forest Garden program was named a UN World Restoration Flagship. Each tree absorbs more than 200 kg of CO_2 over its lifetime.[7]

Combined with the zero-operation footprint of every Glice rink installed, the reforestation program makes the company climate-positive on a lifecycle basis. Glice does not buy offsets. It plants trees and reports the numbers.

Every Glice installation connects skating with sustainability - from panel to planted tree.

Partners: Plant-for-the-Planet · Eden Reforestation Projects · Trees for the Future · UN World Restoration Flagship

7. GOVERNANCE & CERTIFICATION

Sustainability claims need governance behind them

Left: Municipal city-centre installation. Right: Community rink - both operating under Glice Rink Manager Certification.

Every Glice rink installation is assigned a certified Rink Manager - a trained individual accountable for maintaining the rink to Glice's operational and environmental standards. The certification is mandatory and a prerequisite for warranty activation.

MANDATORY

Rink Manager Certification

Required for every Glice installation. Covers operational standards, maintenance protocols, and environmental compliance. Prerequisite for warranty activation and ongoing technical support.

AVAILABLE ON REQUEST

Eco Rink Certification

Auditable documentation including lifecycle analysis, abrasion test results, energy offset calculations, and reforestation data. Designed for municipal tenders, ESG reports, and sustainability disclosures.

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8. METHODOLOGY & SOURCES

Every claim, sourced

The data in this document is drawn from independent testing, published industry standards, and verified operational records. Every figure is traceable, and underlying documentation is available on request.

[1] Electricity consumption and CO_2 emissions per m² for refrigerated ice rinks derived from ASHRAE Handbook - HVAC Applications (Chapter 44: Ice Rinks) and Arena Guide Canada operational benchmarks. CO_2 conversion uses the European grid average of approximately 0.34 kg CO_2/kWh.

[2] Water consumption figures based on Arena Guide Canada and IIHF Facility Guidelines, accounting for resurfacing (Zamboni) cycles, dehumidification losses, and ice-plant cooling water.

[3] Refrigerant volumes based on standard charge rates for ammonia (NH_3) and HFC-based refrigeration systems as documented in ASHRAE Standard 15 and industry installation guidelines.

[4] Fraunhofer Institute for Mechanics of Materials (Fraunhofer IWM), Freiburg, Germany. Independent comparative friction and abrasion testing of synthetic ice surfaces, commissioned by Glice AG. Full report available on request.

[5] Wefapress abrasion testing under DIN ISO 4649 conditions. Shoe sole and tire microplastic comparison data sourced from Fraunhofer UMSICHT, "Microplastics in the Environment" (2018) and OECD Workshop on Microplastics from Textile and Tyre Wear (2020).

[6] Glice EcoProtocol documentation. Capture rate of 99% based on documented maintenance and collection procedures across active installations.

[7] Trees for the Future (TREES). CO_2 absorption estimate of 200+ kg per tree over lifetime based on USDA Forest Service methodologies and TREES Forest Garden Program data. UN World Restoration Flagship designation by the United Nations Decade on Ecosystem Restoration.

For full test reports, lifecycle analysis methodology, and reforestation verification, contact Glice via **glicerink.com** or request the complete documentation package.