Draslovka

CARBON INTENSITY REPORT

Comparison of GlyCat™ and Cyanidation

Prepared for Draslovka by SKARN Associates

SKARN ASSOCIATES

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Executive Summary

Draslovka's patented glycine leaching technology for gold recovery, GlyCat™, dramatically reduces cyanide usage while also lowering or eliminating detoxification measures, with the potential to transform the sustainability of the gold mining industry.

GlyCat extends mine life by lowering the cut-off grade and unlocking value hidden in tailings, providing significant economic benefits.

Draslovka recently commissioned a study on the impact of Glycine Leaching Technology on emissions from a third-party assessor, Skarn Associates. The study was conducted across three processes (flotation, heap leach, and CIL/CIP processes) and demonstrated that operations making use of GlyCat™ observed reductions in Scope 3 emissions as well as carbon intensity, driven largely by the reduction of cyanide and resultant power savings in the detox unit.

- GlyCat achieved a ~90% reduction in Scope 3 emissions related to cyanide use
- An estimated 35% reduction in carbon intensity of CIL/CIP operations, driven by improved recovery
- An estimated 14% reduction in carbon intensity of heap leach operations
- Potential to reduce Scope 2 emissions at operations where cyanide detoxification facilities are no longer required

All carbon intensity is measured on a tCO2/Au equivalent basis

Methodology & Assumptions

Modelling Approach

Item	Approach
Baseline scope emissions	• For each category of the gold extraction process, we quantified scope 1, 2, and 3 emissions. We utilized sustainability, annual, and technical reports as data sources and forecast the carbon intensity (tCO2/Au oz) until the Life of Mine (LOM).
Test work review	• Understand the test work conducted at gold sites • Identify equivalent tests for each asset's operation (e.g., mini columns similar to heap leach) • Collect the data of the best results for each category using recovery as the criteria. The required input parameters for the model are lime, cyanide, and Glycat dosages (kg/t) along with the corresponding recovery rates
Modelling	• We ran the model with the new parameters to calculate gold equivalent production, as well as the consumption and emissions of reagents. • We quantified the carbon intensity with the adjusted parameters and proceed to compare the results

Assumptions

- **Reagent dosage:** In both scenarios, with and without cyanide, the reagent dosages (kg/t) are assumed to be equal to the test work which produced the highest metallurgical recovery. Lime dosage is constant for baseline and GlyCat™ scenarios.
- **Experiment selections:** For each process, data from the most appropriate experiment was utilized. For instance, Heap Leach assumptions are based on mini-column tests, while CIL assumptions are based on bottle-roll tests.
- **Recovery:** Recovery is assumed to remain constant throughout the year and is equal to that achieved in both the scenarios with and without GlyCat™.
- **Scope 1 & 2 Emissions:** Each operation's Scope 1 and 2 emissions are quantified using Skarn's methodology and are assumed to remain unchanged when GlyCat™ is employed in the operation. In a real scenario, **Scope 2 emissions are expected to decrease due to a reduction of energy due to a lower detox intensity.** It is estimated that a decrease of between 0.5% and 4% of total power consumption on the site would be observed depending on the size of the detox unit and which process is being used.

Assumptions (continued)

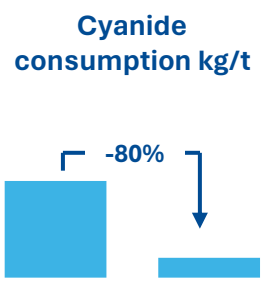
- **Scope 3 Emissions:** The quantification is specific to the reagents of interest (lime, cyanide, and Glycat™) using emission factors. The cyanide factor was provided by Draslovka, and an estimation was made for GlyCat™ by Skarn. The consumption of reagents used for the detox process should decrease due to lower WAD levels (e.g., sodium bisulfite).
- **Emission factors:** This is an indication of how much CO2 is emitted per ton of that material. It is clear that the main driver in reducing Scope 3 emissions is the reduction of cyanide.
    - Cyanide: 4.103 tCO2/t Cyanide
    - Glycine & Cyanide (GlyCat™): 0.446 tCO2/t Glycat
    - Lime: 0.15 tCO2/t Lime
- **Samples:** Samples are representative of the mineralogy of LOM production.
- **Gold equivalent:** For all assets, carbon intensity is quantified using gold equivalent production (Au Equivalent), which includes silver and copper production.

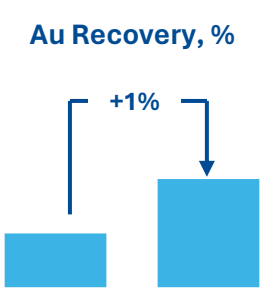
Model Results

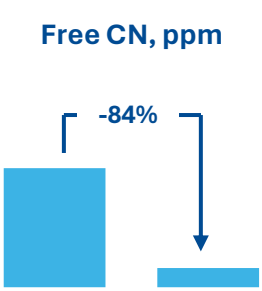
High tonnage Cu/Au Flotation operations

For this study case, full-scale production data was used. The study found that the use of GlyCat™ provided a;

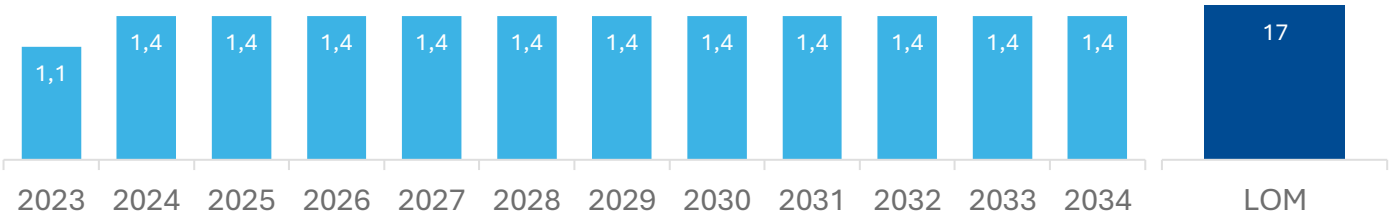
- 35.6% decrease in carbon intensity
- 80% reduction in cyanide consumption – from 10kg/t to 2kg/t.
- Reduced cyanide concentration – free cyanide was reduced from 2.500 ppm to 400 ppm.
- Gold recoveries improved by 1% (from 72,8% to 73,4% Au recovery.)



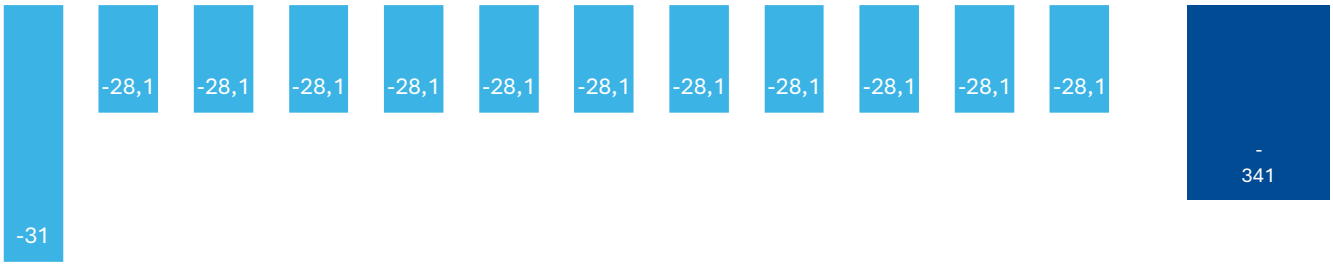




Variation of koz of gold

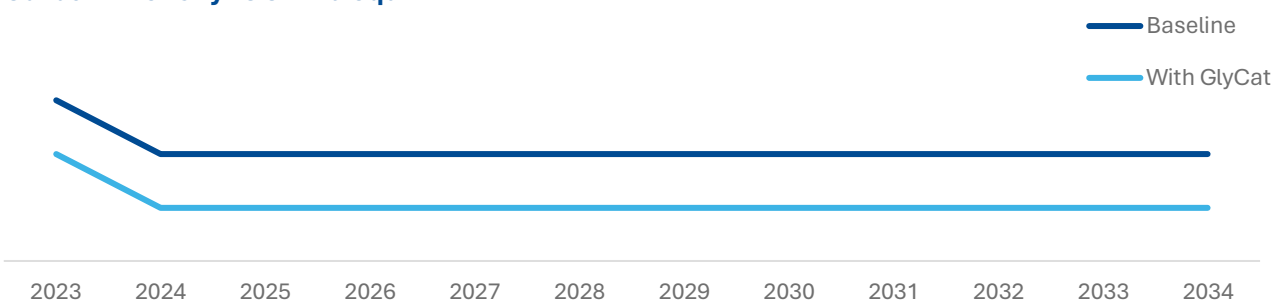


Variation of kt of Carbon Dioxide



Variation is calculated as GlyCat minus only CN scenario. Positive gold variation means increased gold recovery. Positive CO2 variation means an increase in carbon emissions.

Carbon intensity tCO2/Au equiv

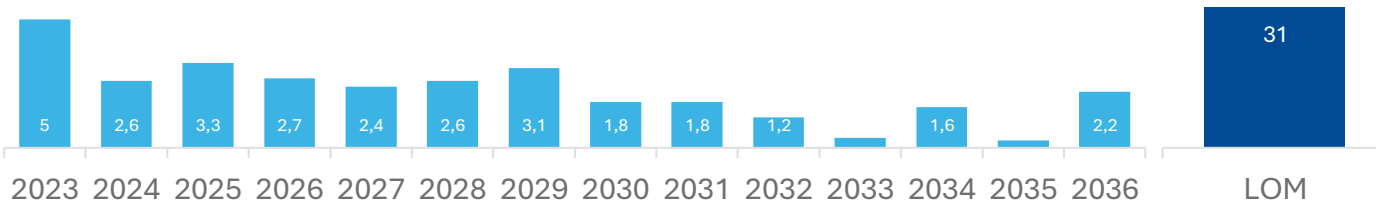


Other Tests

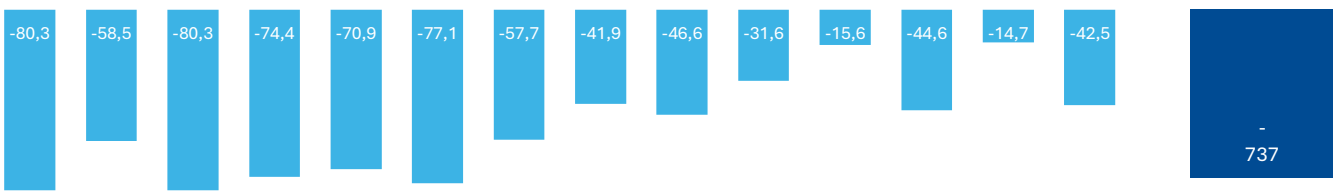
Heap Leach Operations

- Results demonstrated that the Scope 3 emissions are driven by a reduction in cyanide consumption.
  - CN consumption was reduced by 42% from 3,71 kg/t to 2,16 kg/t.
  - Gold recoveries were increased by 2% from 66,8% to 68,3%.

Variation of koz of gold



Variation of kt of Carbon Dioxide



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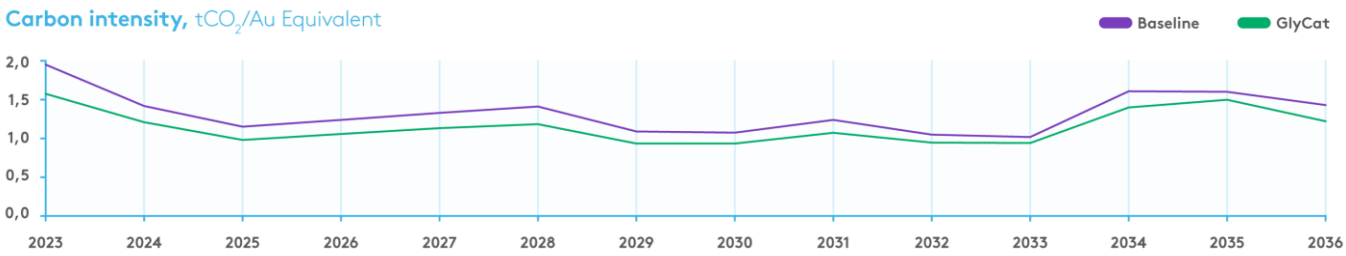
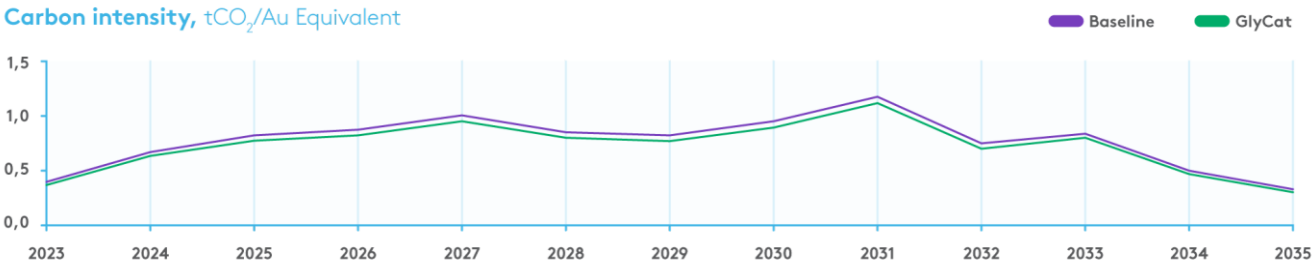


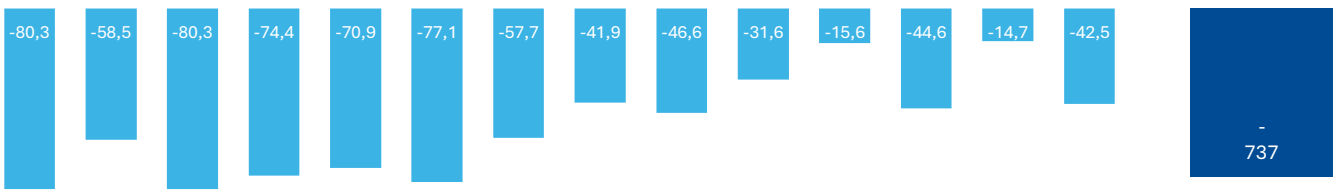
Other Tests

CIL/CIP Operations

- The modelled results are a component of the output from BRT experiments.
- The carbon intensity shows a decrease of approximately 19kt of CO2 over the period, at an average reduction of 1.9kt per year, or a 5.6% decrease.



Variation of kt of Carbon Dioxide



Variation is calculated as GlyCat minus only CN scenario. Positive gold variation means increased gold recovery. Positive CO2 variation means an increase in carbon emissions.

Conclusion

This study illustrates the benefits of using GlyCat™ in gold mining operations to reduce Scope 3 emissions by decreasing cyanide consumption, detoxification reagents, and detox unit power consumption.

Visit www.draslovka.com/glt to request a meeting with one of our Glycine Leaching Technology experts.