COST-BENEFIT ANALYSIS PORTFOLIO: ARCOPLATE VS HARDOX/AR IN A TRANSFER CHUTE

Project Summary – Transfer Chute Trial

The project was initiated to address two key concerns: short liner life and erosion of bolt holes leading to leakage. The plant had relied on AR/Hardox liners that required replacement every six months. To trial a solution, a 6/7 (13mm) Arcoplate sheet, cut to size and stud welded to match the bolt profile, was installed on the most abrasive side of the chute.

After six months, the three sides with traditional liners showed severe wear and bolt hole damage, while the Arcoplate side exhibited only minimal wear, validating our prediction of at least six times longer life compared to conventional liners.

While the trial was limited to one side and did not yet capture full operational advantages such as uninterrupted flow or increased throughput, the results strongly indicate Arcoplate's potential to deliver:

- **Extended liner life with reduced shutdowns**
- **Elimination of bolt hole leakages**
- **Safer, lower-maintenance operation**
- **Projected savings exceeding $150,000 over three years**

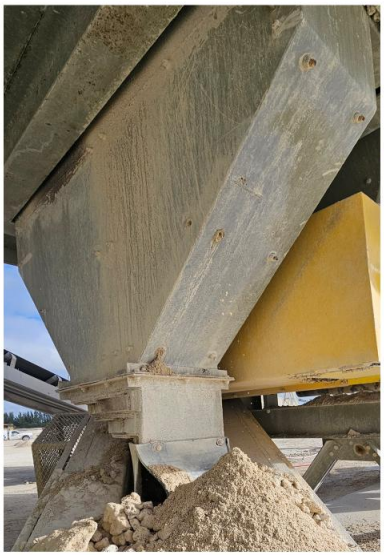
This trial highlights Arcoplate's capability to provide a reliable, cost-effective, long-term solution once applied across the entire chute.

Trial Results at a Glance

➢ **Observed Result**

✓ Traditional AR/Hardox liners failed in ~6 months

✓ Arcoplate side showed only minimal wear



•Interior wear liner showed failure within 6 months of installation
•Bolt heads experienced significant wear by 3–4 months, leading to material leakage from the chute

No Holes for Bolt heads

"Engineered with a sleek, low-friction surface to ensure flawless flow—no blockages, no interruptions."

Executive Summary

Replacing Hardox/AR chute liners with Arcoplate reduces the annual cost of use from $64,050/yr to $13,867/yr. This represents annual savings of $50,183 (≈78% reduction). Over three years, the total savings exceed $150,550. In addition to financial savings, Arcoplate offers improved reliability, safety, and reduced downtime through stud-weld fastening and guaranteed 3-year wear life.

Cost Breakdown

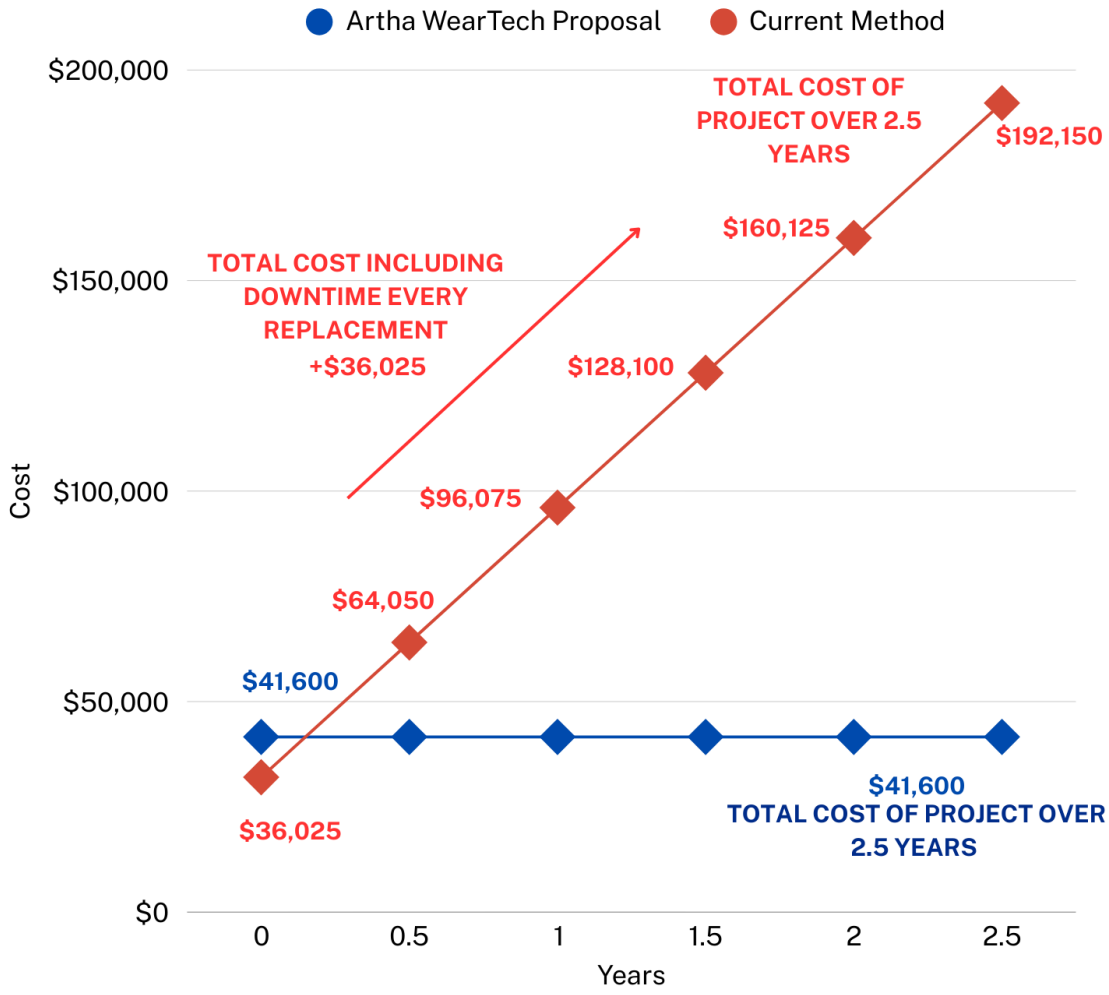
Category	Arcoplate	Hardox/AR	Notes
Material & Fabrication	$16,000 (incl. fabrication/shipping)	$5,265 (steel) + $960 fab + $200 cons.	Arcoplate is turnkey; Hardox requires onsite prep.
Installation Labor	$600		5 hrs × 3 crew @ $40/hr
Downtime	$25,000		5 hrs × $5k/hr lost production

Cost-Comparative Analysis:

The following table and graph illustrate the cost difference between traditional liners and Arcoplate over multiple shutdown cycles. While traditional liners require frequent replacement and downtime—causing costs to rise sharply—Arcoplate maintains consistent performance with minimal wear. This stability results in significantly lower total project costs and substantial savings over time.

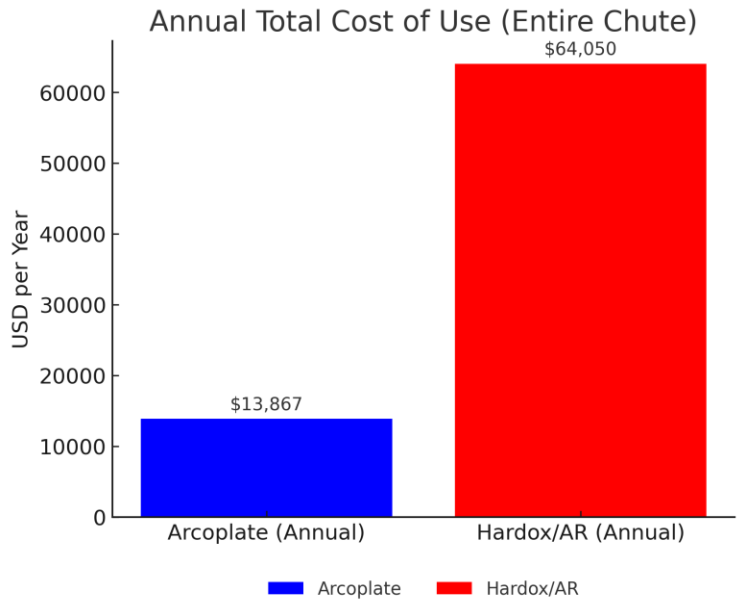
TIME FRAME	TOTAL COST OF LINER CHANGE FOR CURRENT LINERS	TOTAL COST OF LINER CHANGE FOR ARCOPLATE	NOTES
Original Installation	$32,025	$41,600	Cost for the first installation
6th Month	$64,050	$41,600	Traditional liners needed replacement; Arcoplate shows only minimal wear
12th Month	$96,075	$41,600	Traditional liners need replacement; Arcoplate shows only minimal wear
18th Month	$128,100	$41,600	Traditional liners need replacement; Arcoplate shows only minimal wear
24th Month	$160,125	$41,600	Traditional liners need replacement; Arcoplate shows only minimal Wear
30th Month	$192,150	$41,600	Traditional liners need replacement; Arcoplate shows only minimal wear

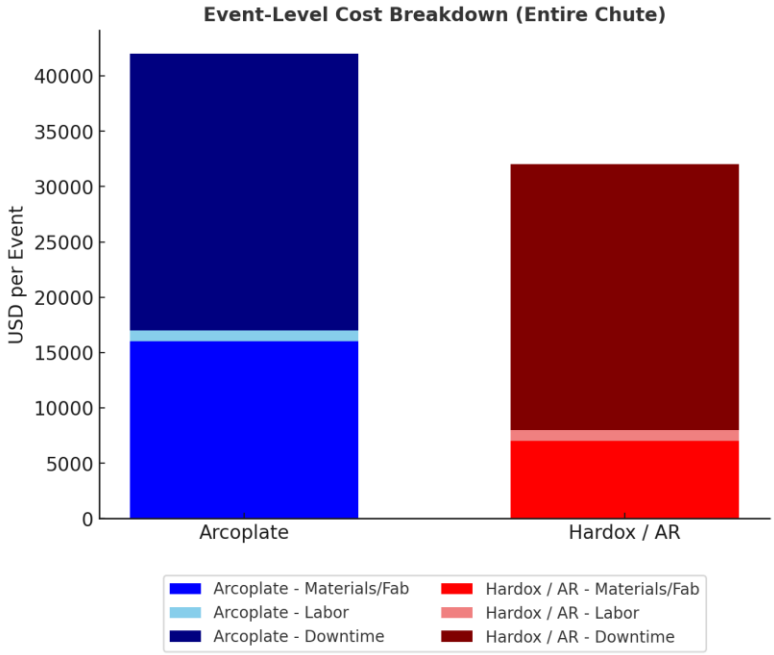
COST COMPARATIVE ANALYSIS



Note: This comparative analysis highlights the significant savings of Artha WearTech's solution over traditional methods. While the current method's costs escalate sharply due to frequent replacements and downtime, Artha WearTech maintains a stable cost profile, achieving over **$150,000 in savings across 3 years** with reduced maintenance interruptions and consistent performance.

Annual and event-level costs are compared below:





Key Benefits of Arcoplate

- Guaranteed 3-year life vs. 6 months with Hardox.
- Stud-weld fastening eliminates bolt head wear and leakage.
- Delivered ready-to-install, saving fabrication costs.
- 78% annual cost reduction.
- Fewer shutdowns (1 in 3 years vs. 2 every year).
- Lower safety exposure and less housekeeping required.

Recommendation

Adopt Arcoplate for all four chute sides. This delivers superior reliability, lower total cost of use, and improved operational efficiency. With savings of ~$50k per year, the investment pays for itself quickly, while providing a safer and cleaner plant operation.

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