

CASE HISTORY

The following data was compiled from the paper “Pipeline Wear Solution at Kidd Mine: Energy Absorbent Ceramic Composites”, presented in Belo Horizonte Brazil at the 16th International Seminar on Paste and Thickened Tailings.

APPLICATION: Mine backfill transportation

PROCESS CONDITIONS: Gravity feed 400 tph sand/tailings paste backfill, transported through over 5km of pipe to stopes 500 to 3000m below the surface.

EQUIPMENT: 8” (200mm NB) Incline borehole casing

PROBLEM – High Operating Costs

High operating costs, API X52 schedule 140 pipes holing in 1.2 million tonnes of placed fill. The additional complications of thinned casings peeling internally were resulting in costly blockages.



Paste backfill plant in Northern Ontario Canada

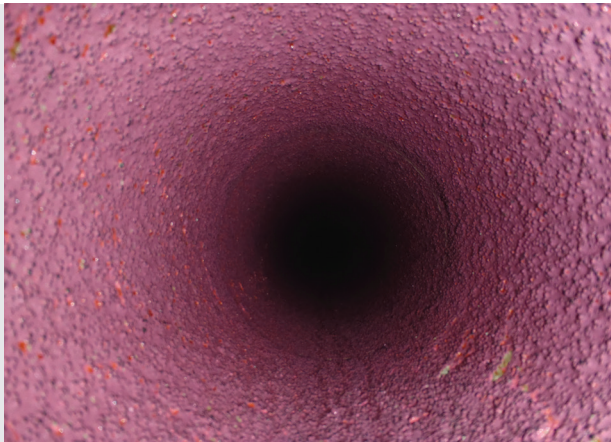
SOLUTION – ArmorPIPE™ 7500 Series Borehole Casing

ArmorPIPE™ 7500 Series pipe was recommended as the most suitable material based on the process conditions and expected mine life.

* “Positive laboratory and field testing results led to the installation of energy absorbent ceramic composites (Imatech 7500 Series) in all primary vertical boreholes.” (White, McGuinness, & Newman, 2013, pp. 7)

* “The high bonding and positive wear results of Imatech’s 7500 Series ArmorPIPE™ led to its selection as the most economical solution...” (White, et al., 2013, pp. 3)

* “After 3.48 MT (million tonnes) of pastefill... wear rates and lining bond properties have been shown to meet or exceed design criteria. Confidence in the material has since resulted in the decision to install this lined piping in all primary horizontal loop sections.” (White, et al., 2013, pp. 7)



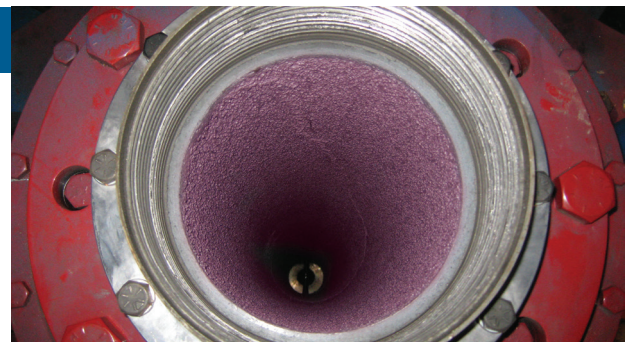
7500 Series paste fill lined pipe

RESULT – Increased Reliability and Extensive Savings

The ArmorPIPE™ 7500 Series pipe is currently still in service after 4 million tonnes with approximately 80% of the lining remaining.

* “Extended pipe life resulting from increased wear resistance will mean a primary system designed to last the remaining 7-8 years of mine life and require little to no replacement of worn pipe.” (White, et al., 2013, pp. 5)

The ArmorPIPE™ 7500 Series along with increasing pipe life, also led to a reduction in contract labour and is estimated to yield an internal rate of return of 25-30%, with a payback period of less than 3 years.



In service after 4 million tonnes following replacement- approximately 80% of lining remains.

* White, A., McGuinness, M., & Newman, V. (2013). Pipeline Wear Solution at Kidd Mine: Energy Absorbent Ceramic Composite. Australian Centre for Geomechanics, pp.3-7