



P R O D U C T F E A T U R E S



A L U M I N I Z E D S T E E L T Y P E 2

P E R F O R M A N C E O F A L U M I N I Z E D T Y P E 2 D R A I N A G E P I P E
I N C O N T A C T W I T H C E M E N T I T I O U S M A T E R I A L S

Aluminized Steel Type 2 superior durability is not impacted by concrete headwalls or cementitious backfills. The coating aluminum layer is subject to attack by cement alkalinity. However, the coating intermetallic Al-Fe alloy layer is resistant to cement alkalinity and also provides good protection against soilside corrosion. And, as is well known, the corrosion behavior of a steel substrate is enhanced by cement alkalinity due to passivation.

By 1984, 30-year field tests had shown that concrete headwalls had no significant adverse effect on Aluminized Type 2. There is some spotty attack of the coating Al layer during the concrete curing period, but this is arrested at the Al-Fe coating layer which is fully resistant to cement alkalinity due to its iron content. But even on solid aluminum pipe, which has no Al-Fe coating barrier, the long-term alkalinity attack by concrete headwalls has been shown to be minimal. This has been demonstrated by CALTRANS in 14-year testing of Alclad pipe. AK examination of specimens of the Alclad pipe supplied by CALTRANS showed that even on this solid aluminum material there was no significant progress of corrosion in 14 years of underground exposure while encased in a concrete envelope. (See Figure 1 illustrating pitting limited to just 7 mils maximum penetration on 14-year old material.)

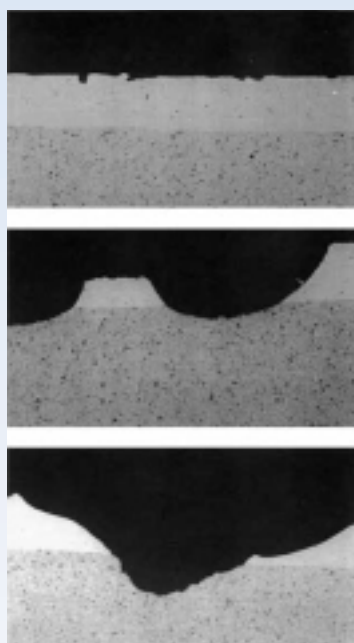


Figure 1. Comparative attack of Alclad on test pipe exposed to soil backfill (top) and that exposed to concrete (middle and bottom). Cladding (lighter etched) is penetrated and there is none of the usual lateral growth of pitting through the cladding. Instead, there is a continuing progress into the core, indicating no effective galvanic protection by the cladding. Galvanic protection is normally lost at excessively high or low pH. Thus, even without cladding galvanic protection, the progress of aluminum corrosion after 14 years is quite minor.

