TraceTek Acid Leak Detection Safeguards
Sumitomo Metals Sulphuric Acid Transfer Piping

PROJECT DETAILS
Client: Sumitomo Metals
Location: Harima & Toyo Smelters, Japan
Completion Date: April 2007
Contract Scope: Design of system, supply components, installation by local partner Kohgiken
Applications: Acid Leak Detection System
Technology: Acid Leak Detection sensing cables and monitoring solution

KEY CHALLENGES
Concentrated sulphuric acid is delivered via barge to a company owned dedicated wharf. Acid is transferred several hundred meters from the delivery barge to storage tanks within the company owned facility. The transfer piping crosses one semi-public road and crosses over other people’s property. Sumitomo is concerned about damage and safety risk from any acid leak occurring in transfer piping.

SOLUTION
Pentair Thermal Management provided the solution with its TraceTek acid leak detection system. At the heart of this system is the TT7000 acid sensing cable which will quickly react to the presence of concentrated H2SO4 or HNO3. Because the transfer piping is exposed to rain, the cable must not react to water. TT7000 meets these criteria. When it is monitored by TTSIM [Sensor Interface Modules], the TT7000 cable can survive outdoors in wind, sun and rain without any false alarms, yet when it is contacted by concentrated sulphuric or nitric acids, the special electrode coating reacts to the acid and the system is able to report that a leak has been detected AND report its location to +/- 1 meter.
PRODUCTS
Sumitomo has installed TT7000 at three projects. Two at Harima smelter and one at Toyo smelter. Total cable installed is about 2.6 km using 2 TTDM-128 control panels and a total of 13 sensor interface modules TTSIMs (Average of 500 meters of sensor cable per circuit). The cable has made several detections and several 30 m sections have been replaced after leak detection or heavy exposure to acid fumes or mist.

BENEFITS
- Installing leak detection sensors allows early detection of acid leaks and spills, thus minimizing the risk for damage to people, plant or property.
TraceTek sensor cables for acids and aqueous chemicals are targeted at hazardous fluid stored in tanks and transported through systems of pipes and valves.

Until the development of cables capable of detecting strong acids, methods of sensing leaks have been limited and piecemeal. Visual inspection has been the most useful strategy for above ground and overhead transport pipelines and containment tanks, aided by colour-changing paints and dyes.

The advent of acid detecting cable, used in conjunction with real-time monitoring instrumentation, now provides an early warning system that works equally well in a whole range of environments. These include overhead piping, vertical pipes, valves, manifolds and other fittings where concentrated sulfuric or nitric acid could leak. Sensing cables can also be used on floors, in drip pans, in sumps, in trenches and underground in slotted conduit. They may be pulled into double wall containment pipes or tanks to monitor interstitial space.

A system built around strong acid-detecting cable provides low cost, round-the-clock monitoring that aids a quick response, limiting exposure to environmental damage, interruption to service and expensive clean-up.

Further information is available in our White Paper on Acid Leak Detection, ask us for a copy.