

ACID ROCK DRAINAGE (ARD) SERVICES IN CANADA

An Overview of Trusted ARD Expertise in Canada



Acid rock drainage (ARD), also known as acid mine drainage (AMD), is the outflow of acidic water from the products of mining operations such as waste rock and tailings as well as from rock surfaces in open pits and underground workings. ARD is formed by the oxidation of sulphide minerals, mainly pyrite (FeS₂) and pyrrhotite (FeS), when exposed to atmospheric conditions (oxygen and water). The reaction releases H⁺ ions thus lowering the pH. As this acidic water moves through the environment, it leaches additional metals from the surrounding rocks. Where the ore body or host rock lacks sufficient acid neutralizing capacity in the form of carbonate minerals, the resulting toxic solution of hazardous elements may have a severe impact upon aquatic and terrestrial ecosystems.

Characterization of the acid producing potential of ores, tailings, and waste rock is critical for the management of ARD and the prevention of long-term environmental liabilities. SGS is a trusted global leader in the field of ARD. Our Canadian facilities in Vancouver, BC and Lakefield, ON are staffed by professionals with extensive experience in the mining and metallurgical industries. SGS offers a wide range of laboratory testing services to assist our clients with the prediction of ARD and to help in the preparation of environmental audits and impact studies.

All laboratory analyses are performed in accordance with recognized international standards such as American Society for Testing and Materials (ASTM) and International Standards Organization



(ISO). Our laboratories feature state-of-the-art instrumentation to provide accurate results with optimum turnaround time. We employ a Quality Management System and process control to ensure consistent daily operations and the delivery of rigorously tested analyses.

SCOPE OF SERVICES

SGS offers the following services for the detection and control of ARD:

Static Testing

- Modified Acid Base Accounting (MEND 2009)
 - Quebec MA.110ACISOL 1.0 (CEAEQ)
 - EN 15875 (European Norm ABATest)
- Sobek Acid Base Accounting (Sobek et al., 1978)
- Siderite Corrected NP
- Net Acid Generation (NAG) Test (AMIRA 2002)
- Kinetic NAG Test

- Sequential NAG Test
- Shake Flask Extraction Test (MEND 2009)
- SPLP (EPA 1312)
- TCLP (EPA 1311)
- Meteoric Water Mobility Procedure (ASTM E2242)
- BC SWEP
- Sequential Chemical Extraction

Kinetic Testing

- Waste Rock and Tailings Humidity Cells
- Lapakko Humidity Cells
- Column Humidity Cells (Saturated, Unsaturated, Packed Upflow)

SGS has an internationally recognized reputation for delivering quality solutions to environmental challenges. Partner with us to ensure your ARD matters are dealt with in an effective and environmentally responsible manner.

CONTACT INFORMATION

 CA.MINERALS@SGS.COM

 WWW.SGS.COM/MINING

WHEN YOU NEED TO BE SURE

SGS