

ALBERTA SULPHUR RESEARCH LTD.



COURSE OFFERING

THE CHEMISTRY AND TECHNOLOGY OF SOUR GAS PRODUCTION, SULFUR RECOVERY, SULFUR HANDLING AND STORAGE OPTIONS

DATE: December 1 - 3, 2026

LOCATION:

Lecture Theatre C – 128
University Research Centre
6 - 3535 Research Road N.W.
Calgary, Alberta, Canada T2L 2K8

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*ASRL is registered as a not-for-profit Company in the Province of Alberta and
is located within the Department of Chemistry, The University of Calgary*

COURSE OBJECTIVES

Over the last 6 decades, Alberta Sulphur Research Ltd. has built up a reservoir of knowledge on the chemistry of recovery of sour gas, its separation into hydrocarbons and H_2S , and conversion of H_2S to sulfur by Claus technology. In addition, a large body of data has been generated on the handling and transportation of liquid and solid sulfur. This course examines the chemical basis of the recovered sulfur industry and illustrates the application of the chemical knowledge acquired by ASRL to the major processes involved in sulfur recovery, sulfur production, downstream operations, and the handling and marketing of elemental sulfur. The course is not intended to replace existing engineering-based courses, but to supplement these courses by focusing on the chemistry of the various operations with the objective of giving operators, technologists, managers and marketers an improved understanding of technical aspects of their business.

The course is separated into Units focusing on different aspects of sour gas and sulfur technology. Each Unit will be a free-standing presentation, although it is recommended that all registrants take Unit 1, which outlines the fundamentals of sulfur and its chemistry.

WHO SHOULD ATTEND

This course is intended for all individuals involved in sour gas production, elemental sulfur production, and sulfur processing industries. While no detailed chemical knowledge is required, a background in a related technical field will be beneficial. Unit 3 will be of particular interest to those involved in sulfur marketing and transportation.

ADDITIONAL DETAILS

Lunches are included and there is an optional complimentary dinner on Tuesday evening.

Limited parking (\$\$) is available nearby, and the building is a 5-minute walk from the Brentwood LRT station. We encourage attendees to use the transit system as much as possible; the University Research Centre is located directly across from the Brentwood LRT station.

Go to <http://albertasulphurresearch.ca/visiting-us> for details.

REGISTRATION

Course Registration Form are available on the ASRL website at <http://albertasulphurresearch.ca/research/asrl-course>

Note: Course will be cancelled if minimum enrollment is not reached by October 20, 2026

COURSE CONTENT

Tuesday, December 1, 2026, 9:00 a.m. - 4:30 p.m. *

UNIT 1: An Introduction to Sulfur Chemistry

- 1.1- The chemistry of solid and liquid sulfur: fundamental properties and basic reactions
- 1.2- Some chemistry and properties of H₂S
- 1.3- Basic chemical aspects of sulfur compounds and other important chemicals in sour gas processing
- 1.4- The chemical composition and geochemical origins of sour gas and related fluids
- 1.5- Sulfur chemistry in sour gas production systems

Wednesday, December 2, 2026, 9:00 a.m. - 4:30 p.m.

UNIT 2: Claus Plant Chemistry and Technology

- 2.1- Amine plant operation: fundamental chemical principles and reactions
- 2.2- Thermal reactor reactions and oxy-Claus combustion
- 2.3- Strategies for processing high carbon dioxide acid gas, split flow operation, and oxygen enrichment
- 2.4- Reactions of the catalytic converters
- 2.5- Claus tail gas clean-up process chemistry
- 2.6- Treatments of low-level H₂S natural gas

Thursday, December 3, 2026, 9:00 a.m. - 4:30 p.m.

UNIT 3: Sulfur Handling

- 3.1- Degassing of molten sulfur
- 3.2- Storage of undegassed and degassed liquid sulfur
- 3.3- Production and handling of formed elemental sulfur
- 3.4- Corrosion during handling and transportation of solid sulfur
- 3.5- End uses of sulfur and its place in worldwide industry (conventional & new developments)
- 3.6- Block storage of elemental sulfur (conventional & long-term concepts)
- 3.7- Acid gas injection

**** Tuesday, December 1, 2026***

Optional complimentary dinner

Location will depend on number of participants

Lunch will be provided each day

ABOUT THE INSTRUCTORS

Dr. Robert A. Marriott



Dr. Marriott has been involved with ASRL for over 20 years. He is currently the Director of Research and a professor at the University of Calgary. His academic research is performed through the ASRL Research Chair in Applied Sulfur Chemistry which works in full collaboration with ASRL researchers. His interests include high-pressure reservoir chemistry, high-pressure adsorption, sour/acid gas phase behavior, sulfur recovery, corrosion, sulfur product handling and process chemistry. He has published more than 100 manuscripts and given over 80 talks at international venues.

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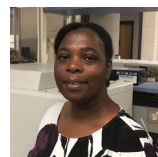
Dr. Rohen Prinsloo



Dr Rohen Prinsloo recently joined the Department of Chemistry at the University of Calgary as an Assistant Professor where he is establishing an independent research program. His research program is designed to generate fundamental insights into chemical transformations, while accelerating their application to scalable, real-world applications. Dr. Prinsloo obtained his PhD in applied physical chemistry under the supervision of Dr. Robert Marriott and in close collaboration with Alberta Sulphur Research Ltd.

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Dr. Melerin Madekufamba



Dr. Madekufamba is an experimental physical scientist with research interest in thermodynamics, PVT properties at high temperature and pressure and sulfur chemistry. She also works in amine degradation chemistry and selective absorption of gases in special solvents. Her background includes aqueous solution chemistry and corrosion. She has been with ASRL since 2011 and is currently a Project Manager and Research Scientist.

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Dr. Chris Lavery



Since joining the research team in 2013, Dr. Lavery has developed expertise in the fundamental and applied chemistry of industrial sulfur recovery. His work focuses primarily on reaction chemistry, catalyst performance, and process behaviour in the thermal and catalytic stages of the modified Claus process. His broader research interests include corrosion, adsorption and surface chemistry, and novel synthetic transformations using sulfur-containing compounds as reactants. Through this work, Dr. Lavery advances safer, more reliable, and more efficient sulfur recovery technologies.

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Mr. Francis Bernard



Mr. Bernard is the Director of Operations of Alberta Sulphur Research Ltd. (ASRL). Francis is highly skilled in the safe handling of high-pressure sour fluids in a laboratory setting, including water content measurements. Since joining ASRL in 1999, he has been involved in projects related to sulfur corrosion, storage, forming, transportation, new uses, and emissions. While he specializes in elemental sulfur deposition and sulfur solvents, recent projects also include H₂S scavengers, sulfur products, and analysis of various deposit samples.

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