

## Application Background

Dr. Ylias Sabri is a Senior Lecturer with RMIT for the past 12 years, responsible for the Nano Technology & Industrial Gas Sensing Lab. His research includes the CRC-P project, which aims to transform waste biomass into hydrogen (H<sub>2</sub>) fuel and char/inorganic ash for potential exploitation in construction. RMIT's involvement consists of converting the homogenous organic material waste into fuel using an innovative 3D printed catalyst along with a high pressure, high temperature reactor and a sampling system for both gas and liquid sampling

## Key Success Factors

**SAFETY** – RMIT needed to sample the fuel safely from the reactor which was high pressure and temperature. Considering the critical nature of the application, they needed a highly reliable sampling system that was leak free, eliminating risks from poisonous gases and dangerous liquids.

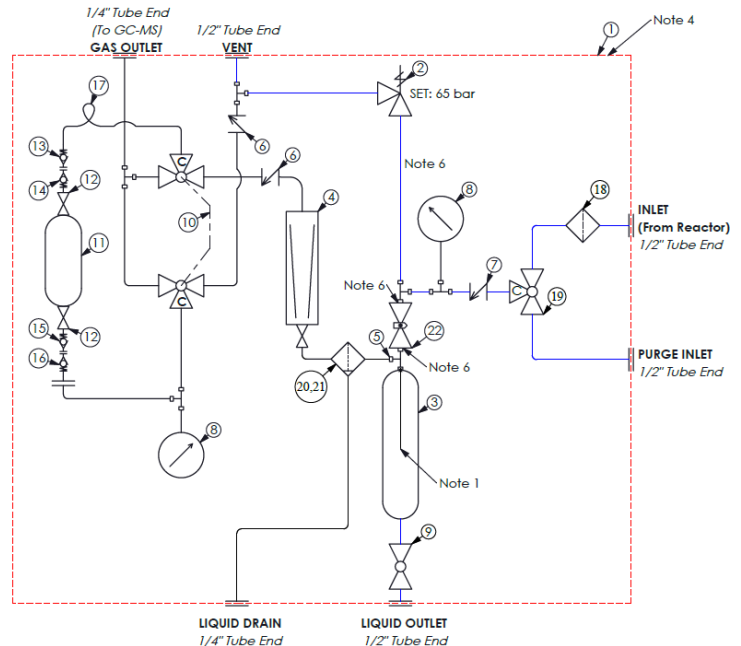
Swagelok addressed these risks with extensive experience working at critical pressures and temperatures for over 75 years while leveraging their experience with process gas and liquid analyser sampling systems.

The fabrication team performed a full design review to ensure all necessary safety parameters were met, which provided RMIT with an accurate P&ID.

**FLEXIBILITY** – RMIT needed flexibility in system components and design, to ensure they could separate the liquid and gases and sample them separately.

Swagelok met those needs with their vast experience with Gas and Liquid sampling, allowing for a safe, functional and readily available solution.

**FABRICATION** – RMIT wanted an efficient and safe installation while making the panel as compact as possible so they could fit both sampling systems, into the fume hood, saving space and total overall costs.



Swagelok's Fabrication Department were able to take those parameters into consideration to reduce the size of the panel and ensuring it was fit for purpose. Swagelok's fabrication team then built the system with certified installers, ensuring this panel was covered by the Swagelok Limited Lifetime Warranty, just like any product being used. This gave them the piece of mind they are receiving a leak-free, certified installation. RMIT also received General Arrangement Drawings for their records, to ensure full clarity on components and dimensions of this fabricated solution.



**COMPATIBILITY WITH MULTIPLE SYSTEMS** – RMIT also wanted the system built with the flexibility to be used across different systems and laboratories throughout the university.

Swagelok were able to help by using standardised materials like Stainless Steel and Teflon, Swagelok were able to make the assembly highly compatible with a range of system media, extending its potential use across other applications.

## Additional Feedback

### What did you enjoy about working with Swagelok?

I started using Swagelok around 2007 as a PhD student and at the time, it was really helpful to get things done quickly as I progressed with my PhD project.

Swagelok is still very accessible today, which means I can engage in different ways, over the phone, via email, onsite or at the Swagelok local branch office.

### Why would you recommend another researcher to engage with Swagelok?

As part of the RMIT safety culture, we must fill in a Risk Assessment for every project we do. Swagelok panels are already pre-assembled and tested, providing us with specific part numbers (based on safe product selection).

Consulting with Swagelok gives us a connection to their engineering and industry expertise, something we value highly. This means we know the final outcome outperforms what we originally set to achieve. Swagelok's collaborative approach is one we find most helpful.