

# Zebrafish Corrosion Testing Platform

Fuel Cell Stacks – Optimizing the material  
for bipolar plates.



If you agree that corrosion testing is a major bottleneck in the R&D process for fuel cell components and its an area crying out for improvement then the Zebrafish Corrosion Testing Platform is the system you've been looking for.

Our high throughput technology offers you an increase in the quantity and the quality of your corrosion data whilst decreasing the time, materials and manpower involved.

## Overview

- Flow cells for electrochemical measurements
- Ideal for testing bipolar plates or tokens (PEM Fuel Cells)
- Performs standard tests eg. Polarisation resistance, cyclic voltammetry
- Modular construction, allowing multiple tests simultaneously
- Small volume, resource efficient design
- Easy to use and set up hardware – plates/tokens can be changed in seconds
- User friendly software for easy data collection and manipulation





# Zebrafish Corrosion Testing Platform



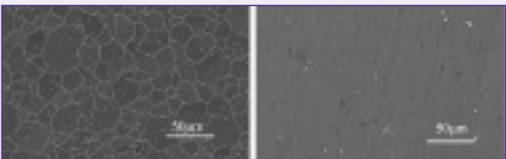
Bipolar plate



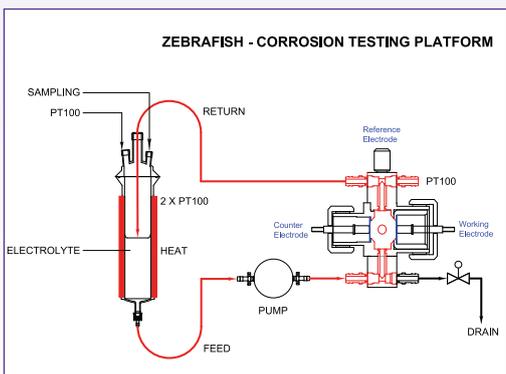
Test cell



Zebrafish - Corrosion Testing Platform



Corrosion of uncoated and coated plates



## Introduction

Bipolar plates are essential for producing fuel cell stacks. They connect cells electrically in series, separate gases in adjacent cells and provide structural support for the stack. One of the keys to good performance is the stability of bipolar plates to the very corrosive environment inside a fuel cell (pH 2-3, temperatures 60-80C). Testing this stability is traditionally a time consuming, resource intensive step in characterizing the performance of fuel cells.

Corrosion testing need no longer be a bottleneck – the Zebrafish Corrosion Testing Platform will provide you with all the information you want!

Our multi-cell system addresses the bottlenecks inherent in corrosion testing. By applying high throughput technologies it is now possible to:

- carry out standardized tests,
- perform more tests at the same time,
- decrease the time per test
- dramatically reduce the quantity of corrosive fluid required.

## What is it?

The Zebrafish is high-throughput equipment consisting of independently controlled test cells. A system can comprise of many tens of cells allowing simultaneous screening of samples under typical fuel cell conditions. All wetted parts are available in non-metallic materials suitable for use in aggressive environments. Easy to use software is integral to the

system so that you can collect your data and readily turn it into the information you need.

## What does it do?

Our Platform sets the conditions for examining the impact of the electrochemistry on the test sample. At the click of a button, it will perform standard tests like polarisation resistance, cyclic voltammetry and constant potential experiments at user defined conditions of electrolyte, flow and temperature.

Users can sample the electrolyte for metal ion content and tests can be performed with any number of additives to evaluate accelerated degradation.

As well as yielding high-quality corrosion data a great deal faster than conventional test methods, the high-throughput approach provides a means to evaluate more complete parameter spaces than previously viable.

## Conclusion

As an affordable, high throughput, lab scale system, the Zebrafish is an invaluable tool for every lab with a need for corrosion testing. It offers the capability to discover the best materials for bipolar plates in the shortest possible time.

If you would like to speak to a technical representative please call us on +44 (0) 1954 252522, e-mail [sales@crduk.com](mailto:sales@crduk.com), or alternatively you can visit [www.crduk.com](http://www.crduk.com) for further information.