Project Title

To set up a lab-scale facility to generate the corrosion data of various industrial chemical reactions at actual reaction conditions.

Objectives

1. To set up a lab-scale facility to generate the corrosion data of chemical reactions at actual reaction conditions, mainly at actual temperature and pressure.
2. To serve the chemical and API industry by providing this data so that the right MOC for their reactors and wetted parts can be selected without corroding the metal.

Executive summary

Corrosion data is very crucial while designing a chemical reactor and selecting the right MOC. There are various corrosive reactions, such as nitration and sulfonation in the industry, where corrosion may damage the reactor and other wetted parts. Many times the whole reactor needs to be replaced, which increases the cost of production. Most of the corrosion data reported in the literature give information about the pure component behavior at a certain temperature range only. However, when there is a reaction mixture, and(or) the reaction is under pressure, corrosion data is not found in the open literature. Hence, there is a need to set up a dedicated facility where corrosion data for any unknown component and reaction mixture can be generated at the actual reaction temperature and pressure conditions. In this project proposal, we are proposing one jacketed borosilicate glass reactor (1000 ml) and one jacketed zirconium reactor (1000 ml) to set up a corrosion data generation facility at ambient pressure and high pressure. Apart from reactors; fume hoods, heating cooling circulators, high precision weighing balance, reflux condensers, and gas feeding assembly will also be required.

Tentative Project Cost (Rs. in lakhs): 150
- **Capital**   100
- **Recurring**   20
- **Work and service**   30

Project Duration (In months): 12

Deliverable

A dedicated lab-scale corrosion data generation facility that will serve the chemical industry for their reactor MOC selection.

Team detail

Sr. No.	Name	Role	Designation	Contact details
1	Rajendra Kumar	PI	Sr. Scientist CSIR-NCL Pune	Phone: 020 2590 2735 Mob: 7875111463 Email: k.rajendra@ncl.res.in
2	Nilesh Mali	Co-PI	Pr. Scientist CSIR-NCL Pune	Phone: 020 2590 2176 Mob: 9422770593 Email: na.mali@ncl.res.in