

TEACH CORROSION

If you dare

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ONE OF THE side-effects of being in an academic environment is that we are protected from the day-to-day problems faced by a typical engineer in industry. Not the least of these problems is corrosion, and bearing in mind how much it costs these days, it is rather surprising that this subject is not given more emphasis at the university level, particularly in the chemical engineering curricula.

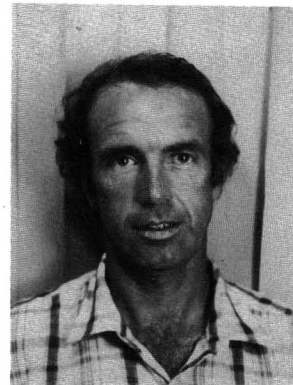
For many instructors, being assigned Corrosion and Corrosion Control ranks in the category of a nightmare, especially after semesters of stage to stage calculations, well-behaved chemical reactions, heat transfer, and so on. It comes as a bit of a shock, but in the end it is immensely rewarding.

Corrosion control, it seems, is very much like taking care of your health. It takes will-power and great effort to keep in shape and its care is often left too late to be really effective. This fact alone presents a strong case for a dedicated corrosion team in the plant. If it's a part-time job it will always be neglected.

A couple of months into the course one realizes how broadly based the subject material is. It embraces physical, organic and inorganic chemistry, metallurgy and ceramics, strength of materials, thermodynamics, plant design, and economics. It means digging deep into forgotten corners of the mind and pulling down some of those texts that you thought had been closed forever.

Saudi Arabia has an inherent corrosion problem. The ground is very saline, the natural waters are brackish, the seawater is heavy with dissolved solids, temperatures are high, there is lots of sunshine, humidity is often close to 100%, the gas and oil are sour, and there are great distances to transport them. These are enormous driving forces. The University of Petroleum and Minerals, its associated Research Institute, and ARAMCO (Arabian American Oil Company) are doing battle against this powerful enemy on its own territory.

Unfortunately it is difficult to tempt students into this field. We offer it as an elective and as such it



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competes with refining, petrochemicals, surface operations, desalination, etc. The Kingdom is an oil-producing nation and some of the alternatives do look very tempting. The population is small and a shortage of students affects all disciplines due to the high demand for engineers. Most of the good chemical engineering majors are attracted to the traditional areas, leaving the fringe subjects almost untouched. The students argue that promotion comes more easily this way. Become a specialist and you cannot be replaced, they say. Perhaps there is a psychological barrier too. An engineer's job is making things happen, not stopping them from happening. It's a lot easier to think positively than anti-negatively.

A change of attitude is in the air however. Aramco has made it clear recently that they are saturated with business management majors and have introduced an excellent program designed to create a pool of Saudi engineering specialists that will include corrosion engineers. Most recently the university, in collaboration with NACE, sponsored a two-day corrosion symposium, which was supported at the highest level.

As for me, I'm a confirmed corrosion man. Re-learning electrochemistry was the activated step, but now I actually enjoy it. It is no longer a nightmare. □

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