



The Chemical Consultant

Association of Consulting Chemists and Chemical Engineers, Inc.

Scientific, Engineering, Business & Management Consultants

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May—August, 2014

FUTURE MEETINGS

Sept. 18, 2014

"Feeding 9.5 Billion People"

Dr. Richard Schauer

Oct. 23, 2014

"Chemical Reactor Design in Petrochemicals"

Dr. Vijay S. Bhise

GRAND SUMMIT HOTEL-
Hat Tavern Restaurant
Springfield Ave. near
Morris Ave in Summit

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ABOUT THE ASSOCIATION

The Association of Consulting Chemists & Chemical Engineers (ACC&CE) is a network of senior-level consultants with a broad range of functional expertise and many years of experience in the chemical and allied industries.

The purposes of the organization are:

To offer prospective clients a "clearing house" which they can use to find the most qualified consultants or team of consultants whatever their particular problem may be.

To furnish support to its members as they conduct their consulting practices.

This newsletter is intended to support those purposes as well as to educate prospective new members and prospective client organizations about ACC&CE, and how we can be most helpful to them.

The ACC&CE has an interactive website – www.chemconsult.org, that allows prospective clients either to input their problem or to search for those consultants most skilled in their area of concern.

IN THIS ISSUE

In this issue, we again have letters both from our President, (also your editor), Joe Porcelli (page 2) and by our Executive Director, John Bonacci (page 3). We are also welcoming a new member and a returning member. You can learn about them on page 6. On pages 7 and 8, you will find an article by me, Joe Porcelli, on why startup companies fail. On page 13, there is the answer to the Sudoku puzzle—no one appears to be interested.

As always, your editor is seeking feedback and if appropriate, alternative views on issues of interest to our readers. We'd like to hear from you. If you would like to contribute an article to the newsletter, we'd be interested in that as well. Please Email jvprii@jvporcelli.com.
Joe Porcelli, Editor

LETTER FROM THE PRESIDENT

Dr. Joseph V. Porcelli, (Certificate #906), President of ACC&CE and Editor of our newsletter, "The Chemical Consultant".

After a summer hiatus we are beginning the fall season with two presentation meetings in September and October, the second being preceded by our Annual Meeting, required by our By-laws. At the September meeting I will open the floor to a discussion of "succession". For instance, I have sought to pass on the Presidency but the absence of a willing local candidate has hindered my attempt. (I would also like to pass on the Editorship of this newsletter to someone else but that hasn't been possible to date.) You will also notice that at present we are missing a Secretary. We are continuing to add members at a slow but steady rate, and we have had some "CHIs", Clearing House Inquiries where someone seeking consultant services approaches us via our website (www.chemconsult.org).

In the last newsletter I mentioned that the last presentation of the spring would have been of great interest and possible benefit to many of those of you who could not attend our meetings. The same thought is of concern as we expect two very interesting presentations in the fall.

In the course of using the website to create a mailing list of members in the NY/NJ/PA/DE area so I could send them information on a non-ACC&CE meeting in New York City, I realized that those members are a *minority* of our overall membership. This triggered the thought that we really are a national organization and perhaps a different approach to succession and to delivering presentations should take that into account. I plan to follow this thought in our fall Council meetings.

As I entered the text of the Executive Director John Bonacci's letter on the next page, I noted that we had independently hit on the same issues as I have discussed here. I think that is an encouraging sign that we are on the right track.

Please contact me with comments at (917) 912-9804 or at jvpil@jvporcelli.com.

Thank you and best wishes for the future.

Joe Porcelli

MESSAGE FROM THE EXECUTIVE DIRECTOR

John C. Bonacci, Ph.D. P.E., U.S. Patent Agent (Certificate #821) and the Executive Director of ACC&CE


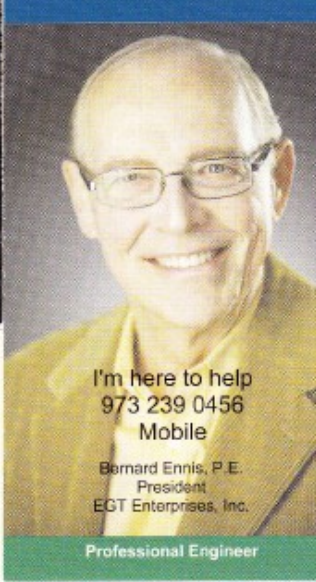
We are completing three years as a quasi-volunteer organization. In the summer of 2011 we changed from a paid Executive Secretary to a member reimbursed as Executive Director and we reduced the annual dues to \$75.00 for full members. These two moves have evidently been successful as we are financially in the black but not with much reserve per Steve Duerr, our Treasurer.

Important factors have been the increased effort of members like Charlie Leonard for the website, Joe Porcelli for the Newsletter and Tom Borne for speakers, all very critical functions for our organization.

Our membership had dipped to the 30's but now is 53, per Dan Kruh our Membership Chairman, and holding with some deaths and resignations offset by new additions.

I want to call specific attention to the Consulting inquiries we get, labeled as CHI's. In fiscal 2014 so far we have had 23 inquiries. This is the highest number for one year in some time. Seven of these still seem to be available and no one has responded. Two of these were worked on and we received the ACCCE fee of 5%. It appears that the members are not responding to these inquiries and I don't have enough feedback as to what the rationale is. So I would like to see how we can improve our hit rate. The indications are that there is an increased need for consultants that we could take better advantage of.

In closing I would just add that as essentially a "virtual-organization" we are doing well-enough but want to improve both to better serve our current members and the Chemical industry as a whole. Please note that there are less than 20 members in the New York-New Jersey meeting range so attendance is as expected low unless we have more joint meetings. The website, the Newsletter and the e-mails are what keeps us viable.

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Consulting chemical engineer with experience in industrial chemicals in virtually all phases of process research and development from conceptualization, economic valuation, laboratory and pilot development, optimization, plant design, startup and operation. New opportunity and acquisition evaluation. Biofuels development.

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Catherine A. Byrne is returning to consulting in polymer chemistry. Her specialties are formulation and testing of elastomers, adhesives and coatings, especially polyurethanes, epoxy resins and acrylates.

WHY SO MANY STARTUPS FAIL

Dr. Joseph V. Porcelli, Certificate # 906, who has been President and Principal of his own consulting firm since 2001, has contributed some thoughts regarding what went wrong with two startup companies he had consulted for.

I spent my industrial career working for and eventually leading small companies (75 to 600 people) that were developers of novel chemical processes and catalysts, so when I retired at the end of 2000 and started my own consulting firm, (and had a 4 year non-competition agreement with my last company) I naturally sought to develop a practice in general management, avoiding the overly technical activities. Over the first few years, I found it difficult to get such assignments, since the companies I headed were small. I therefore began to focus my practice on helping organizations (public companies, governmental research organizations and startup companies) who were seeking to develop and commercialize new chemical catalysts and process technologies, and this has been the cornerstone of my rather successful practice of the last 14 years.

My first exposure to a startup company came when I was approached by a venture group with the assignment of reviewing the business and research plans of a startup company that they were considering investing in. The startup company was based on a concept of a university professor who claimed to have developed a novel way of making a series of heterogeneous catalysts that could be utilized in the existing plants for a number of major chemical processes (so-called “drop-in” catalysts), and the business plan, developed with the CEO of the startup company showed rapid growth of sales of the first catalyst, followed within a year or so by commercialization of a second catalyst, and then shortly after by a third, etc., amounting to a very large and rapidly growing projected stream of earnings. As a result, the spreadsheet of cash flows and other financials showed a very high net present value, and therefore the inventor’s company was seeking tens of millions of dollars of investment to cover expenses for the first few years.

The first catalyst proposed to be commercialized was for a process that I was very familiar with, and the early lab results of catalyst testing had yielded much higher efficiencies than any commercial catalyst on the market. Moreover, the invention, which would be applied to all of the new catalysts proposed by the inventor, involved producing a novel catalyst support, with materials never before used for these catalysts. While there were some results from small scale testing of a powdered catalyst for the first application, no data were presented to justify the improvements forecast for the other catalysts included in the business plan.

From my direct experience, the commercial catalysts used in the first application often gave unusually good results also, if tested as powdered catalyst at atmospheric pressure. However, when tested at elevated pressures (required for the commercial process) and with particulate catalysts, the performance was usually substantially poorer. I explained this to the venture people and the startup company, and said that since the support was so unique, and that the lab

WHY SO MANY STARTUPS FAIL (Continued)

results were so good, the work should continue, but with a high priority for producing samples of particulate support and catalyst that could be tested at commercial operating conditions including elevated pressure.

I do not know whether the business plan was modified, but in any case, after a short while, the venture group decided to pass on the opportunity. However, they asked me if I would speak to another venture group, and I agreed, with their and the startup company's approval to discuss confidential information with the next venture group. Unfortunately, the group also decided to pass.

I kept communication with the startup's CEO, as I still felt there could be something to the Professor's novel process for producing the catalyst carrier and the catalyst. I had no contract with the startup company, but continued to answer their questions and advise them on ways to get their catalyst tested once they had produced catalyst in particulate form. Unfortunately, they pursued a number of avenues without my participation, since they did not have enough money to pay me, and to my knowledge they have never succeeded in moving to the next stage. In the midst of this, the professor passed away and I still wonder whether there was something to his invention. However, there was no way with the data they had and my specific knowledge in the area that I could in good conscience give a more positive interpretation to their sales projections and to advise either venture group to invest the multimillion dollar valuation. I did urge them to consider making a very small (one hundred thousand dollar) investment to allow scale up and testing of a particulate catalyst, but I was unsuccessful in persuading either one.

A second startup company I have been involved with was also started by a professor who had a new material that he proposed to use as a catalyst that could be a "drop in" catalyst for plant producing a major petrochemical. Again, the client was a venture group, and I was subcontractor to another consultant. The professor maintained that this catalyst could allow the desired reaction to exceed the equilibrium-limited conversion per pass, due to its unique chemical nature. We were skeptical, and again, experimentation was in by batch tests in small vials, with powdered catalyst. Work was at the professor's university with a post-doc, so costs were low.

The startup company had a number of advisors who were retirees from very large chemical companies. They prepared the usual very optimistic spreadsheets, promising many plants using the new catalyst with high valuations. Our team proposed larger-scale testing with once-through gas flow, not trusting the lab data. The results refuted the unrealistic expectations of the professor and the venture group withdrew.

The lessons that the startups should have learned included:

- Avoid "pie in the sky" business plans
- Get the right consultants early, with experience in going from lab to commercial scale
- Scale-up to appropriate test conditions quickly to avoid wasting cash
- Ensure enough cash to get to the point where proof of concept is achieved
- Partner early with potential users of the innovation

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7	4	9	5	3	6	8	1	2
3	5	8	4	2	1	7	9	6

ANSWER TO SUDOKU FROM LAST ISSUE

(We have not included a new puzzle as there seemed to be no interest in asking for a solution to the last one.)

THE CHEMICAL CONSULTANT

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