



# Sloan Career Cornerstone Center

## Profiles of Chemical Engineers



**Christopher Gonzalez**

**Chemical Engineer  
U.S. Navy  
Indian Head, MD**

### **Education:**

B.S. - Chemical Engineering, University of Puerto Rico, Mayaguez

### **Job Description:**

Chemical Engineer

### **Advice to Students:**

"Study things like management and finance, in addition to chemical engineering and engineering."

### **Interview:**

Gonzalez: I'm Christopher Gonzalez. I work in the CAD-PAD Department in the Quality Evaluation Branch. I'm a chemical engineer.

### **Q: What is CAD-PAD?**

Gonzalez: It stands for Cartridge Actuated Devices and Propellant Actuated Devices. Most of them are parts used in missiles and ejection sequences of combat aircraft. They're the energetic materials that activate and eject clear out of the aircraft.

### **Q: What do you do on a day-to-day basis here?**

Gonzalez: I'm a project engineer. My branch has assigned probably 30 projects and I get to work with 10 in a fiscal year. What we do is we receive these CADs and PADs from the Fleet and conduct testing to evaluate their performance against age. We see how good the unit is, and assign service lives and install lives. We're in charge of receiving the items and conducting a sample selection to select the sample that best represents the population for testing. We go ahead and conduct non-destructive tests and ballistic tests. Then we collect our data and we perform statistical analyses on them. Finally, we sit down and evaluate the performance and make a report, with recommendations on how well the unit is performing, and reliability within certain confidence levels.

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**Q: How does your chemical engineering background help you in this job?**

Gonzalez: Basically the most that I use is problem-solving, or the way of conducting the test- looking at the type of propellant used, how stable it is, how it ages, and the output. Most of the cases are pressure outputs and understanding the nature of the chemical-how it's going to perform later. So I use a lot of statistical analysis to help me there.

**Q: Who are some of the other people you work with on a day-to-day basis?**

Gonzalez: There are a lot of engineering technicians and industrial engineers, along with mechanical and chemical engineers. They would also be in testing facilities and in my department.

**Q: And you work for the U.S. Navy, but you are a civilian?**

Gonzalez: Yes, practically all of them are civilian personnel.

**Q: Can you tell us what it's like to work for the Navy, how that might be different maybe than working out of industry?**

Gonzalez: There are a lot of things happening together. We get to see the point of view of the contractors, as well as the point of view of the Navy, and try to see where they focus their attention. It's interesting to see that.

**Q: What are some of the things that you like about working for the Navy?**

Gonzalez: Right now, I'm in charge of different programs and working on different activities. Each program is a different phase basically, so sometimes I'm testing, writing reports, or analyzing data. That's one of the things I like the most-the huge variety of things they do together in the same place.

**Q: Are there some things about working for the Navy that you don't care for as much?**

Gonzalez: When I have to get something done and there's a lot of paperwork involved and a lot of levels of approvals involved.

**Q: What was school like for you?**

Gonzalez: I studied at the University of Puerto Rico, Mayaguez Campus. I started my bachelor's studies in 1989. Our program is a five-year program, so I finished the requirements in December 1994. I tried looking for jobs in Puerto Rico and it was hard, even though there's a lot of industry, a lot of pharmaceutical companies. I think it's saturated right now with engineers. It's hard to stay there on the Island and work. So I started submitting applications all around the States, not having in mind that I wanted to be here or there. I was just sending applications all over. Then I got an interview from here.

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**Q: Was finding a job a difficult process?**

Gonzalez: Actually, it took me nine months to get the job, or at least the interview. It was hard. People are looking for a 3.8, 4.0 Grade Point Average and it's tough.

**Q: If you could go back to your first year in college, are there any things you would do differently, or are there some things you would do the same?**

Gonzalez: I'd do practically all the same things that I did. I pretty much made up my mind in the second year, on chemical engineering and I stayed there. No problems.

**Q: Working with the Navy, do you ever have to worry about a budget shut-down or money that is spent on defense?**

Gonzalez: Not to the point that it would affect my job, but right now I'm in charge of the CADs and PADs of the Tomahawk Missile, the Quality Evaluation part of it, and they are experiencing some cuts in money. So we're trying to come up with different options of whether it will be worthwhile to test or not, and try to justify testing and stuff like that.

**Q: Besides chemical engineering, what are some of the other things that you do?**

Gonzalez: In my programs, we come up with estimates on how much it would cost for the quality evaluation. We also deal with test planning. When there's a new item, or new system, we'll work with what kind of testing we'll propose to do for the actual items that are in that system.

**Q: What advice would you offer to someone who is interested in chemical engineering?**

Gonzalez: I would tell them to study things like management and finance, in addition to chemical engineering and engineering. I would say to consider that because everything goes around money now. It sounds nice to come out with programs but, if money's tight, you're not going to do it. So look at that part of engineering. The cost estimates, control of costs, are very important.

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