

# Chemical R&D ORGANIZATIONAL LADDER

## + FUNCTIONAL AREAS

### CTO

Typically manages division V.P.'s.

### V.P.

Typically manages 3 to 5 Directors.

### Director

Typically manages 3 to 5 Managers.

### Manager

Typically manages 2 to 4 Group Leaders.

### Group Leader

Typically manages a small group, usually 3 to 5 Chemists.

### Sr. Research Scientist/ Fellow

A few steps from Research Scientist. Typically a PhD with 15 to 30 years of experience.

### Research Scientist

Just a small step up from a Research Chemist. Usually reserved for Exploratory, Synthesis, or Analytical chemists.

### Sr. Chemist

Is usually a person who has specialized in their respective area of chemistry and is now recognized as an expert. Usually a PhD. who has recently completed degree after 5 to 10 years they are either a Sr. Research Scientist or a Manager/ Director.

### Chemist

Is usually an undergrad with 3 to 5 years experience, or a M.S. with 5 to 10 years exp. Usually they then become a Sr. Research Chemist or a Scientist if they have a PhD. Unless they're more or less a basic generalist with a low level status or promotion needed.

### Assistant/ Technician/ Tech Service

Is usually a high school, tech school of associates-level grad who took a bunch of chemistry and is qualified at the entry level to help with Basic chemistry. Sometimes it's also an intern, a person in college working to get their degree, who starts in this role, and then promotes up the R&D ladder or into sales.

### Environmental/ Regulatory

Is responsible for making sure the environment is not affected by the efforts taking place at the lab or production site. Will do air and water quality control testing and even product sample testing to make sure no harmful toxins are being released or are in products that aren't supposed to be. Will often work with the EPA or FDA or some local, state, or federal governmental agency to make sure regulations and standards for emissions are being monitored and properly controlled.

### Organic/ Inorganic Research

This classification just separates whether the chemist is focusing on working with Organic versus Inorganic compounds. Often there is a need to specify this within the R&D organization, because different types of training, tools, processes, and levels of expertise are required depending which side you are focusing on.

### Quality Control

These chemists test the products before it leaves the plant to be sure it is what it is supposed to be. They test the inside of containers, whether it be a 50 gallon drum or the inside of a semi, to make sure it's clean and not going to react with the chemical being put into it.

### Process Development

These chemists monitor the process of manufacturing chemicals as they are being processed. They test the equipment and the chemicals before, during, and after to make sure the production process is safe and will produce the desired chemical.

### Applications Development

This department works on ways to solve applications problems by tweaking existing products. They add a bit of this and take a bit of that out of a product until the mix is just right. Sometimes a product used for one application can be used for a very similar application in a completely unrelated market with minor modifications made to the product.

### Formulations Chemist/ Compounder

Work on mixing the batter to complete the recipe that's already been tried and true. Lots of chemicals are mixed and blended like paint where the recipe is predetermined. But someone has to mix the product at the right temperature, under the right humidity, and in the right manner to get the desired results.

### Synthesis

This department works on creating new ways to make an already existing product. They look for ways to save money, save time, and replace certain parts of the product mix. They are involved in making products work better and overlap product development and quality control etc...

### New Product Development

This department works with customers on the special requests customers make like "could you make a product that would do this." They help the marketing department by expanding a class or line of products by creating complementing products.

### Analytical

These chemists focus on molecular-level analysis, using highly sophisticated, extremely expensive instruments like electron microscopes and analytical testing equipment. Does the product do what it's supposed to do? Are there any potential problems with the mix of various chemicals? Can the product be manufactured safely? How toxic is it? Does the product deteriorate on the shelf? All sorts of questions like these are asked of this type of chemist.

### Exploratory/ Discovery Research

This department works on long-range research projects. They explore product applications that could be synergistic to what the companies are currently involved in. They explore new chemical classes and look at profitability and production models to see if it makes sense to start new divisions.