What Does a Chemistry Attorney Do?

From everyday necessities to high-tech inventions, chemicals are used in the products and processes that make the world run. While chemical scientists focus on innovating better, faster, stronger, more efficient products, Chemistry Attorneys focus on protecting those proprietary developments.

A chemistry attorney works for major corporations in paints, pharmaceuticals, pesticides, and other industrial fields. They also represent clients in patent acquisition and litigation

What is Chemistry?

This science "deals with the composition and properties of substances and various elementary forms of matter." Chemistry is integral to the development of a variety of everyday consumer and industrial products.

Paints

Paints are heavily regulated because they contain volatile organic compounds (VOCs), which vaporize at room temperature. VOCs are a leading contributor to smog.

The United States Environmental Protection Agency (EPA) regulates VOCs under the National Volatile Organic Compound Emission Standards for Consumer and Commercial Products regulations at 40 CFR Part 59. Products containing VOCs include aerosol coatings, architectural coatings, consumer products, and vehicle refinish coatings.

Many of these paints are subject to reactivity limit calculations, also called emission limits, and are expressed in the ozone mass per mass of aerosol coating (g O_3/g product). For example, metallic coatings have a reactivity limit of 1.90, and wood stains have a reactivity limit of 1.40. Federal regulations provide such limits for aerosol coatings, architectural coatings, and other products.

Aerosol Coatings

Aerosol coatings are defined at 40 CFR section 59.503 as:

"A pressurized coating product containing pigments or resins that are dispensed through a propellant and is packaged in a disposable can for hand-held application, or use in specialized equipment for ground traffic/marking applications."

Architectural Coatings

These are defined at 40 CFR section 4.01 as "*a coating recommended for field application to stationary structures and their appurtenances, to portable buildings, to pavements, or curbs."*

Consumer Products

40 CFR 50.202 defines these as:

"Any household or institutional product (including paints, coatings, and solvents) or substance, or article (including any container or packaging) held by any person, where the use, consumption, storage, disposal, destruction, or decomposition of which may result in the release of VOC."

Vehicle Refinish Coatings

Finally, under 40 CFR 59.101, these are: "Any portion of a coating, such as a reducer or a thinner, hardener, additive recommended (i.e., on a container or in the product literature by the manufacturer or importer) to distributors or end-users for automobile refinishing."

EPA Regulatory Enforcement of Paint Regulations

The EPA enforces its regulations through both civil and criminal enforcement actions. There are three types:
Civil, administrative actions are actions such as notices of violation or orders directing a target company to take action to comply with the law.
Civil judicial actions are lawsuits filed against target companies that have failed to comply with environmental regulations or administrative orders. The United States Department of Justice (DOJ) files these lawsuits on behalf of the EPA.
Criminal actions are reserved for those entities that willfully or knowingly commit violations of environmental regulations.

These enforcement actions result in the following:
Settlements are mutual resolutions to an enforcement case. They are variously called consent agreements, final orders, or administrative orders on consent.
Civil penalties are fines. These act as an incentive for compliance and remaining in compliance.
Injunctions require the target company to do or stop doing designated actions. They help bring the target company into compliance.
Criminal penalties include fines or prison time.

Opportunities for the Chemistry Attorney in Paints Regulation

The chemistry lawyer may either work for the EPA or work in private practice.

Those choosing the EPA can work in the enforcement of paint regulations. These include issuing notices of violation or other orders, negotiating settlements, and seeking civil penalties or injunctions. The chemistry lawyer also coordinates with DOJ for judicial and criminal actions.

Opportunities in private practice exist as well. The chemistry attorney can work for large target companies, respond to EPA notices of violations or other orders, negotiate settlements, and defend the company in administrative or civil actions. They would likely hire outside counsel to defend the target company against criminal actions.

Pharmaceuticals

Chemists are key to the development of new drugs. Before they can sell them in the United States, they must be approved by the federal government.

Food and Drug Administration (FDA)

The FDA is responsible for regulating and approving new prescription and non-prescription drugs. The approval process is conducted by the FDA's Center for Drug Evaluation and Research (CDER).

CDER's primary goal is to ascertain whether a drug works as designed and its benefits outweigh any side effects.

Before submittal to CDER, a pharmaceutical company interested in selling their new drug must perform lab testing. This has three stages:

Thorough testing of the new product is conducted in a laboratory setting.
Controlled studies involving animals are next, which help establish the efficacy of the drug.
Human testing is the last stage, intending to demonstrate that the drug is both safe and effective.

Once this testing is complete, the pharmaceutical company submits it to CDER, which reviews the test data and analyzes:

Available treatments: CDER looks at the current state of medical treatment available for the intended condition. For example, are there any other drugs available that are effective but have high risks? If this is the case, then the new drug may be beneficial if it can treat the intended medical condition with fewer side effects.
Risk-benefit analysis: CDER examines whether the test results indicate the benefits outweigh the risks.
Risk mitigation: If there are significant risks, can labeling requirements or other measures reduce them to acceptable levels?

If there is a pressing need, CDER canTo fast-track the approval of a drug. That is what it did with the Covid-19 vaccinations.

Chemists also have an important role in developing drugs for animals. The FDA regulates and approves these as well.

Opportunities for the Chemistry Lawyer in Pharmaceuticals

Drugs are a multi-billion-dollar industry. Millions, if not, billions ride on the FDA approval of a new product. Pharmaceutical companies hire chemistry lawyers to help guide technical professionals through the FDA approval process. They make sure the company submits the right documents at the right time. If any issues come up, they interact with the FDA to try and resolve the problem so that the drug approval can move forward.

See also:
Pharmaceutical Patent Attorney Jobs - Related Job Titles
Pharmaceutical Patent Attorney Salaries

Pesticides

Chemists are involved in the lucrative field of pesticides. The EPA regulates pesticides to ensure that they are safe for humans and the environment.

The chemistry lawyer works at large pesticide firms and helps the technical staff navigate EPA compliance to sell its pesticides in the United States legally.

Patents and the Chemistry Lawyer

Those lawyers with a degree in chemistry or other related fields can apply to be patent attorneys. This allows the chemistry lawyer to represent clients before the United States Patent and Trademark Office (USPTO) and apply for patents.

Patents related to chemistry are complicated. To illustrate, here are a few recent discoveries the USPTO awarded patent protection to:
Dispensing laundry chemistry. "Method and system for controlling dispensing of laundry chemistry from a laundry chemistry dispenser to a washing machine to minimize the use of the laundry chemistry. The method and the system comprise an ozone monitor for determining a current ozone concentration level in the washing machine at a time that the washing machine requires dispensing of the laundry chemistry from the laundry chemistry dispenser; ... and the control panel is coupled to the laundry chemistry dispenser for controlling a dispensing operation of the laundry chemistry from the laundry chemistry dispenser based upon the currently determined ozone concentration level in the washing machine."
Semiconductor Oscillation. "Systems and methods for oscillating exposure of a semiconductor workpiece to multiple chemistries are disclosed. A method according to one embodiment includes sequentially exposing a portion of a semiconductor workpiece surface to first chemistry having a first chemical composition and second chemistry having a second chemical composition different from the first."

Chemical barcodes. "Assemblies, systems, and methods are provided for using a chemistry cassette barcode to obtain information associated with the cassette. A barcode assembly for use with an analyte testing system includes a barcode affixed to the chemistry cassette, and the barcode assembly further includes a barcode reader mounted within a test console of an analyte testing system."

A successful patent acquisition requires both scientific mastery and legal acumen.

A lawyer specializing in chemistry patents can also work in patent infringement litigation. Every year, more than 12,000 intellectual property lawsuits are filed in federal court--a lot of these deal with patent infringement. The chemistry lawyer either represents the inventor or the alleged infringer being sued.

Role of a Chemistry Attorney

In order to protect your computer engineering innovations, the computer engineering attorneys:
Identify how your competitor's innovations affect your product, client base, and business strategy by conducting patent searches and due diligence reviews.
Develop strategies for managing and protecting IP portfolios.
Advice on patent law, trademark law, copyright law, trade secret law, and other areas of intellectual property.
Assist with infringement, validity, and right-to-use issues.
Obtain utility and design patents by preparing and prosecuting applications.
Litigate and defend IP assets.

How Do I Become a Chemistry Lawyer?

The interested person can lay a solid foundation with a Bachelor of Science degree in chemistry or a related field such as chemical engineering. Then, after passing law school and becoming a state bar member, the lawyer is ready for a career as a chemistry attorney.

Chemistry Attorney's Skills & Competencies

The success of this occupation will also depend on certain soft skills that you either inherit or acquire through experience. The following are:
Problem Solving and **Critical Thinking Skills**: Chemistry Attorneys identify problems and propose possible solutions. Before implementing those fixes, they evaluate each one and determine which one will be the most effective.
Speaking, **Listening**, and **Interpersonal Skills**: Working on a team is an integral part of the job, so you must have good communication skills.
Time Management Skills: Good time management is essential for meeting deadlines.
Analytical Skills: Like all scientists, Chemistry Attorneys must analyze a lot of data.
Organizational Skills: Doing this job requires accurate data tracking, as well as thorough documentation of all processes and results.

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