Careers in Green Chemistry and Sustainable Design

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[00:00:00] My name is Justin Rewerts and I am a chemist in the Hazardous Waste and Toxics Reduction program at the Washington State Department of Ecology. My contribution to the team that I work in is to be knowledgeable about how the chemicals behave, whether it be in the environment or in the products that we're looking at.

[00:00:30] A typical day just involves me kind of digesting lots of highly technical information related to chemistry. And then translating that for people who need to use it. So, for example, um, I work with compliance leads who need to provide assistance to manufacturers about laws in Washington. And I also get to work with toxicologists to find not only safer alternative chemicals, but making sure that those safer alternative chemicals also perform the functions of the chemicals that we're trying to replace.

[00:01:07] Working in a team like this is how we really make sure that we're being thorough and responsible in the alternatives that we find.

What is an example of your work on safer chemicals?

[00:01:24] Per and polyfluoroalkyl substances, or PFAS, are chemicals that are added to apparel, such as clothing, rain jackets, etc., to make them water repellent. So the PFAS problem is not anything new and there have been other groups who have been advocating for phasing these chemicals out, um, way before, um, Safer Products for Washington, for example.

[00:01:52] And so because of that, there are a lot of industries that are running away from those chemicals already, um, and so they've put in the research efforts into developing these PFAS free alternatives. And so what we're trying to do is work with those manufacturers to make sure that the new chemicals that they have manufactured as alternatives are actually safer.That way we don't create what we call a regrettable substitution.

Why is the work you do important?

[00:02:29] The work that we do is important because we don't know as much information as we would like to know about the chemicals in new consumer products, right? We at Ecology work really hard to kind of figure out what the

overall impacts of chemicals in at least this example, consumer products are not just from the consumer health side, but also what will that mean for the environment by the time it's time to dispose of that product that we don't need anymore.

What does sustainability mean to you?

[00:03:11] So sustainability to me means that we in the present right now live in a way so that all of us have equal access to the environmental resources that we need to live and thrive as living beings, right? But it also means that you integrate in living now, something to ensure that future generations don't have a problem with accessing those same resources.

When did you know you wanted to work in green chemistry and sustainable design?

[00:03:50] I didn't know before coming to ecology that I wanted to work in the field of green chemistry and sustainable design. And this job was very complimentary to my background and the work was important. Um, and so that's what ultimately led me to apply to this job in the first place. I guess, to be honest, like, um, not only did I not know prior to coming to ecology, um, but there's still a lot of stuff that I don't know about green chemistry and sustainable design.

[00:04:22] But what I do know at this point in time is that, it's a field where there are lots of changes happening, so there's a lot of information to take in, so it's exciting, but at the core, um, green chemistry and sustainable design helps keep people safe and ensures the future of, of the human experience, so to be able to contribute and work in that space like that is just - It's really exciting and I'm really looking forward to seeing how my career evolves at this point in time and onward.

Why did you pursue post secondary education?

[00:05:07] Part of the reason why I also wanted to go to grad school is because I wanted to be kind of on the leading edge of innovation, right? You know, solve big questions in science, right? The cool thing about my career right now is that I still get to be on that edge of innovation without having to do any of the innovating.

[00:05:28] So when I look for safer alternatives, I have to interface with these manufacturers who put all the work into developing those alternatives. So I not

only get to learn what they are, but I get to learn how they work. And I get to see what the true creative innovators are doing to make forward progress, um, in the space of safer alternatives, right?

[00:05:52] But I don't have to do any of the lab work. I get to be associated with it. I get to learn about it, but I don't have to do it and that's that's probably the coolest part.

How could someone learn more about the work that you do?

[00:06:02] Honestly, like if you like thinking about solutions to problems and you like the challenges of thought exercises like that, um, honestly, just like have a conversation with someone you're interested in. Um, talk to me, talk to any of us at Ecology. If you are interested, we have a lot of fantastically passionate people who would love to chat with you and learn about what you're interested in and guide you in. Um, it's worth it. And, um, this, what makes this career path particularly exciting, right, is that you get to help people, you get to help the environment, and you get to do this all while having to think creatively, but think creatively using your technical knowledge and your science background as kind of a springboard or like a toolbox, for example.