Denise: Hello, everyone. I'm Denise Urbans.

Mike: And I'm Mike Urbans, and welcome to It's Your Water. Glad you found us.

Denise: For this podcast, we're going to discuss using ozone as a very effective way to supercharge your media bed.

Mike: Is your filter getting enough ozone in its diet?

Denise: Well, let's see.

Mike: Well, traditionally, water treatment dealers use chlorine, peroxide, and good old air to regenerate their oxidizing-type filter media beds. That air, peroxide and chlorine are needed to perpetuate the catalytic reaction on the media like the ones we traditionally use. It's Greensand Plus, Katalox Light, Pyrolox Advantage, Cerapure, and -

Denise: The new stuff.

Mike: Yeah, new stuff. Cerapure. Look – look back on a podcast. And catalytic carbons because they utilize these regenerants. As I said, it's a catalytic reaction. It's almost like hamburger helper, you need it, if you don't use it, you've got a bad meal. No, not really.

Denise: No.

Mike: But you've got a bad filter.

Denise: Well, what happens when you don't use it? What kills the filter media?

Mike: Well, oxidation and reduction – here's a little primer here. Hopefully, it'll make sense to everybody. it depends on a catalytic reaction and a good pH. You always start off with a good pH, not too high, above, like, 8.3 and not below 6.5. Sweet spot, of course, is 7, 7.5.

Denise: Makes sense.

Mike: And that helps these regenerants perpetuate or act better in a higher pH. It's just – it's just the nature of the beast but look it up on Wikipedia. No, there isn't one. It just – it's – you need a good pH, okay?

Denise: It's -

Mike: But we're not talking about pH.

Denise: - that whole redox. Okay.

Mike: We're talking about ozone.

Denise: Right.

Mike: So, you don't have a catalyst, you don't have the fuel to perpetuate the reaction needed to oxidize then filter the contaminant you're looking to remove. See, the fuel is – as you oxidize and reduce, you use up the catalyst that's there. And it may be oxygen, most of it is oxygen, like what peroxide would give you, and air, and ozone. And if there's nothing back to refill the – the sites, your oxidation potential goes down and your media fails.

Denise: It gets slimy, or -

Mike: Well, no, it just – you know, it just acts like dirt.

Denise: Oh.

Mike: You know, it's just there.

Denise: Oh, great.

Mike: And you could backwash the living bejesus out of it, and it just sits there, and you have an angry customer and a dead bead. So, all these are – are great in one form or another. I mean, but chlorine, it's messy, it's reactive, and it – it loses its oomph in sunlight, it degrades quickly. So, if you've got a batch of chlorine that's been sitting there for month, it – it's – it's lost its oomph from day one, especially if it's exposed to air and sunlight, almost the same as with peroxide. Peroxide is a very unstable liquid oxygen. Think of it as that. That's all it is, and it's pent up. It's waiting to react with any kind of organic material. So, if it's exposed to sunlight, it just gasses off and it – it – it's not as unstable as chlorine, but it's – eh, and it's messy.

Denise: Yeah.

Mike: And both of them stain clothes.

Denise: Yeah.

Mike: Stain uniforms that you pay so much for.

Denise: Mm-hmm.

Mike: And you want to look good to the homeowner, and you don't want to have stains all over.

Denise: Yeah. You don't want to come out of the location -

Mike: And then, there's good old air, which is very weak, you know, air – oxygen – air as we know it, and there is the issue that I will discuss a little bit later. So, what do we do? Enter ozone.

Denise: Okay.

Mike: So, ozone – I wasn't a big fan of ozone. I – I really -

Denise: No, I remember, you wouldn't use it.

Mike: Nope. No. Ozone -

Denise: Too complicated.

Mike: It was fussy.

Denise: Mm-hmm.

Mike: It was very fussy, and we are now in the age of electronics which will regenerate or generate ozone easily. But ozone, what is it? It's O_3. You have – O_2 is oxygen, O_3, you have that extra molecule that's there. It's O_3, they call it trioxygen. I never saw – I saw the – honest to God, it's the trioxygen –

Denise: Well, they said it's triox.

Mike: Triox. Maybe that's where that came from. Tri – trioxygen. I like lightning in a bottle.

Denise: Yeah, that works.

Mike: That's how it's made, for our purposes.

Denise: Not in a bottle, what about -

Mike: It – well, no, in actually a tube.

Denise: Oh.

Mike: And you create your lightning -

Denise: In -

Mike: - with a corona discharge.

Denise: Oh.

Mike: And it's a special, little mysterious little tube.

Denise: Magic.

Mike: And you zap lightning, basically.

Denise: Mm-hmm.

Mike: That's where, after a lightning storm, they always -

Denise: It smells.

Mike: - say it smells differently, or pure.

Denise: Mm-hmm.

Mike: That's ozone going on.

Denise: Mm-hmm.

Mike: So, we can make ozone in this little magical tube and have it at our service. So, this is where we're going here, follow the bouncing ball. So, think of ozone as supercharged oxygen. It has a distinctive odor, and that's why its name was derived from the Greek word ozein, which is the verb for smell. Those Greeks, they invented everything.

Denise: Yeah, they did.

Mike: You know, every -

Denise: Yeah, language.

Mike: - all the words, centaur, and minotaurs, and -

Denise: This is true.

Mike: - mythological beasts, and the words. It's – or Latin too, I guess –

Denise: Well, yeah, there was, you know, Latin, Greek.

Mike: Well, the Greeks and the Latins, they got together.

Denise: Yeah. The Romans and the Greeks.

Mike: Yeah. It's terrible, but. So, I thought that was kind of cool, though, I like that kind of stuff. So, ozone in high concentrations, traditionally, you could make it. You can make it with different methods, and traditionally they injected it into the water supply – and they still do – under high concentrations, but that's too dangerous for our purposes. So, in high concentration, it could be chlorine and peroxide.

Denise: Yeah.

Mike: Yeah. Anything in high concentration is bad. But the neat thing about ozone is, we're making it fresh.

Denise: Okay.

Mike: We've got a little factory. It's fresh ozone.

Denise: Well, yeah, because -

Mike: It - we kind of like its hostile properties.

Denise: We don't want to use stale ozone.

Mike: No stale ozone, nope. You go into your cupboard, and you look, you say, "Mom, this ozone is stale."

Denise: The water tastes terrible.

Mike: So, yeah, it has some hostile properties.

Denise: Hostile properties.

Mike: And that's what we like about it. So -

Denise: Beats us up?

Mike: - here – here's – here's why we're doing this podcast, and why I'm sharing this with you, because a lot of you guys might not know that there is an alternative, and for years – an alternative to the air sucker.

Denise: Ah, okay.

Mike: You know the air suckers. And you say, what the heck is he talking about? Air sucker, AIO, and what they did – some genius, I forget his name, I know him – years ago, discovered a water softener valve sucks air. So, if you -

Denise: Is it supposed to?

Mike: Yeah. No, it's not, that's why they have an air check in there. But he said, "Wait a minute, this thing's sucking air and it's drawing air in," so he modified, put check valves in, da, da, da, and he got a patent on the air sucker.

Denise: Mm-hmm.

Mike: Well, the patent ran out, everybody ran in.

Denise: Now everybody has the air sucker, uh-huh.

Mike: Yeah. So, some genius said, "We can make a small ozone generator, strap it on the back of this water softener valve, and put the traditional brine line through the ozonator so you suck ozone," so when it turns on with the electronics, it goes I'm into brine draw, quote/unquote.

Denise: Oh, it thinks it's into brine draw.

Mike: Thinks it is. It goes, buzz, sends a little signal to the ozone generator that says, "Wake up, ozone generator," and -

Denise: We need some fresh stuff.

Mike: - comes on. We've got to make some fresh ozone. And the – goes into the draw and draws in ozonated -

Denise: Ozones.

Mike: - ozonated air.

Denise: Ozonated air.

Mike: So, now we have a supercharged air, a purified air, and this is where I'm going. Because what was happening with the traditional systems is – your basements and crawlspaces, right -

Denise: Yeah.

Mike: - this is where these things are going. Moldville.

Denise: Mm-hmm.

Mike: So, think about sucking in basement air – traditionally, that's not clean – into a moist environment, and what do you get? Slimesville.

Denise: Mm-hmm.

Mike: Remember our first Slimesville? Slime is probably the biggest contributor to the premature deaths of filter beds across the world.

Denise: Okay.

Mike: And I'm here to save them, with the gospel of ozone. So, moist, icky basement air was being sucked into these systems. And, man, I've seen some pictures that are just downright freaky. I mean, just -

Denise: Can we share them? Do we have any?

Mike: - awful. Ugh. I don't know. It was – it was really – I mean, honest to God, it was like this – something out of a science fiction.

Denise: Ugh.

Mike: And so, you get some pretty ugly slime. So, ozone is our mold slayer. And why I call it the mold slayer, as I just said, think of it as an air cleanser. Not as much as your injecting pure ozone into the – to the bed. So, you – you're basically cleansing the air, supercharging it, and putting it through the filter media, and the ozone is breaking down almost instantaneously to oxygen at that point, as it reacts with water. It's just, like -

Denise: And oxygen is the -

Mike: - pow.

Denise: - catalyst that we need.

Mike: And the oxygen is the catalyst we need to perpetuate the reaction on the media bed.

Denise: Okay.

Mike: So, it's – it's – it's very important, it's a – it's just a wonderful thing that happens, and, you know, we don't need any more slime creating properties out there.

Denise: Mm-hmm. So, they manufacture these systems, various manufacturers, I assume?

Mike: Yes, they do. With the invention of modern electronics, it's a switching that takes place, and they – it turns on. It's not really the valve that turn – it is the valve that turns a switch on through a relay, that turns on the ozone generator.

Denise: Mm-hmm.

Mike: And there is some maintenance involved – there's no free lunch – because there's little check valves, you know, because you – you mechanical engineers are saying, "Wait a minute. This thing is going to go into brine refill, is it going to blow water right through the ozone generator?"

Denise: Hmm.

Mike: No, they thought of that. They put a little check valve in it.

Denise: Mm-hmm.

Mike: But that check valve, it's – they wear out, so you have a maintenance item there.

Denise: Mm-hmm. Well, you have a maintenance item with all these things, though. I mean, you have to bring in chlorine or peroxide.

Mike: Yeah, get chemical feed pumps, and -

Denise: Yeah.

Mike: - but it's a tiny, tiny bit of maintenance.

Denise: Okay.

Mike: And the ozone generator, the lightning bottle -

Denise: Mm-hmm.

Mike: - it does get sooty, and it'll create a -

Denise: Oh, makes sense.

Mike: - nitric acid in there, which is nothing, it's very, very light. And typically, what we tell people to buy another little tube, a magical tube which is only, I don't know, five inches long.

Denise: Mm-hmm.

Mike: And use a syringe. You can buy the syringes on – I just did when I did some woodworking, and you – you had to mix -

Denise: That's, like, a -

Mike: - the part A and part B.

Denise: Yeah.

Mike: So, wouldn't you know, they make these syringes on – and you just – you pull your deionized water through the syringe, and then just push it through -

Denise: To clean it out.

Mike: - to clean the tube because ozone is fussy – the traditional ozone – but think of it as not – we're not making a powerful, mean ozone here. We're just using the ozone to clean the air.

Denise: Just enough to get -

Mike: Just enough.

Denise: - the oxygen -

Mike: Just enough -

Denise: - reaction.

Mike: - to get our oxygen, clean the air, and supercharge. But you start losing that power. It's almost a weak thing to begin with, so if you make it weaker by neglecting its maintenance.

Denise: Well, it puts me in mind of a UV lamp.

Mike: Yeah. You've got to change a UV once a year. You've got to check – do a check valve and do -

Denise: Mm-hmm.

Mike: - a corona tube. So, I mean, it – it's kind of nice, because if you have a maintenance agreement or contract, you do get back into the house with these things too, but it's -

Denise: You don't want to get back in the house because rust is showing up.

Mike: Yeah, right, and there's a big problem with – exactly. It's – yeah, you don't want that.

Denise: Is the pH of the water an issue with the ozone? I know it's an issue with the media, but how – what does the ozone -

Mike: The ozone, it's not really a pH, it's how it reactive – it's how reactive -

Denise: Okay.

Mike: - the media is with the ozone, or with the chlorine, or with the peroxide.

Denise: Okay.

Mike: It's how quickly the reaction happens. The higher pH, you speed it up.

Denise: Okay. Yeah. It's important.

Mike: Yeah. In lower pH, things are held in solution harder.

Denise: When a manufacturer puts out the fine print on their media, do they give a – a chart, or something, that says it'll happen faster – it'll happen this fast in 6.5 and -

Mike: No. They just – they just give you a range, 6.5 to 7.5, and -

Denise: But they don't tell you it's better at 7.5?

Mike: They don't tell you why. And I say stay away from the 6.5. Get it above 7.

Denise: Okay.

Mike: And, no, they won't give you any parameters on ozone, they'll just give it to you in chlorine regeneration. How often should I regenerate it? Don't go any more than three days, because these ozone generator systems I'm talking about actually keep a bubble of ozone in the top of the – it's really oxygen at that point, you know.

Denise: Mm-hmm.

Mike: Keeps a bubble there and holds it.

Denise: Mm-hmm.

Mike: And water cascades through it, and it actually will stay there for three days, then get stale, and -

Denise: Okay. And that's why you regenerate.

Mike: - you've got to regenerate every three days or your – your bubble gets stale, and then it's useless, really -

Denise: Mm-hmm.

Mike: - at that point.

Denise: But, I mean, what about pre-treatment?

Mike: The other thing – yeah, was, what makes powerful ozone is drier air. So, most of these go in basements. I guess, in Arizona they make some hot ozone.

Denise: Yeah.

Mike: In – in the desert, they make hot ozone. But in the northeast and northern damp basementville, we have higher humidity, you make weaker ozone. It's just the dry air – it likes dry air.

Denise: Does it like soft water, though, is what I'm – does it – does the water need -

Mike: Nah.

Denise: - to be treated ahead of it?

Mike: That side of pH, you know -

Denise: Hard water is not a problem?

Mike: Denise is complicating things.

Denise: No, I'm not. I'm not complicating. It's just a logical question somebody -

Mike: Yeah. I'm -

Denise: - might ask.

Mike: - I'm sorry. Just the pH – well, of course you can't have huge amounts of dirt going into these things. This is just for iron, sulfur -

Denise: Okay.

Mike: - and manganese.

Denise: Okay.

Mike: So, yeah, I mean, clean dirty water. I wouldn't say that. But that's – that's the fun of ozone. In the years past, it was very fussy to make ozone.

Denise: Mm-hmm.

Mike: And traditionally, where you would inject it, I said. It's just, the – you know, in – it was a pain. You'd plug it in, the corona tube, the air dryer, the desiccants, this is a passive ozone.

Denise: Mm-hmm.

Mike: So.

Denise: Easy to get along with.

Mike: Easy to get along with. So -

Denise: Is there anything else we should tell our listeners about ozone? Yeah?

Mike: Buy one today, try it out. It's another tool in the toolbox. That one's for you, Bob Tyson. So yeah, it's just pretty simple. It's a – it's a quick, little podcast.

Denise: Is it expensive?

Mike: Not as expensive as keeping on buying chemicals, good point. If you keep – just think how expensive peroxide and chlorine are.

Denise: Right.

Mike: Sometimes in short supply.

Denise: Mm-hmm.

Mike: And we – we – we've got a little factory here, too.

Denise: Right.

Mike: So, you're going to pay up front, but it's not that – it – well, let's say, compared to a softener, they cost about twice as much -

Denise: Okay.

Mike: - as a softener because you have to pay for that ozone generator.

Denise: But they don't use more electricity, do they?

Mike: No, it's -

Denise: Minor.

Mike: - a plug-in wall socket.

Denise: Yeah. It's like a lamp.

Mike: It just amps it up, and it just makes a little spark, and you suck the ozone out of the spark, more or less, the spark creates it. And – but no, they're not, like, this 10 gauge wire you plug into your wall.

Denise: 220?

Mike: No. It's just a little – little power pack, and very, very – you know, very easy, small, compact. You don't even know it's there, that's why they get neglected, but – but not as neglected as you running out of chemical.

Denise: Right. Right. Those things -

Mike: This thing keeps going.

Denise: - are really hard to get rid of.

Mike: Yeah. Yeah. Even neglected they still go, it's just not as powerful. But everything's maintenance, there's no free lunch, but no. It – it costs a little bit more, but you've got to tell your customer, in the long run – maybe have a little spreadsheet – this is -

Denise: Yeah.

Mike: - how much does a traditional system cost with chlorine, approximately?

Denise: I think the manufacturers will do that, yeah -

Mike: Mm-hmm.

Denise: - probably.

Mike: So, that's – this is why they – we sell, you know, a fair amount of them and, you know, certain manufacturers do make them. People with Clack valves can modify them. So, all the big guys have them. It's funny, I went to a tradeshow, I thought, ooh, I've got something special. I look over and, like -

Denise: Everybody.

Mike: - everybody. There's a little ozonator sticking out the top like an antenna. And I was like, well -

Denise: The ozonator manufacturers got them.

Mike: The ozonator manufacturer, he's reaping it.

Denise: Right.

Mike: Yeah. He's like, woo-hoo.

Denise: If he can get the parts.

Mike: Honey, we're getting a new house – and the patent ran out. But yeah. So, yeah. Yeah. You know, so stop sliming your media and start sucking your ozone today. And Trust the Frog.

Denise: Yeah.

Mike: Okay. Thank you, everybody.

Denise: Thanks.

Mike: Bye bye.

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