Primary Packaging for Injectable Pharmaceuticals Primer: Understanding the Landscape and Recent Destocking Concerns

Competitor | Moderated Call | Moderator: Shane Sullivan | February 28, 2024 | 52 Min Read

Relevant Companies: WST | GXI:GR | ATR | BDX | STVN | 8086:JP | 1SXP:GR | GLW

Ashraf Zaman, VP of Global Sales for the Injectables Division - AptarGroup, Inc.

AGENDA

- How do customers select primary packaging components and vendors for injectable pharmaceuticals?
- Who are the leading vendors of glass, plastic, and rubber primary packaging for injectable pharmaceuticals?
- What are the economics associated with various primary packaging components?
- How are primary packaging vendors investing in additional capacity for GLP-1s and biologics?
- What are thoughts on destocking headwinds that have affected vendors like West Pharmaceutical Services?

HIGHLIGHTS

> "I would say the majority of the big companies, and West was saying maybe six companies were responsible for 75% of the destocking. I'd say, look, now we're at the point where they're down to six months [of safety stock]. The question is, are they going to go down to three months?"
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> "There's basically going to be not much growth at all, Q1, Q2, Q3... As we come out of this, there's going to be a huge uptick for the pharmaceutical packaging industry. We're going to have a great 2025."

Shane Sullivan: Hello everyone. Good afternoon and thanks for joining us on today's call. Primer concerning Primary Packaging for Injectable Pharmaceuticals. Before we get started, if anyone has any questions they would like me to pass along to the Advisor on an anonymous basis, you can reach me directly at ssullivan@Guidepoint.com and I would be glad to do so. This is a primer, so we will, for the most part, be talking about the basics. That being said, I would encourage everyone on the line to tune in for more detailed discussions we'll be holding in the future.

With that, Ashraf, a pleasure to speak with you again today. Thanks again for agreeing to participate. To begin, would you mind introducing yourself, providing some an overview of your background in this space?

Ashraf Zaman: I will start with my current role and work backward from that. Currently, I am the head of global sales at Aptar Injectables. I've been here for four years in this role. We compete mainly with West and Dätwyler supplying rubber elastomers into the pharmaceutical packaging space. Before that, I spent six years with Stevanato Group in different roles, including head of product management, head of commercial development.

Before that, I spent eight years at Becton Dickinson BD again in various roles, the last one being director of sales for North America. Way before that, I was at Catalent. Well, now part of Novo Holdings. Back then it was part of Cardinal Health. I was there for about five years. In total, about 20 years experience in this primary packaging space.

Shane Sullivan: This should be a good one. Let's start out with a high-level question. The premise is that audience members aren't going to be super familiar with this space. How do you segment the primary packaging market for injectables? Do you view it as one part containment, one part rubber? Is there a better way to think about it?

Ashraf Zaman: That seems to be the most common way of doing it. Yes. there's containment, which can be glass or polymer, of course. The other part is the rubber part, the elastomeric components. One of the reasons we segment the market in that way is also because of the suppliers. If you think about it, there are three suppliers of the elastomeric components - ourselves at Aptar, Dätwyler, and West. Well, we don't really, in our essence, do the containment, although West is trying to get into that. Then there are five companies that do the containment. We all know them - Becton, Dickinson, SCHOTT, Gerresheimer, Nypro, and a Chinese player called [INAUDIBLE

3:18]. That's how we segment the market, but the primary, containment - glass or polymer. Then the elastomeric is another component.

Shane Sullivan: On the containment side. What are the primary formats for injectable pharmaceuticals? Have any such formats been particularly fast-growing?

Ashraf Zaman: I'll start with the most basic, which is ampules. Ampules are what we call cheap and dirty. They've been growing at about 1% every year, and it's a huge market. I estimated it to be about 40 billion pieces, but it's very fragmented. Not a lot of people are focusing on that. It's very regional. A lot of small players in China, Latin America, Russia that supply that market. Not a strategic focus but it keeps the lights on

for some of the companies.

Then we have of course vials, which is a little bit more complicated to produce because there's a rubber that has to interface with the vial to seal it. You have to get the dimensions very accurate when you make a vial, which makes it a bit more complex to produce, and you can extract a bit more value by charging, of course, a higher price. This, of course, barring COVID, has always grown about 2, 3, 4 percentage points per year. Of course, during COVID there was a spike. Now we're paying for that spike, which I'll go on to later. Generally speaking, the vial market grows between 2%-4%.

Then you've got a cartridge. Cartridges are the next level of complication because there are two pieces of rubber at two ends. You have to get both the dimensions very, very accurate when you produce a cartridge. Cartridges are generally used for things like insulin. Now more and more for GLP-1s of course. Cartridges have two rubbers at both ends, what we call a plunger, which is at the fat open end. Then we have the cartridge line seal at the smaller end where the drug comes out of at the point of injection.

This has been fairly steady, linked to insulin, and the growth of diabetes, the growth of treatment for diabetes with insulin. It's very, very much linked to diabetes. The growth has historically been high single digit directly linked to more and more people becoming diabetic, especially in the developing world. Of course, again, there's a GLP-1 caveat to that, which we'll come on to later.

Finally, the most complex of all is the syringes. This the one that attracts the highest price, the most value because it is very complex to produce for many, many reasons because of the shape of the thing and also because of a number of other things it interfaces with like metal for the syringe, like rubber at both ends, of course, similar to a cartridge. It's much, much more complex. This has been growing at a very high single-digit, almost double-digit, even before GLP-1s. Even without COVID, there was a huge growth in syringes linked to converting some drugs from vials to syringes, some blockbuster drugs like Humira being launched in syringes and just generally being more and more biologics, which are normally injected, which tend to be in syringes. These were the macro factors that were driving the syringe growth, which is now just been propelled, of course, with GLP-1.

Shane Sullivan: How do we think about the containment market with respect to glass versus plastic? What drives usage of one versus the other?

Ashraf Zaman: Historically, this has always been a glass market. Glass is a traditional product, basically because it's not permeable to oxygen. What has been a problem historically with all the plastic products is that you cannot store drugs in there for a very long time because oxygen permeates through. The only time you see plastic syringes are in hospitals where they're filled at time of use. We call them fill-at-time-of-use syringes where you see things like the BD plastic bag, very, very common in every hospital where the nurse or doctor takes a drug out of the vial using this plastic syringe and injects them.

These syringes are not suitable for long-term storage. They're polypropylene syringes. That material is not suitable for long-term storage of syringes. What has happened more recently, in the last five years in particular, is we have discovered much, much better resins with better, let's say, less permeability to oxygen. These have

allowed us to actually do launch some products into the market in what we call polymer syringes. Either COC or COP polymer syringes.

Companies like West have launched products like Crystal Zenith. You've got smaller companies like Mitsubishi Gas Chemical which have got this interesting triple-layer polymer syringes where they have three different layers. The middle layer stops the oxygen coming through. They've all discovered novel ways of preventing oxygen from permeating through to the drug. Basically, in a nutshell, most drugs are sensitive to oxygen. Therefore, you need glass. If it's less sensitive to oxygen, you can actually choose polymer as an option now.

Shane Sullivan: You mentioned a couple of containment vendors at the outset of this call. Gerresheimer, Stevanato, Becton, Dickinson, Nipro. How would you characterize the competitive landscape? What distinguishes those vendors, maybe walking through them one by one, in containment?

Ashraf Zaman: Well, so with Becton, Dickinson (BD), so they are considered the number one player for syringes. Historically, they were the ones that pioneered this product. They have a significant market share. As everyone knows, they are the dominant player by far. They have a good reputation, of course, because they have this know-how, huge capacity, huge network, multiple manufacturing sites. Really, a kind of oil tanker or a dinosaur of the industry. Obviously, they have a strong reputation that comes with that.

Maybe on the flip side, some anecdotal things, I'm hearing that, of course, they're not the most flexible company in the world because they've got this history, the structure, this the BD way of doing things. Sometimes they may have a reputation of not being as flexible as some of the others.

Then I can come on to Stevanato. They're probably considered now the number two in the world for syringes. Again, a strong reputation in the market for being innovative and flexible being based in Italy. Growing fast. They're famous for innovation also, because they were the pioneers who launched the ready-to-use vials and cartridges, what they call the easy-fill product range. By launching that, they're starting to convert the vial and cartridge market into this higher value, ready-to-use market, similarly to what BD did with syringes when they invented what they call the SCF - sterile, clean, ready-to-fill syringes, they converted that market from a unsterilized, what they call bulk syringe, into a sterile syringe market, extracting a lot more value. Stevanato pioneered doing the same with vials and cartridges.

After that, you can choose with Gerresheimer and SCHOTT, both with strong reputation. One German and one Swiss. They come with that German, Swiss mentality. Gerresheimer's reputation has been reliable, good lead times and they're increasing their reputation the market. I hear them more and more these days than I did before.

SCHOTT has a reputation for being the glass expert. They actually produce the raw material, the glass cane that's used by all the others to produce, to make syringes, vials, and cartridges. The raw material is a long piece of tube that's 1.5 meters long. This tube is mostly bought from SCHOTT. Their reputation really is as the glass experts on the market.

Shane Sullivan: You mentioned a move to easy-fill components, and I know this applies to rubber as well.

Would you say the majority of customers opt for pre-wash, pre-sterilized containment solution at this time, or is there still lots of runway for that?

Ashraf Zaman: There is still some runway. I would say if I had to pick a number, maybe half the market is converted to that. The trend is definitely in that direction. More and more customers are moving into that direction buying pre-sterilized products. The way it works is whenever a customer evaluates a new capex to install their own sterilization facility or they build a new facility, they do a total cost of ownership. Each time it comes out that it's much, much better to buy my product pre-sterilized. "Because I'm a pharma company. What do I do? I treat patients with medications. I'm not a sterilizer. That's not my core competency. Let me outsource that." I've not seen a single company that makes that evaluation come out and say, "Well, actually it makes more sense for me to do sterilization." Each time they do tend to opt for the RTU.

Obviously, it's a slow process. It's a conservative market. They're not changing overnight. It's happening bit by bit. If I take, for example, the syringe market, it's now 90%, 95% pre-sterilized syringes. That's taken BD 20 years to convert that market. I imagine a similar momentum for the other product lines in elastomers.

Shane Sullivan: What is a company like Corning do in containment? You look on West's website, they talk about Corning Valor Glass being pretty advanced, just wondering.

Ashraf Zaman: Corning is an interesting player. Corning has tried to enter this space, which many consider it's like a closed oligopoly. They made a very interesting move. I mentioned about the glass cane, which is the raw material that SCHOTT supplies. This also used to be supplied by Gerresheimer. What Corning did, they actually bought this division from Gerresheimer a few years back to try and enter this space. They broke up the oligopoly, saying, "We're now going to be one of the suppliers of the raw material." Of course, that was not their final intention. They're just doing that to get into the market. They want to sell vials and syringes. Of course, that's the end game.

For what they do, they have a very interesting technology which makes the glass difficult to break. It doesn't break easily. You can almost bounce it off the floor and it's so strong. It's clever technology. The market has been slow to adopt or slower than they would like. I'm sure Corning would have expected a much larger market share than they could have good lobbying on their product. Of course, it's been quite slow. Let's say the uptake has been slower than they would expect, I imagine.

During COVID, they had some success because there was a lot of desperation for vials, of course. Again, that momentum hasn't continued. I don't see many customers today who are pushing for this Corning Valor Glass.

Shane Sullivan: Is that a product of pricing or the fact that it's a newer, perhaps unproven technology? What would you attribute that to?

Ashraf Zaman: There are a few factors. The fact is that the market, as we know, is very conservative. Nobody wants to be the first. There's a reluctance to be the first one that submit to the FDA a filing with Corning Valor Glass because then the FDA might go and inspect them. You don't know what they'll find. There have been some instances where FDA has received a filing and they go and visit the CMO. They don't like the CMO so

your registration fails because the FDA didn't like your CMO. There's that conservativeness. Nobody wants to be the first. It's the first thing.

The second thing I would say is that, what problem are you solving? Glass breakage is, of course, something that can happen. Glass can break, but I don't have too many complaints from people of glass breaking. If it is, it's very, very minor. Not enough for me to justify paying 2x, 3x, 4x the price because I don't want to, about my glass to break.

As Corning has developed this product which doesn't break easily, is stronger glass, in parallel, the rest of the market is moving more toward ready-to-use pre-sterilized products, which when they're delivered to you, they're individually put into a nest and tub so they don't contact each other. As long as glass doesn't come into contact with each other, it doesn't break. The only time it breaks is if you keep contacting glass with each other, you cause micro breakages, which over a period of time can cause to a fracture or break. When you develop, when you ship these products, that's when most of the damage happens.

Now with this ready-to-use or easy-fill technology, because the vials, cartridges, and syringes are individually put into small holes, let's say a tub of 100, you eliminate that problem. What's also happening, the filling lines where drugs are filled into cartridges, vials, and syringes, in the past they would have had a whole line of vials, syringes touching each other, going on what are called rails. Again, that technology has evolved, whereas now they are filled individually. Either they've picked up one at a time, filled, then put back into the nest, or it stays in the nest and a filling head comes through and fills them either 2, 5, or 10 at a time. Again, there's no glass-to-glass contact.

That elimination of glass-to-glass contact at the same time as Corning Valor launching this product has said, "What problem are you solving, Corning? There's no problem anymore." That's worked against them.

The final thing I would say on this topic is that it's so strong that Corning Valor Glass, we've also heard anecdotal phrases that it could damage your filling line because it's just so strong. As they bash around your filling line, it could actually cause damage to fill. For those reasons, they've actually faced a lot of headwinds.

Shane Sullivan: What is West trying to accomplish in containment? Do you expect them to be successful in doing so?

Ashraf Zaman: It depends on your measure, on your definition of success. My opinion, one of the reasons they announced this thing is that just as COVID was dying and we knew that they were not going to be so many injections of COVID. We were not going to benefit. Western Corning did benefit during COVID. It was a nice partnership to say, "Hey, look, this is our solution because the market wanted to know, what are you going to do to compensate for those COVID sales?" That was one of the reasons why the partnership makes sense.

Has the market been responsive to that? I have not seen the traction myself. I've not seen Corning replace the existing players so far, within the last two or three years that they've been in partnership, either at Stevanato, SCHOTT, or Gerresheimer, they've not been displaced in any way.

What I do see is in the very, very long term, there will be some benefit. Let me explain to you why one of the products and one of the reasons West has been so successful. They have this product called the Ready Pack. What it is, it's a very, very small pack of either syringes and stoppers or cartridges and stoppers or vials and stoppers. It's like a starter kit for want of a better phrase that you would ship out to very, very small biotech companies with a new molecule that just want to get hold of 100 vials of 20 vials. That's all they need just to do some stability work or do some preclinical work, and it's quite hard.

If you ring BD and you ask for 100 syringes, you're not going to be that successful because they want to focus on the big volumes. Someone like West has this ready-to-go kit. They'll ship out to you. What happens is, by default, the drug that these people are developing become validated in a West rubber component, which has happened in the past. Now at the same time, also a Corning Valor Glass, because West is shipping Corning Valor Glass with their rubber component in these Ready Packs, so it's going to take 10-15 years, but eventually, you're going to see some molecules on the market that are there just by default, because that was the original container that the stability was done in.

Shane Sullivan: Let's switch to rubber. Can we just recap the rubber required for those different container formats we talked about earlier?

Ashraf Zaman: Of course, ampules don't contain any rubber. Then vials are open at one end and they have what we call a stopper. We call it a stopper. It's just a simple rubber cap that goes onto the vial. It stays on the vial. Then when you want to take the drug out, you basically pierce the needle at the top of the rubber and remove the drug. Sometimes you use a vial up to 20 times if it has multiple doses. You have to make sure that rubber is of a suitable material that can be pierced 20 times and still maintain the integrity. It doesn't crumble and doesn't allow bacteria in. That's the kind of rubber that goes onto a vial.

Then a cartridge, as I mentioned, there are two rubbers, one at each end. On the fat end, we have what's called the plunger, which literally plunges down the cartridge as the drug comes out. At the smaller end, we have what we call the line seal. Again, it's a very, very small cap which stays on, doesn't move. When you put the cartridge into a pen device to inject, you normally have to put a pen needle on the end of the pen. This pierces into this rubber as a thin end, which allows the drug to be transferred from the cartridge into the patient. That's the two types of rubber that go to a cartridge.

Syringe, much, much more complex. Interestingly, the syringe also has a plunger similar to a cartridge, of course, which plunges down the syringe as you inject the drug. This can vary in size from 0.5mL to 1mL, 1-3mL, 5mL, even 10mL, depending on the diameter of your syringe barrel. The plunger can vary a lot in terms of size and in terms of how thick it is.

The other end of the syringe, there are two scopes. One is you could have the needle already pre-attached to the syringe, what we call a state needle syringe. It's that instant, the rubber is very, very important because the rubber goes onto the needle and it's important the needle penetrates the end of the rubber just to make sure that there's a seal. If that needle doesn't penetrate the end of the rubber, then you could have bacteria getting in or drug leaking out. It's what we call to maintain CCI, container closure integrity. It's important that rubber has certain properties that the needle goes into the rubber. At the same time when you remove that rubber,

the rubber shouldn't stay inside the needle because it can clog the needle. It has to be a very, very specific property of this rubber. This is called an RNS, a rigid needle shield, which we use basically to cover the needle of the syringe.

The other option, I said there were two segments. The other option is when the needle is not pre-attached. This is what we call the luer syringe. The most common product here is what we call the luer lock syringe where you have a twist-off cap again that has a piece of rubber which maintains the integrity. You twist this off and then the nurse or doctor can choose at the time of injection what type of needle you want. If you have a pediatric patient in front of you, or a patient who is obese, or a patient who's thin, you can choose the length of the needle that you attach to the syringe before you make the injection.

Shane Sullivan: You did a good job breaking down growth rates by category and containment. How quickly is rubber growing?

Ashraf Zaman: I would say it's obviously, yes, very similar. The only thing is rubber can grow a little bit quicker because, of course, for a cartridge you have two pieces of rubber. For a syringe, you have two pieces of rubber, and they are, the cartridge and the syringe are the two fastest-growth segments in terms of containers. Then of course, it's reasonable to think the rubbers are going to go a little bit, in terms of units at least, it's going to go a bit faster. In terms of price, of course, the syringe is a lot more expensive than a bit of rubber. In terms of units, there's a very interesting growth rate driven by GLP-1. Similar to what all these suppliers have announced in their earnings call. If you listen to Gerresheimer, they have disclosed what kind of growth rate they're expecting.

Shane Sullivan: One thing stands out is that West has seemingly accrued really high share and rubber. What's driven that? Do you expect that to continue?

Ashraf Zaman: One of the reasons they've got that is what I said before the Ready Pack solution, where they managed to get in at the very early stage in drug development. Once you're there at the beginning, there's an inertia. People don't want to change or take the risk. Why redo my stability in case it failed? I want to get to market as quickly as possible. It's a race, right? When you're in Phase 1, Phase 2, Phase 3, it's all about time to market.

They've done a good job. Excellent job reaching out to all those small, small companies and to get specked in from the beginning. They've disclosed at the earnings call 70% market share, which is massive that they have today. That's the main reason, of course. They also have a lot of capacity. They have multiple manufacturing sites. They're able to supply that market in a very, very quick fashion. Those are the key drivers, I would say, where they've been able to get such a large market share.

Shane Sullivan: How penetrated are pre-washed or pre-sterilized rubber offerings like a Westar at this point? I know you broke that down on the containment side.

Ashraf Zaman: I would say it's significant. It's way more than 50%, I would say, at a rough guess. There's no breakdown available. All the high-value solutions are bucketed together. They'll say there are 80%, 85% high-

value solutions. They're including things that are in specific bags, special type of siliconization. In terms of ready-to-use, there is still some runway in front of us. I would say maybe 50% of the market is converted and there's still 50% left. Then this new EU Annex 1 will definitely help drive, maybe accelerate the conversion of the rest, yes.

Shane Sullivan: Let's talk about GMP Annex 1. What are the implications for rubber upgrades?

Ashraf Zaman: I would say quite significant. There's a lot there to digest in the Annex 1. I would say, look, it highlights, the Annex 1 highlights about quality risk management, contamination control strategy. I would say that one of the key things that we've picked up on is about sterilization. One of the things the Annex 1 and I want to quote it here, so I'm going to quote exactly what it says. Annex 1 basically specifies about controlling your product to ensure sterility at time of use.

I'll just highlight what it says. It says here. "The integrity of the sterile protective barrier system for each of the sterilized items should be checked prior to use." That's a very interesting statement. Basically, it means that you have to ensure before each time you use a bag of softwares that it is actually sterile. There are only a few ways that you can do that. That means really it's helping us as an elastomer industry to sell a very specific type of packaging, a type of bag, which allows you to do that test.

If you want to comply with the new Annex 1, you don't have any choice. It came into effect last year. You have to be already in compliance of it. You then have to move to this bag as soon as possible. A lot of people have alluded to this in the earnings call. Of course, that is really going to help drive this conversion into what we call high-value solutions.

Shane Sullivan: What about the role of coatings and films in rubber, like FluroTec from West? Is that a niche segment of the market? Is it growing?

Ashraf Zaman: I would say that it was growing very, very fast maybe up until 2020 or so. Because FluroTec is like an insurance policy. It's an ETFE film coating on top of the rubber. That means, it means your drug is not coming into contact with the rubber, even though the rubber itself may be clean, and you've done your extractable and leachable to show that it's clean, it works with your drug, you buy this extra barrier as insurance. Pharma companies in the past have said, "Yes, you know what, I'll take it because my drug is expensive. It's not worth the risk." That worked fine, but I think things have changed recently.

Pharma companies have become a bit more sensitive to the extra cost of this product. They say things like, "Oh, I don't want something over-engineered is what they say." They say, "Look, if I don't really need it, I'm not going to go for it." Just as an example, if you look at GLP-1, it's driving a lot of growth. I don't believe the rubber that's used there is going to be coated because it doesn't need it. GLP-1 is a peptide. It's biologic based. It's a peptide. It's not a monoclonal antibody. They're not aggressive in any way.

I'll say the market in the past maybe would have said, "Hey, look, I'm not going to risk it. I'll take a FluroTec or a coating plus a stopper." Now the pharma companies are saying, "Look, I'm a bit more price sensitive. I'm going to do some testing. If I don't need it, I'm not going to pay more for an overengineered product if the basic will

do."

Shane Sullivan: What about a NovaPure, that's pre-washed, pre-sterilized, and coated. Is that right? Or is there more to it?

Ashraf Zaman: There's a lot more to it. NovaPure is really, really high-end. What's more to it? It's what we call the quality by design, QBD. The product has been designed and the whole manufacturing process has been designed to have quality embedded throughout the whole process. For example, if you buy a NovaPure product then they may give you access to a lot of the production and manufacturing history. You can see data and trends about what's happening as the products are being produced. Even the shape is slightly different. An expert on the market can just look at a syringe pull it apart, you look at the rubber and I can tell you if it's a NovaPure or a FluroTec or not, and obviously, it does look different. It is high-end.

Again, I would say it's used because of its price point and because some people think it's overengineered, it has a more and more of a niche market. For example, it might be used for ophthalmics. Because ophthalmics, you really don't want to be injecting anything into the eye. There's an example of an area where I would imagine you want to be ultra careful, no risk. You might go, you might pay a bit extra for NovaPure. Usually, drugs injected into the eye are very expensive anyway, so you have a high selling price you can afford to pay NovoPure. It is different to your normal FluroTec or high-end rubber. It's definitely a super-spec rubber.

Shane Sullivan: Do you think the industry, by and large, is moving to all-in-one systems, so integrated container and closure combinations?

Ashraf Zaman: I would say not from the same supplier. Yes, people are looking at integrated systems, but there seems to be a reluctance from customers to buy everything from a one-stop shop. For example, BD, Becton, Dickinson, of course, they're manufacturing syringes, but they also offer the rubber parts so they'll say to you, "Hey, I'm sending a closed system here. Buy the system. I guarantee the integration," which 15, 20 years ago, customers said, "Yes, do you know what? That's fine. Take that headache away from me."

Now, I'm seeing more and more people say, "No, I'll buy my glass, my container from my glass or container provider. I'll buy my rubber separately." They'll buy their rubber from Aptar, West, or Dätwyler directly. They'll buy their glass from BD, Stevanato, or SCHOTT directly.

Coming back to the question about West Corning, again, the market doesn't seem to have an appetite to say I want to get locked in to one supplier. They don't yet see the value of having one supplier for both. They prefer to have multiple suppliers of each, which is easier to do if you have a source directly. It's very hard - if you're locked in with Corning and West, how do you second source? Because you're locked in on both.

Shane Sullivan: Are secondary suppliers typically spec'd into the master file ahead of time like their primary suppliers would be? I'm trying to get a sense for the regulatory significance of all this.

Ashraf Zaman: It's changing over time. I remember back in the good old days, we could convince customers to write our names into the filing. We could even say, "Hey, we'll do your filing for you." We've got a regulatory

press department, so you could put in the filing, you could put, "Becton, Dickinson syringe from this factory," even, and you're specked in and you're locked in. Now, of course, customers are more savvy and they will do their own filing and they will try to be as generic as possible.

For example, now, when they file for a syringe, they're going to put, "It's a type 1 borosilicate glass syringe". By doing that, by putting type 1 borosilicate glass syringe, it means that you can interchange between your primary glass suppliers.

By the way, interestingly, Corning is not a type 1 borosilicate glass. Again, that's something that's not helping them because they cannot get specked in so easily at the beginning.

Coming back to your question, so there's some regulatory aspect. Usually, you put your first supplier in and then you might do stabilities to do a second supplier afterward because you don't want to slow down your initial filing because your time to market is key, but you can add in a second supplier afterward. Depending on the level of complexity, for example, you could submit what's called a CBE 30 just to say, "I have a new syringe supplier. It's still a type 1 borosilicate glass. I've done all these studies for compatibility. It works." Then the FDA has 30 days to come back to object. If they don't object within 30 days, you're good to go. You have your second source.

It's more complex for rubber because there's no two pieces of rubber the same. There's not the equivalent statement as type 1 borosilicate glass for rubber, because all our ingredients are different and they're unique and proprietary information. The West rubber is different to our rubber to Dätwyler rubber. There, you'd have to redo all your stabilities, submit. It's a much more longer process than just doing a simple CBE 30.

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Shane Sullivan: Is it natural to assume then that this packaging business is quite sticky given its ties to regulatory filings? Like once a customer decides to go with West for rubber for an injectable, does that usually remain the case?

Ashraf Zaman: Usually, yes. Yes, it's generally the case and it's not so easy to change. It's becoming less common to change. I'll give you a couple of reasons. One is you filed your drug 15 years ago and it was approved. You now want to add a second rubber supplier. Well, the questions the FDA is asking today are very, very different to what they were asking 15 years ago, much more strict, more and more scrupulous. Do you really want the FDA to open up your filing all over again and look at everything from the beginning? There's a reluctance sometimes to go down that route because it's a risky route. It's quite rare now that you have somewhat like that.

What is becoming more common, though, is you have two speckting from the beginning. To counter that, now what pharma companies are doing is, look, they're going to go with two off the bat to prevent mono-sourcing or people taking advantage in terms of pricing. I'm seeing new products that are launched will have two speckting from the beginning. Historic products, it's getting harder and harder to get a second source approved.

Shane Sullivan: Has that primary and secondary supplier mix been changing at all?

Ashraf Zaman: I'll say, I don't know if it's changing, but it's definitely different from pharma to pharma company. Some companies will do 80% with one supplier, 20% with the other, others will go 50-50. Others would change year on year. Depending on pricing, capacity, growth rate. Some will just use one. They'll have two validated. They'll only use one. Keep the other as a backup. Although I see less and less of that because people don't want to be just back up. I might not have capacity available to you suddenly if you don't use me for some business. I'll tell you the most common is 70-30, 80-20 split is what I most commonly see.

Shane Sullivan: Ashraf, we've received audience questions about destocking. I was going to slot those in for later, but we might as well cover them now. Obviously, West slashed guidance pretty abruptly from October to now on an inflection in customer destocking. What do you make of the, again, suddenness of this all? Maybe start out with some introductory remarks, then we can fine-tune things accordingly.

Ashraf Zaman: Absolutely. Look, destocking is happening. I was not surprised. I can't explain why. West said at the last earnings call - not this one, the one before that, they would grow 8%-9% this year. Then suddenly they came back three months later to say, "Look, it's only 2%-3%." I think destocking is a phenomenon. Let me just step back and tell you why it was happening. It's linked, of course, to COVID, where people really hit the panic button and bought too much stock, or they had POs that weren't delivered on time and were delivered later. They end up with all this extra stock they didn't really need. Destocking is affecting things with a longer shelf life more than products with a shorter shelf life. Because, of course, if an elastomer only has two-year shelf life, there's only so much stocking you can do, whereas a bulk vial has a five-year shelf life. That, of course, you can stock a lot more of it and has a bigger implication.

Again, linking to what Gerresheimer said publicly, what West have said publicly, I do agree that it's going to take at least one or two more quarters. Of course, I'd like to give you a date of when it will stop, but it doesn't work that way. I'll explain to you how we come out of it. Basically, the reason pharma companies are doing that is because they've realized that, a, they have too much inventory and it's taking up too much space in the warehouse. By reducing the inventories, having a huge impact on their financials, the cost of capital is benefiting. The margins are looking good.

When they would have had a two-year safety stock, they've gone down to 12 months safety stock. Some have gone down to six months safety stock. This is where we are today where I would say the majority of the big companies, and West was saying maybe six companies were responsible for 75% of the destocking. I'd say, look, now we're at the point where they're down to six months, I'd say most of these big companies. The question is, are they going to go down to three months? That's, in my opinion, it's a huge risk.

Some pharma companies have seen this is such a lovely way to do business and generate, free-up cash that, yes, let's keep going. Some of these people are new to the game coming from other industries like car industries. I've been in the industry for 20 years, and I've seen what happens when people go too far. Basically, they get to the point where they then at some point go to their warehouse and don't have stock. This is where I'll tell you the turning point that we're coming to and how we get out of it is what happens is people then realize, "Ok, I've missed out on this tender or I've missed out on this sale." The P&L holder of the business unit

leader, then says, "Well, how can that happen? How can I miss out on this lucrative sale because you didn't have a $0.3 piece of glass on the shelf? That's not, don't let that happen again." Then what happens is customers start to realize, ok, I've gone too far and I start buying again.

Let me try to explain to you what's happening in parallel. In parallel, our lead times as suppliers have gone down where the lead time has gone down 3x or 4x. Before maybe it was two years, now it's six months. Because we're getting less orders, of course, our lead times are going down. As our lead times go down, the pharma companies think, "Well, I've got a bit more wiggle room here because your lead time is only three months now. I can go down to three months safety stock because I know you can replenish me in three months."

As we come out of this, it's going to be a huge uptick for the pharmaceutical packaging industry. We're going to have a great 2025. The reason is the following. There's not an exact date. How it works is the following. When one pharma company realizes I've gone too far, I need to buy some more products, so they're going to give you a PO for six months' worth of stock. You're going to put it into my system, and of course, my lead times are going to go up.

Then the second pharma company is going to come along and say, "Oh, I've also hit my bottom. I want to buy six months of stock. Well, guess what? My order book is now getting full. You're going to have to wait at least four or five months." Then we get into this negotiation. Of course, we find a compromise. Then the first pharma company, I push out some of their delivery dates and they say, "Oh, hang on, what's happening? Your lead time is increasing. Well, I'm going to place more orders because now your lead time is nine months." Then this multiplies three, four, five, six companies and suddenly your lead time starts going up, which is normal because you're producing much more. They start buying more because they have a longer lead time.

Then I've seen this happen twice already in the last 20 years. It just goes in reverse. Suddenly, people are fighting all of a sudden because they're quite competitive, the pharma companies against each other, and nobody wants to miss out because of a packaging component. Lead times go up. We have a lot more pricing leverage. I don't know when it's going to happen. I think it's going to be phased between Q2 and Q3.

Again, listening to West, listening to Gerresheimer, if you listen to West, they've said that they're going to go back to their construct growth rate, so 79% in Q4, and they're going to grow annually 2%-3%. If 79% is all at the back end Q4 and 2%-3% annually, then you can work out that it's basically going to be not much growth at all, Q1, Q2, Q3.

Same with Gerresheimer, if you listened to the Q&A at the end of the earnings call, Dietmar didn't want to commit to what the Q1 versus Q1 last year will be, whether it'll be negative, neutral, or slightly positive. He didn't want to commit. Basically, you see that Q1 was definitely suffering. Q2 we will. Keep in mind, again, what West said publicly, they have 12 months of forward-looking order book. That means we have a pretty good idea of what's happening in the next 12 months.

When West said we have a 12-month forward-looking order book, it's looking healthy. I'm going to grow 7%-9% Q4 and I'm going to grow annually 2%-3%, then that means basically they're not going to grow much

Q1, Q2, Q3. You get the idea that maybe it's going to bottom out around about Q3. That's a long answer, but I know it's a hot topic in the industry at the moment.

Shane Sullivan: It's definitely the topic du jour. It's tough because a lot of this seems to depend on exactly how low customers are going to take their safety stock. This situation brings into question West's visibility into this all, given the abruptness that we sort of talked about. How much visibility does a West have on customer safety stock levels and that usage? Because they know shipped out x number of units. Shouldn't they also know when reorders are going to come in?

Ashraf Zaman: I would agree with you. I would agree with you that if you've said publicly when you look at the order book, you look 12 months ahead, how can you from one quarter to the next quarter with only three months apart, have such a wide variation in terms of what you think you've got to do? Anyway, I'm not going to give my opinion on my competition. I had the same question.

I have a 12-month visibility in my order book, so I know pretty, pretty well what my sales will be for the next three, four quarters. I may allow some leeway to some customers if they want to delay orders, but that's in my control because I have the orders in hand. I would say, look, it's unusual to not at least have a good visibility of your order book to know what orders you're going to ship out.

In terms of inventory levels, there are different layers. There's not one answer. There are different layers depending on your relationship with the customer. The most extreme example, the best case would be what we call VMI, which is vendor-managed inventory, which as the name suggests, we have access through a portal to the exact stock levels of the customers, and we control it. We determine the reorder point. We know our lead time so we know when we need to request order, when to replenish that. They set their minimum safety stock level and we adjust our production. That's the most extreme and best example. It's not the most common of course, but that's the ideal world, the VMI.

The second level would be where we exchange with the customer because we have an understanding of what we call the share of wallet. We know, for example, if you supply a certain drug and we have 80% share of wallet, we know that you have to give us 80%. You have to tell us how much you're buying, how much you're consuming so we know that we have that 80% share of wallet. Again, that's not overly common, but that's another way.

The other way to find out is, of course, you look at your data from IQVIA for the sales of the drug. Let's just take an example. Let's take Humira. I know if, for example, I supply the rubber for Humira, I know how much I'm selling. I know how many Humira is being sold on the market. There's, of course, a lag, but I can pretty much figure out where we're going with that.

The last option, of course. You just ring them. You ring them and ask them. Then normally, if you have a good relationship, it's not considered confidential information so they will share with you, "Hey, I have only this much safety stock." Usually, when they need product, when they need us desperately, they're very open and say, "Look, I've only got one month or a few weeks of production left. I really need product." When they have too much, they're obviously less reluctant. If you have that relationship, then you can get that information from

them about how much safety stock they have.

Shane Sullivan: I want to clarify one point. As you mentioned, West has identified five to six customers being responsible for 75% of destocking. Could that become more widespread? Just one thing I want to double-click on.

Ashraf Zaman: It is already widespread, so it's not as if only six and nobody else. It's 100 customers are doing it, but six of them are so big they represent 75%. That's the way to read this. As I'm reading into it, that's how I would say you could read into it. It's not like it started with these six. It might spread to the other 94. It's basically everyone is doing it. It's just the big ones have the biggest impact, of course. Six of them are happy. That's how I would read it. It's not something that started with some and going to others. Everybody is doing it. Everyone is seeing the benefit of doing it.

It's also driven by the fact that our lead times are going down. Remember, the safety stock is a function of your lead time. If my lead time is one year, people have to by default carry one year of safety stock. It doesn't matter if they're a big or small pharma company. As my lead time goes down, it's a self-fulfilling prophecy. As my lead times go down, customers have a bit more insurance policies. They're like, "I can go down a little bit further because I know I can replace my products in two months." The answer to your question, it is widespread. Yes.

Shane Sullivan: I had a client ask, I did another call on this like a week ago. They were told that lead times got back to normal in summer of 2022 and thus questioned why this destocking would be happening now. Is that incorrect? Are lead times just now getting back to normal?

Ashraf Zaman: It depends on your definition of normal. Relying on public information, I think West said that currently the lead times is 3x or 4x less than what it was before. Again, if I put that into actual numbers 3x or 4x is basically two years down to six months, that's the range that we're looking at. Is that normal? When did that happen? I don't have the exact date when it happened, but 2022 maybe for bulk vials, yes. Maybe then the lead time went back to normal.

I would not say - I'm trying to think 2022, yes, I would say it probably went back to normal around 2023 time. Now it's, I would say it's abnormal in that it's less than what we would normally see. Now the lead time is down to three to six-month horizon which is, again, one of the reasons why West was caught out by surprise is that you have this three to six months lead time. If customers don't place their orders, then you're not going to get the orders. You won't get the revenue.

Shane Sullivan: The cycle that you mentioned, as pharma customers fight to get orders pushing lead times back up, when do you see lead times going from current levels of three to six months back up to 12 months, 18 monthh, or higher, assuming that this destocking inflects in Q3 to Q4 of this year?

Ashraf Zaman: The two are directly linked. The lead times start creeping up as you start to get more orders, and you only start to get more orders as the destocking stops. Again, if I just put it in sequence. The first big customers that are going to realize they've cut too deep is going to be around the summer time frame. I'm being evasive saying summer because it's Q2 and Q3. In the summer is when I'm going to start seeing

customers realizing, ok, three months was too far. I just have, I've missed out on certain tenders and sales. It took me longer to ship through the Suez Canal or Panama Canal than I thought. They're going to start placing those orders. Lead times will creep up slowly. They'll go from three to six to six to nine, and that will automatically trigger them changing in their SAP systems what is the reorder point, and that will trigger more orders.

The lead time is going to start creeping up back end of this year. I expect it to go up to nine months, up to a year. Again, I'm just guessing before it settles down again. 2025, I expect this industry, I really expect us to be completely full of orders. I don't just mean elastomers. I mean bulk vials. Syringes is already full because of GLP-1. Cartridges, already full because of GLP-1. Vials will start picking up next year, maybe Q4. Elastomers, I expect to pick up Q2, Q3.

I'd say the lead times are going to go from three to six to six to nine almost as the year progresses. Three months into the year, I expect the lead time to say three months. Six months into the year, I expect it to go up to about six months. Nine months into the year, I expect it to go up to nine months. One year into this year, the back end of this year, I expect it to go up to 12 months. It's almost directly linked to how far you are into the year.

Shane Sullivan: Obviously, there is a lot going on with GLP-1 just from a pure capacity standpoint, but clients often ask about capacity investments and what's going on there. Could you talk a bit about that, especially when you think about the industry's ability to absorb the sudden uptick in orders that you're expecting to transpire?

Ashraf Zaman: We've been lucky in many ways. Novo and Lilly have been unlucky because they faced other issues in their supply chain, which has allowed us to catch up. For example, it's well documented that Novo had issues with filling capacity, which is not directly linked to us, but they couldn't fill fast enough because Catalent got this warning letter. They couldn't produce anything for six months and in the end, we end up buying Catalant. That slowed them down a bit, which allowed us to catch up.

Lilly also had publicly said they have not been able to keep up with demand. I can't disclose why, of course, but public information is that they have struggled to keep up with demand because they've had other issues. That's allowed the primary packaging industry to basically catch up in terms of our investments, our capacity. All the investments that West made for COVID, all the investments that Stevanato have made, they've publicly said about Indianapolis, China, investments that we've made, for example. It's well known the amount of capex Aptar has put into injectables. Again, all that has bought us some time.

Right now, the industry does have enough demand in terms of glass packaging and elastomeric packaging to keep up with the GLP-1 growth. We are not the rate-limiting step that's stopping those companies reaching enough patients.

Shane Sullivan: I know we're getting pressed for time, but if any other audience members want me to follow up on destocking, capacity, anything like that, once again, ssullivan@Guidepoint.com. I'm just trying to swing back to the primer topics reviewing what we may have missed.

Ashraf Zaman: Can we talk about orals, I know some people ask me about oral GLP-1 and the impacts?

Shane Sullivan: Yes, sure.

Ashraf Zaman: My view on orals is that it will be a nice complement to our GLP-1 business. I don't expect it to cannibalize or take over. There is already an oral GLP-1 on the market, Rybelsus, that is available at 7-mg and 14-mg strengths. If you compare that to the amount of strength of GLP-1 semaglutide to inject yourself, it's significantly less. A Wegovy only goes up to 2.4mg once a week, as opposed to 14mg a day of the Rybelsus oral tablets. It's a lot less API. The pharma companies prefer the injectables. You can treat a lot more patients far more access, easier dosage to administer. You don't forget if you inject yourself once a week compared to taking your tablets every day, or some people take it three times a day.

Where I see GLP-1 oral playing a part is twofold. Maybe at the front end, because we don't have enough injectables to treat everybody, maybe if you just have obesity without a co-morbidity so you don't have another illness to go with it, maybe they'll just give you orals to stabilize your weight until more injectables become available. Then you go on to injectables to lose the weight.

The other place I see they might have is at the other end. When you've used injectable GLP-1s to lose the weight but you start to maybe gain the weight again once you stop doing injectables, and the orals can help to actually maintain weight. Maybe they won't help you lose weight, but some orals can help you maintain the weight because you don't want to gain the weight that you've worked so hard to lose. I see orals as a nice conjunct to the injectables. Maybe even one day I can see them becoming available over the counter because they have a very good safety profile. It wouldn't surprise me to be able to buy GLP-1 orals over the counter one day.

Shane Sullivan: This is a primer, ultimately. I do want it to serve as a broad resource. How much does this stuff cost? If you think about the combined costs of the rubber and container, for these different formats. I know there's a lot of variation depending on coatings, pre-washed or pre-sterilized, that stuff, but a breakdown would be helpful for sure. I know it's broad.

Ashraf Zaman: It does vary a lot. This is a primer call, I'll give you a wide range because it does vary a lot. The cheapest product is of course the ampules. Then it goes up. Maybe the cartridge is the next cheapest. Maybe then the vial and the syringe being the most expensive product. Again, I'm going to think about rough average prices. Of course, I can't give you exact prices or what specific customers or suppliers are doing. Ballpark, you can imagine a cartridge costing around $0.03. Maybe a vial would be $0.06 and maybe a syringe would be $0.40. Again, very, very ballpark rough ideas of what it may cost. Rubber also varies a lot, but it does vary a lot. Because I work for an elastomeric company, I prefer not to give you ranges as such. Rubber is generally a little bit cheaper than the glass. If you go for the high-end rubber, if you go for NovoPure, then you could be up to $1 each, I've heard, for the pure product. It can be very, very expensive. Again, some syringes can also be $1. It's like-for-like when you get up to the really high-end stuff. In terms of ampules, I have an idea of ampules, but it's much, much cheaper than cartridges.

Shane Sullivan: This also ties into GLP-1s, but some of these primary packaging vendors are also involved in

drug delivery devices, right?

Ashraf Zaman: Yes. Absolutely.

Shane Sullivan: West has a CDMO. I know Gerresheimer does some stuff there, but that'd be another good topic to cover, the status of those activities.

Ashraf Zaman: If you imagine these companies, these packaging companies, so they start off making ampules, which is where they learn. Then they might move on to cartridges and vials. Then the next big step is syringes, which is more value, more complex. Then they want to move into devices. They want to move up to the value chain. That's the ultimate goal.

For example, Stevanato bought a company called Balda to get into this space. Gerresheimer bought a company called Sensile to get into this space. Recently, LTS bought a company called Sorrel. Everybody is trying to get into this space. It's very difficult to develop your own product because the IP is quite complex. There's not much freedom to operate, so you tend to just buy another company that has IP, which is what Gerresheimer, LTS, these companies have done. Absolutely, you can get a much higher value, a much higher price, unit price for these products than you do your syringe. The selling point here is that if you can get the device, you can also sell the primary packaging. You're selling point to the pharma companies is, "Look, I'm going to do the compatibility," because that's always a tricky part. The interface between the device and the primary packaging is where a lot of companies fail because they get from different sources. There are some variations. Once you start stacking these variables, you get two products that don't work. That's always a nightmare for the pharma companies.

Absolutely. If you look at, if you think of a unit price, maybe a device, onboarding device is maybe $20 each, it completely changes the dynamics of your company. Whereas before you were just selling a cartridge at $0.03, now you're selling the device that it goes into for $20. It's completely different.

Shane Sullivan: Ashraf, we have one final audience question, if you don't mind. How does the current elastomeric component destocking, the cycle we're in, compare to the 2016, 2017 cycles? Is it similar? Is it different?

Ashraf Zaman: Good question. I would say this one is going a bit deeper. The one from that time frame, it took customers down to maybe six months safety stock. This one, they seem to be going down to three months, which really caught me by surprise. I'm surprised at how much they're willing to go down. I feel a different type of procurement behavior. I see more automobile people in the procurement industry that's driving this, I believe. I believe that, yes, this one is going a bit deeper. The cut is a bit deeper is what I would say.

Shane Sullivan: With that, we're just about out of time, so we'll have to wrap things up here. Thanks so much again for carving out the time today, Ashraf. Pleasure speaking, as always, and certainly an informative discussion.

For those in the audience listening in, if you'd like to schedule a follow-up call, please get in touch with your

Guidepoint representative. Otherwise, everyone has a good rest of the week. Ashraf, thanks so much again.

Ashraf Zaman: Thank you. Bye-bye.