

On June 1, 2021, the Washington State Departments of Ecology and Health hosted a webinar to update stakeholders on our progress identifying safer alternatives that are feasible and available to replace bisphenols in thermal paper. We also discussed our progress identifying whether paints with lower concentrations of polychlorinated biphenyls (PCBs) are feasible and available.

**Note:** This document outlines the questions attendees asked during the webinar as well as the answers the Safer Products for WA team provided. Find the comments and input attendees shared during the webinar in the [June 2021 webinar presentation](#),<sup>1</sup> including the [paints discussion](#)<sup>2</sup> and the [thermal paper discussion](#).<sup>3</sup> If you have questions, contact us at [SaferProductsWA@ecy.wa.gov](mailto:SaferProductsWA@ecy.wa.gov).

## Paints questions and answers

**Q:** What level of PCBs in a paint makes it unsafe? How was that determined?

**A:** We aren't saying that any paint is unsafe from a risk perspective. We're saying that PCBs present a hazard and that if you have less of a hazard, then it is safer, so therefore paints with lower concentrations of PCBs would be safer than other paints. The law defines safer as less hazardous than the existing chemical or process. If we think about PCBs as hazardous given their carcinogenicity, developmental toxicity, persistence, and bioaccumulation, then something with less PCBs would be less hazardous.

**Q:** How representative is the data in the paint studies? What is the statistical representation of the data (for example, is it 1%, 5%, 20%, etc.), of the universe of paints available?

**A:** That's something we don't know. The universe of paint is a large universe and we haven't found the information to determine that. We think it's a good representation of paints that are available to purchase, since researchers bought paint samples at hardware stores. In some cases, the samples were focused on paints that were thought to have higher concentrations. So our findings of paints with lower concentrations being feasible and available may still be appropriate given the statistical representation.

**Q:** How frequently were the paint samples tested to determine iPCB concentration over time?

**A:** All the testing information is available in the papers, which were cited in our [priority products report](#).<sup>4</sup> We believe all the paint testing we're reporting here reflected one-time sampling events. It's unclear how quickly they were sampled after manufacturing. But since PCBs are thought to be very persistent, it seems unlikely the concentrations would change over time. A lot of work is being done to develop paints and pigments with less PCBs, so we would expect the concentrations of PCBs in paints to be decreasing, although we don't have data to support that.

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<sup>1</sup> [https://www.ezview.wa.gov/Portals/\\_1962/Documents/saferproducts/June\\_2021\\_Webinar\\_Presentation.pdf](https://www.ezview.wa.gov/Portals/_1962/Documents/saferproducts/June_2021_Webinar_Presentation.pdf)

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[https://www.ezview.wa.gov/Portals/\\_1962/Documents/saferproducts/June\\_2021\\_Webinar\\_Presentation.pdf#page=34](https://www.ezview.wa.gov/Portals/_1962/Documents/saferproducts/June_2021_Webinar_Presentation.pdf#page=34)

<sup>3</sup>

[https://www.ezview.wa.gov/Portals/\\_1962/Documents/saferproducts/June\\_2021\\_Webinar\\_Presentation.pdf#page=77](https://www.ezview.wa.gov/Portals/_1962/Documents/saferproducts/June_2021_Webinar_Presentation.pdf#page=77)

<sup>4</sup> <https://apps.ecology.wa.gov/publications/summarypages/2004019.html>

**Q:** What test method was used to test the paints? If it was EPA 1668, how was the "blank" concentration taken into account?

**A:** We believe the test method was EPA 1668 in all the papers reported. You can find the details of the testing in the individual papers, and it may be slightly different for each one.

**Q:** For the blue why is 78% less than 25ppb but 89% less than 10ppb? Since 25ppb should include the 10ppb dataset, shouldn't the 25ppb be a higher percentage?

**Q:** Looks like numbers were switched on the 'all colors' histogram. It said 89% <10ppb and 75% < 25 ppb.

**Q:** Slide #29—How can the compliance at the 10ppb level be higher than the 25ppb level?

**A:** Thank you for noting this error. We corrected it in our [June 2021 webinar presentation slides](#).<sup>5</sup>

**Q:** The data used was from a selection of paint grab samples made in unconnected studies with differences in sampling, extraction, and testing. It would be incorrect to use this inconsistent dataset to make regulatory conclusions. Some of the higher data results could be due to other factors or false positives. This happened with Spokane's testing of hydroseed, which had a significant false positive that could not be repeated, leading to poor conclusions.

**A:** We would always prefer to have more data for our assessment. We used the data that was available to us. If there were some false positives, that wouldn't change our conclusion that paints with lower concentrations of PCBs are feasible and available, as well as safer than paints with higher concentrations of PCBs.

**Q:** Was the green paint a combination of blue and yellow colorants?

**A:** That's something we don't know, because the colorants used in paints is confidential business information. It could be a combination of blue and yellow, or it could be a green pigment. That wouldn't change our conclusion that lower levels of PCBs in paints are feasible and available.

**Q:** Was most of the tested yellow paint for road markings?

**A:** Most of the data was from architectural paint, there were only ten samples from road paint.

**Q:** Would the restriction be on the sale or use of a paint product?

**A:** We haven't determined that yet. We welcome input from stakeholders about this. Our law allows us to restrict the manufacture, sale, and use of the priority chemical, and it does allow us to account for existing stock.

**Q:** What level of PCBs is allowed by the World Health Organization, by the U.S. Environmental Protection Agency, or other such organizations?

**A:** EPA has a 25ppm limit on PCBs, and that is higher, generally speaking, than the concentrations we're finding in paints. The Stockholm Convention also mentions restricting PCBs, but not at a specific concentration level.

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<sup>5</sup> [https://www.ezview.wa.gov/Portals/\\_1962/Documents/saferproducts/June\\_2021\\_Webinar\\_Presentation.pdf](https://www.ezview.wa.gov/Portals/_1962/Documents/saferproducts/June_2021_Webinar_Presentation.pdf)

**Q:** Are industrial maintenance paints included under this potential regulation? Building paints is a very broad categorization.

**A:** We're still working on the categorization, but the data we have would currently support safer paints—or paints with lower concentrations of PCBs—that are feasible and available, for indoor and outdoor building paint. It would depend on how industrial maintenance paint would be described in this context, but we're thinking about paints applied to the inside and outside of buildings, road paints, spray paints, and children's paints. We're aiming to share our initial thoughts and get your input, so if you have more feedback to share about industrial paints, please reach out.

**Q:** U.S. EPA has already set limits for PCBs in paint and weights certain PCBs differently when the concentration is measured. Can you talk about how many orders of magnitude your levels are from the federal levels and whether you will also weight certain PCBs differently?

**A:** The federal level is current 25ppm. We haven't determined a concentration level for our potential regulation. As you saw, the data we assessed is in the 25ppb range. So for example, if we were to set a concentration limit at 25ppb, that would be 1,000 times lower than the federal level. EPA does treat monochlorinated and dichlorinated PCBs differently under their regulation. As the PCB class is defined in our law, there is no difference between different PCB congeners, so we weren't planning on treating them differently. If you have input around that, we would welcome it.

**Q:** Are there going to be strict limits on PCBs or are we just saying that less is safer?

**A:** If we were to implement a restriction, then there would be strict limits. The restriction would mean that no paint sold in Washington can contain PCBs above a certain concentration. But we need to determine that level, and right now we're noting that less is safer in order to have a discussion with stakeholders about what level makes sense.

**Q:** Has Ecology conducted testing of all raw materials that comprise a paint?

**A:** No, we don't know all the raw materials that comprise a paint. Our priority product is the paint itself, so knowing the raw materials wouldn't significantly change our conclusions. We're looking at the concentration in the paint as a whole.

**Q:** Any data relating the level of PCBs in the paint with the level of green color or yellow color (i.e., deeper green paint led to a higher PCB concentration versus lighter green leading to a lesser PCB concentration)?

**A:** No, we don't have data showing that. We took the data from the papers cited in our [priority products report](#)<sup>6</sup> and they don't address that in particular.

**Q:** How many brands of paints were represented among the samples?

**A:** We don't know how many brands were represented in each study off hand. That information is available in the studies, which are included in our priority products report.

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<sup>6</sup> <https://apps.ecology.wa.gov/publications/summarypages/2004019.html>

**Q:** If the approach is taken to limit PCBs in all colors, will testing be required to validate all colors? Or will consideration be made to exempt the test requirement for colors that are not known to contain PCBs (green, yellow, blue, magenta)?

**A:** Any potential restriction we implement would only restrict the concentration of PCBs in paints, we wouldn't have any testing requirements associated with that potential regulation. Compliance and enforcement is typically done through product testing. We would test products and if we found them out of compliance, we would contact the manufacturer. There wouldn't be a product testing requirement that any manufacturers would need to comply with in order to sell paint in Washington.

**Q:** The 30 million gallons is hypothetical number. How is Ecology going to verify without obtaining real statistical data?

**A:** The law we're implementing wouldn't require us to verify that. We're asked to estimate the amount used. The law lists several criteria for us to consider when identifying significant sources or uses. Among them is an estimate of the volume currently used or present in Washington, so that's a general estimation. There are also other factors such as the priority chemical being found in the environment, and the potential for exposure to sensitive populations. When we take all of those factors into account, we can look at the exposure potential from the product. The "potential" is important, because it distinguishes this process from a quantitative exposure assessment.

**Q:** Based on your calculations, what percent of pigments would currently exceed Toxic Substances Control Act (TSCA) limits?

**A:** We aren't sure because we didn't assess pigments—only paints, and the colorants to some extent—but we don't know exactly what percentage of the colorants or the paints are pigments, so we can't be certain about exceeding TSCA limits.

**Q:** Slide #31. Just want to clarify that the percentages represent the percentage of paints tested, not all paints on the market, or the market share of paints? What percentage of the market is the yellow and green paints that test high?

**A:** That's correct. We're showing data from the studies we looked at, and the concentrations found in those studies of paint, not from the paint market as a whole. We did make some generalizations based on our data that would reflect the market, but with the sampling in mind, we aren't sure exactly how much of the market it represents.

**Q:** Has Ecology performed any independent testing for PCB concentrations in paint or it is only relying upon work done by others? If it is work done by others, what assessment was done to verify the quality of the work? Just because a paper gets published does not mean the information in it is accurate as there have been numerous studies that have been withdrawn due to a variety of factors.

**A:** Ecology conducted two product testing studies for PCBs, which included paints and inks. We used that data as part of this analysis, as well as journal articles and testing from Spokane. They all generally agreed in the magnitude of PCB concentrations that were found.

**Q:** Were any artist paints evaluated (oil paints, acrylics, watercolors)? You mentioned "no data would indicate no regulation."

**A:** We included some children's paint (such as chalk paint and finger paint), which could be considered artist paint. We didn't test any watercolor or acrylic paints. Since we don't have data on those, we are not thinking that any potential regulation would include those categories.

**Q:** What do you anticipate to be the regulated limit for total PCBs in paint? Are there plans to specify the PCBs and have individual limits?

**A:** We don't have an anticipated limit right now. We proposed two numbers for input—10ppb or 25ppb—and we would be interested in feedback on those levels given the data that's currently available to us. We are taking a class-based approach to implementing this law, so we would be looking at PCBs as a class and not setting individual limits.

**Q:** For determining limits, will formulation data be allowed to be used, or is the plan to require per batch testing to determine the concentration present?

**A:** We won't require testing to enforce any potential regulation. The restriction would only restrict PCBs in paints, and there would be no testing requirement. For determining the limits, formulation data would be very helpful to us. We don't have a lot of formulation data, and we do have a [Confidential Business Information process](#).<sup>7</sup> If anyone is interested in contributing that information, we encourage you to reach out to us.

**Q:** Section 2 of the law specifies potential exposure based upon: "Reliable information regarding potential exposures to the chemical" (in this case PCBs). The presentation has not described what could be described as "reliable." See (3)(h)(i)(ii)—how does Ecology plan to validate these requirements?

**A:** At the end of our priority products report, we classified all the resources that we relied upon into a [citation list](#),<sup>8</sup> which has more information. Generally speaking, the Legislature has indicated that their standard is peer-reviewed publications. That's what they tell us to use in many laws, so that's where we start with "reliable" information.

**Additional information (not provided during the webinar):** The Washington Administrative Procedures Act (APA) contains specific requirements for identifying, categorizing, and disseminating sources of information used in the development of a "significant agency action" under RCW 70A.350. (See the APA at RCW [34.05.272](#).<sup>9</sup>) The Legislature specified data quality in other laws, including RCW [70A.430.050\(3\)](#),<sup>10</sup> the Children's Safe Products Act. We will look to peer reviewed literature, government reports, or other sources that show complete and adequate quality assurance/quality control measures as we implement the Safer Products for WA program

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<sup>7</sup> [https://www.ezview.wa.gov/Portals/\\_1962/Documents/saferproducts/CBI\\_Process\\_SaferProductsWA.pdf](https://www.ezview.wa.gov/Portals/_1962/Documents/saferproducts/CBI_Process_SaferProductsWA.pdf)

<sup>8</sup> <https://apps.ecology.wa.gov/publications/documents/2004019.pdf#page=157>

<sup>9</sup> <http://app.leg.wa.gov/RCW/default.aspx?cite=34.05.272>

<sup>10</sup> <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.430.050>

**Q:** Can you comment on testing data for road markings—yellow paint?

**A:** There were yellow road paints tested in the studies we assessed, and in general, they lined up with yellow building paint in terms of concentrations. Yellow road paint has been tested quite a bit by Ecology and by the City of Spokane. There's a wide range of concentrations, where some are quite low and some are on the higher end of PCB concentrations.

**Q:** Are there Consumer Product Safety Commission (CPSC) limits for PCBs in children's products, or any consumer product?

**A:** We would need to follow up with more information about what CPSC regulates in this context.

**Q:** Did the testing on blacks, whites, reds, and other colors (colors other than yellow, green, and blue) show PCB levels above 10ppb?

**A:** The third histogram of data we showed reflected all colors of paints. Only green and yellow paints had concentrations found above 10ppb. There were some colorants from other colors that were above 10ppb (red, purple, blue), but if you use the 14% colorant statistic and dilute them down, then they would be under 10ppb. We didn't find any detections in any brown or black paints.

**Q:** How will products tinted with suspect pigments be monitored if manufactured, sold, or tinted out of the state of Washington?

**A:** If paint products are manufactured or tinted outside of the state but sold in Washington, we could purchase it and test it for compliance, and if it was out of compliance reach out to the manufacturer. We won't be doing routine monitoring, we will spot check. We won't be testing every paint sold in Washington. We will test a random sample subset as much as we can for compliance, possibly picking those that we think are more likely to have higher concentrations of PCBs.

**Q:** Can you comment further on the one very high sample, in children's paint? Was this value 1,000ppb? Is this being investigated further?

**A:** Yes, the value was 1,060ppb. This was back in 2016, so the researcher who conducted that study got in touch with the manufacturer and made them aware of it. We think that was an outlier with some sort of sample contamination because it was so different from the other samples.

**Q:** Are road paints considered consumer products?

**A:** Our law defines consumer products very broadly, and under the definition in our law, road paints are considered consumer products. The definition of consumer product in this law is much broader than our normal association of the term consumer product. In this law, it is any product, including any component or packaging, that is sold for residential or commercial use. Basically, if you use it or any business uses it, it's probably included in the definition of consumer product under this law.

**Q:** What test standard will Ecology use to determine whether PCBs are in paint sold in Washington?

**A:** We don't yet know what test standard we will use, it depends on the concentration level we set. If we were to implement a restriction, the level at which we need to enforce would inform the test method we would use. We will be looking for more information on various test methods.

**Q:** What percentage of paint testing exceeds federal regulations?

**A:** From this data, none of the paints we saw exceeded the 25ppm limit set at the federal level. We don't know what percentage of these paints or colorants are composed of pigments, or how the different concentrations of PCBs relate to that, so it's possible certain components would exceed 25ppm. However, it seems unlikely—given how much lower these concentrations are—that the federal level would be exceeded.

**Q:** Does Ecology have legal nexus for paints purchased by consumers in Idaho, Oregon, California, or any other state?

**A:** It would depend, in large part, on the legal nexus for the company selling the paint in Washington. For example, Amazon sells other products in this state, so there's a legal nexus for the corporation itself. If we're talking about an individual homeowner who drives over a state border to purchase a product, we're going to have a hard time enforcing against that. As far as another company selling paint by mail order to someone in Washington, we would presume there is likely a legal nexus there for enforcement. It would also depend on the restriction that will potentially get adopted. The law allows us to adopt restrictions covering the manufacture, wholesale, distribution, sale, retail sale, use, or any combination thereof. So could we technically enforce against a homeowner who drove a product over state lines? Yes. In the real world, are we likely to? No.

**Q:** Has Ecology determined if yellow and green paints in the same category are available at a "safer" level? In other words, are the safer yellow and green paints in the same category of paints? For example, are there safer wall paints?

**A:** It depends on what you consider safer, but there are concentrations under 10ppb in all the four categories of paints we mentioned. Architectural paints, road paints, spray paints, and children's paints all had green and yellow samples with PCBs less than 10ppb.

**Q:** If the current law was amended in the 2022 legislative session to require Ecology to base the program on verified risk and exposure assessment, how would Ecology amend its current approach?

**A:** From a **legislative perspective**, we do what the Legislature tells us to do. One thing to keep in mind is that the change you're proposing hypothetically was something that was discussed when the law was originally adopted, and the Legislature chose not to adopt that particular standard. That doesn't mean they can't change their mind, they could during any legislative session. But it was previously considered and it's not what they decided to do. From a **technical perspective**, we implement the law as written. For consumer products, verified exposure and risk is challenging because the individual sources may be small, but they add up. We don't interact with just one consumer product, we interact with many, and many are disposed with different pathways into our environment and into our homes, bodies, and food. Looking at it more holistically is the most preventative approach, and this law is focused on pollution prevention. The purpose in adopting this approach was to try and address the concept of cumulative exposures from different consumer products in our day-to-day lives.

**Q:** Are studies planned to determine the cost impacts for companies selling in multiple states needing to redesign marketing and color selections offered to consumers when pigment selection is reduced? Color collateral is a significant expense to paint companies.

**A:** We have a requirement to conduct a cost benefit analysis when we get to the rulemaking process for any potential regulations we implement. During Phase 3, our current work, we don't have to incorporate price difference into our assessment of feasibility and availability. That's not to say we wouldn't want the type of input you're providing now to understand the factors you're facing should a potential regulation like this go into place. These are the types of questions that are hard for us to understand without stakeholder input, so we encourage you to continue to provide feedback.

**Q:** By not testing multiple samples of paint over time, how confident is Ecology that the paints found with lower PCB concentrations are consistent and not just an aberration on the low end of the concentration scale?

**A:** We can't be sure because we haven't tested over time, but given the percentage of the samples that were at lower concentrations, we are quite confident. If 90% of the samples are under 25ppb, it seems very unlikely that all of those are an aberration. But we don't necessarily know how things change over time, either as the individual sample changes or as the market changes.

### Thermal paper questions and answers

**Q:** What was the basis for stating tetramethyl bisphenol F (TMBPF) does not meet the within-class criteria for safer? TMBPF is a Benchmark-2, but Pergafast™ 201 is also Benchmark-2, but is considered safer?

**A:** The within-class criteria only applies to chemicals that are within the priority chemical class (in this case, bisphenols). The reason for this criteria is to create a more protective process for chemicals within the class because we know they have documented hazards associated with them. Pergafast™ 201, in contrast, is not an example of a bisphenol, and would therefore only need to meet the minimum criteria to be identified as safer. The within-class criteria is outlined in our [criteria for safer document](#)<sup>11</sup>—it can't be rated as high for persistence, or have moderate hazards for endpoints associated with the class. TMBPF scored as high for persistence and moderate for developmental toxicity in the GreenScreen® we reviewed, so that's why it doesn't meet the within class criteria. The reason Pergafast™ 201 is considered safer is because we used the chemicals within the class that are known to be in thermal paper to characterize whether the class met our minimum criteria for safer. We assessed the bisphenols in thermal paper and they are Benchmark-1, whereas TMBPF has not been used in thermal paper to our knowledge.

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[https://www.ezview.wa.gov/Portals/\\_1962/Documents/saferproducts/SaferProductsWA\\_WorkingDraftCriteria\\_Safer.pdf](https://www.ezview.wa.gov/Portals/_1962/Documents/saferproducts/SaferProductsWA_WorkingDraftCriteria_Safer.pdf)



**Q:** Are you familiar with the proposal by the California legislator that would have mandated electronic receipts that was defeated? There are a multitude of reasons why electronic receipts are not feasible. Not all businesses have the capability of generating electronic receipts as the software is very expensive. Plus, there are many small businesses that don't generate printed receipts and still handwrite them.

**A:** We are aware that electronic receipts are not feasible in all situations, so we're using it as a supplemental safer alternative in addition to Pergafast™ 201 to conclude that safer alternatives are, in general, feasible and available. This sort of feedback is what we hope to gather during the product webinars this summer, so if you have specific concerns about feasibility, we welcome that input.

**Q:** The safety data sheet for Pergafast™ 201 lists it as toxic to aquatic life with long lasting effects. Can you provide more information how a chemical with this toxicity can be considered acceptable?

**A:** We think of "safer" as a spectrum. We want to get to optimal chemicals, but we recognize that sometimes we have to take small steps to get there. We can't always jump from hazardous chemicals to optimal chemicals—sometimes a step forward is just that, it doesn't mean it's where we stop, but it's a start. There are some toxicity concerns with Pergafast™ 201, but compared to the hazards associated with bisphenols, particularly the Benchmark-1 bisphenols used in thermal paper, we do consider it safer. We're not saying that Pergafast™ 201 is the best alternative, nor are we saying it is completely safe. We're saying that on the spectrum of safer, it has less concerns associated with it than bisphenols as a class. Some of these hazard endpoints may not be completely desirable, including toxicity to aquatic life, but we still consider Pergafast™ 201 to be a relatively safer chemical when compared to the class of bisphenols as a whole.

**Q:** The Pergafast™ 201 issue makes me concerned that there is not a thorough scrutiny about alternatives other than "they are not part of the class." I'm just as surprised that a substance that is chronically toxic to aquatic life is considered safer. Would be great to know if there is human data to support its safety?

**A:** Our assessment goes well beyond a chemical not being part of the class. There is a publicly available [GreenScreen® for Pergafast™ 201](#)<sup>12</sup> that evaluates concerns to human health and the environment very thoroughly. When we specify that Pergafast™ 201 is not part of the priority chemical class, we're noting that it needs to meet our minimum criteria for safer. We found that the bisphenols used in thermal paper do not meet our minimum criteria for safer, and Pergafast™ 201 does meet our minimum criteria for safer. So while it's not perfect, there are still concerns about aquatic toxicity, it is better than the bisphenols that are currently used in thermal paper, and there is a lot of data in the GreenScreen® to support that. We did not intend to imply that the assessment ends at a chemical not being included in the priority chemical class. We assess all the data that's available to us to make these determinations. There is some data showing that Pergafast™ 201 does not appear to show the same concerning endocrine activity associated with the class of bisphenols.

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<sup>12</sup> [http://www.newmoa.org/prevention/ic2/projects/assessments/232938-43-1 Benzenesulfonamide, 4-methyl-N-3-\(4-methylphenyl\)sulfonyloxyphenyl aminocarbonyl-\) \(GS-1122\) v1.4 Certified June 2020.pdf](http://www.newmoa.org/prevention/ic2/projects/assessments/232938-43-1_Benzenesulfonamide_4-methyl-N-3-(4-methylphenyl)sulfonyloxyphenyl_aminocarbonyl-_(GS-1122)_v1.4_Certified_June_2020.pdf)