

Supplemental Information to Comment submitted by Safer Chemicals, Healthy Families, et al. on the Draft Risk Evaluation for C.I. Pigment Violet 29 (Docket EPA-HQ-OPPT-2018-0604)

This document provides additional information on the trade, production, and use of C.I. Pigment Violet 29 (PV29) that were downplayed or ignored by the Agency in its draft risk evaluation, further calling into question the soundness of assumptions made in the draft risk evaluation.¹ It is not intended to provide a complete or comprehensive report of all the trade, production, or use of PV29.

- **EPA has likely discounted the global production and domestic consumption of PV29 as well as the reasonable and foreseeable expansions of use**

While the agency has claimed “commercial use of PV29 is limited,”² domestic production has historically risen and production or import has the potential to rise in the future. According to CDR reports and EPA’s summaries thereof, Sun Chemical, the only domestic manufacturer, produced 395,108 pounds of PV29 in 2009 and 520,916 pounds in 2011.³ This reported production in 2011 was higher than previous national totals reported in 2002 and 2006.⁴ Data since the 2012 CDR report have been withheld as CBI.

The market for high performance pigments (HPP) such as PV29 is growing alongside the global growth in plastics that consume them. The estimated global demand in 1999 for HPP was 70,000 tons.⁵ In 2016, it reached an estimated 178,000 tons and approached 200,000 tons in 2018.⁶

The draft risk evaluation assumes that little PV29 is being imported, on the basis of CDR reports (which are limited to 25,000 pounds per year per company per site) and “a search of data from the U.S. Customs and Border Patrol Automated Manifest System (AMS).” However, we were able to identify shipments of PV29 into the US using the Panjiva trade database. Specifically, BASF sent 7 shipments of small quantities (typically 30 kgs each) of Paliogen Red Violet K 5411 from Germany to the US (arrival dates: 3/21/2016, 6/18/2016, 2/2/2017, 2/17/2017, 5/7/2017, 10/29/2017, and 6/11/2018).⁷ Paliogen® Red Violet K 5411, which BASF describes

¹ The commenters gratefully acknowledge Jim Vallette of the Healthy Building Network for research and analysis that supported this supplemental report. Healthy Building Network is not responsible for this final submittal.

² US EPA. 2017. Use and Market Profile for Pigment Violet 29.

<https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0725-0035>

³ *Ibid.* and <https://chemview.epa.gov/chemview>

⁴ US EPA. 2017. Use and Market Profile for Pigment Violet 29.

<https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0725-0035>

⁵ Faulkner, Edwin B. and Russell J. Schwartz, Editors. High Performance Pigments, 2nd Edition. Wiley: 2009.

<https://www.wiley.com/en-us/High+Performance+Pigments%2C+2nd+Edition-p-9783527314058>

⁶ https://www.coatingsworld.com/issues/2018-08-01/view_features/high-performance-pigments-market-74675 and <https://www.smithersrapra.com/market-reports/raw-materials-industry-market-reports/the-future-of-high-performance-pigments-to-2023>

⁷ Panjiva trade database. Copies of relevant Panjiva documentation are attached to the SCHF comments.

as “perylene pigment, C.I. Pigment Violet 29,”⁸ is not listed in any of the primary EPA documents. A BASF brochure published in 2016 calls this pigment a “sustainability accelerator,” and notes the pigment can be used with PVC, polyolefin, polystyrene, acrylic, rubber, and polyurethane plastics, and polypropylene, PET, and polyamide (nylon 6) fibers.⁹

Other imports of PV29 may be cloaked under broad commodity descriptions, such as “pigments.” For example, Zeya Chemicals is a pigment manufacturer in Jiangsu Province, China. Lansco Colors (New York), a subsidiary of CPMA member Dominion Colour, describes itself as “the largest importer of organic pigments from Asia.”¹⁰ Lansco Colors’ website offers Violet 29 for sale,¹¹ and announced it began selling the pigment in 2011.¹² From March 2005 to December 2018, Lansco imported over 445,000 kilograms of unspecified “pigments” from Zeya Chemicals (Haimeng, Jiangsu Province, China). Zeya Chemicals supplies, and possibly manufactures, Pigment Brown 26 (Corimax Brown E).¹³ (EPA notes that Pigment Brown 26 is a synonym for Violet 29, with the only difference being particle size.) Zeya also offers this pigment under the trade name Corimax Violet 5011.

Liaoning LianGang Pigment and Dyestuff Chemicals Co., Ltd (Liaoning Province, China) is another PV29 producer. It sells PV29 under two trade names: Perylene Violet S-0855¹⁴ and Pigment Violet K-5011.¹⁵ According to shipping records, Liaoning LianGang Pigment and Dyestuff has shipped other perylene pigments, but not PV29, to Lansco Colors, as well as Spectra Dyestuffs of Brea, California.

Based on these findings, it would not appear that EPA exhaustively explored the use of PV29.

- **EPA did not fully explore the range of PV29 use in products with a high potential for exposure, especially for children. These products include artists’ paints, candles, and carpet.**
 - **Artist paints**

While the agency has identified watercolor and acrylic paints for art as consumer products utilizing PV29, the draft risk evaluation dismisses use of such products on broad assumptions about user exposure and an unsubstantiated assumption that such products are not used by children, despite acknowledging the lack of any age-based restrictions on the sale of such paints.

⁸ BASF SDS for Paliogen® Red Violet K 5411 dated 12.10.2018. Available at

https://drive.google.com/file/d/1QIUHSDiNGMMg_QLUXRk1feS5klbc_KQr/view?usp=sharing

⁹ Pigments for plastics: Product selection guide, BASF Colors & Effects, March 2016. Available at:

<https://drive.google.com/open?id=1vVteZq2T-kxjaBRJi7Ps2A7SjHiMbe7z>

¹⁰ <http://www.pigments.com/About-Us/>

¹¹ <http://www.pigments.com/Products/Organic-Pigments/Violet/1029-Perylene-Violet-29.aspx>

¹² <http://www.pigments.com/Blog/Whats-New/Archives/2011/11/Pigment-Violet-29-from-LANSCO-COLORS.aspx>

¹³ <https://www.ulprospector.com/en/na/Inks/Detail/30559/633671/Pigment-Brown-26-Corimax-Brown-E?st=1&sl=73141080&crit=WkVZQSBDaGVtaWNhbHMgKEhhaW1lbikgQ28uLCBMdGQu&ss=2>

¹⁴ http://www.liangangchem.com/product_detail_en/id/15.html

¹⁵ <https://www.ulprospector.com/en/na/Coatings/Detail/3122/120648/Pigment-Violet-29-K-5011>

However, Blick, a major catalog for art educators, whose products are intended for use by “students of all ages,” and whose cover features a young person on a skateboard,¹⁶ lists 3 perylene violet products.

- **Candles**

The agency has failed to consider the actual or reasonably foreseeable use of PV29 in candles and the potential inhalation and other hazards that may result. A quick online patent search found at least three references to the inclusion of PV29 in candles.¹⁷ Additionally, the H&M Group, a global retailer of fashion and housewares, specifically prohibits its suppliers from using “Pigment Violet 29, CAS: 81-33-4” in candles, strongly suggesting its prior or continued use in the industry.¹⁸

- **Carpet**

At least three of the world’s largest carpet companies sell products containing PV29 pigment. This pigment is likely used in the face fiber, as it is the only visible part of carpet. J+J Flooring, now owned by Engineered Floors, sells a tile carpet line called Kinetex, which contains PV29 as an additive at up to 0.1% of the product by weight.¹⁹ Interface’s Graphlex carpet tile, made in the Netherlands and sold in the United States, contains up to 0.1% PV29.²⁰ Milliken manufactures a carpet in Jiangsu Province, China, called B2 Manaaki Broadloom that contains up to 1% PV29.²¹

EPA’s Draft Risk Evaluation does not consider these products, nor the use of PV29 in carpet fiber in general. It does not consider potential exposures to additives on the surface (fiber layer) of plastic flooring. Young children, crawling on carpet fibers containing this pigment, can potentially be exposed to additives through dermal contact and ingestion. Further, this pigment, and other additives, can also become dispersed into the indoor environment through routine abrasion and cleaning.

- **There are reasons to question the notion that PV29 is “bound in a matrix” once in consumer products, including at end-of-life.**

EPA’s determination that PV29, once incorporated into a product, is not expected to leach out appears to be based upon little substance other than industry assertions. The draft risk evaluation cites a 1998 BASF source, stating that “when C.I. Pigment Violet 29 is encapsulated in plastics

¹⁶ <http://cdn.dick-blick.com/pdfs/catalogs/C15.pdf>

¹⁷ <https://patents.google.com/patent/US20040068920A1/en?q=%22pigment+violet+29%22&q=candle&q=C11C5%2f002;>

[https://patents.google.com/patent/US20070006521A1/en?q=\(%22pigment+violet+29%22\)&q=candle&oq=\(%22pigment+violet+29%22\)+candle;](https://patents.google.com/patent/US20070006521A1/en?q=(%22pigment+violet+29%22)&q=candle&oq=(%22pigment+violet+29%22)+candle;)

[https://patents.google.com/patent/US20060272199A1/en?q=\(%22pigment+violet+29%22\)&q=candle&oq=\(%22pigment+violet+29%22\)+candle](https://patents.google.com/patent/US20060272199A1/en?q=(%22pigment+violet+29%22)&q=candle&oq=(%22pigment+violet+29%22)+candle)

¹⁸ H&M GROUP CHEMICAL RESTRICTIONS 2018: Restricted Substances List (RSL): Candles. Available at: <http://sustainability.hm.com/content/dam/hm/about/documents/masterlanguage/CSR/Policies/HM%20Chemical%20Restrictions%20Candles%202018.pdf>

¹⁹ https://www.jjflooringgroup.com/wp-content/uploads/HPD_Kinetex.pdf

²⁰ <https://living-future.org/declare-products/modular-carpet-tufted-nylon-66-with-graphlex-backing/>

²¹ <https://living-future.org/declare-products/b2-manaaki-broadloom-carpet/>

or paint resins, it is not expected to leach out.” This also echoes the comments submitted by the CPMA trade association, which noted, “Because the paint, plastic and ink applications to which C.I. Pigment Violet 29 are put all involve its incorporation into a matrix that encapsulates it, there are no meaningful releases of C.I. Pigment Violet 29 to the environment beyond the manufacturing processes for those products.”²²

However, it is known that pigments frequently migrate from plastics. Industry references note that many plasticizers used in plastics like PVC can facilitate the migration of pigments.²³ A pigment stable in one application may migrate in another. Many other carpet fiber additives, from stain repellants to antimicrobials, have been found to routinely migrate into dust.

The agency also references the approval of PV29 as a food contact substance by the US FDA to support the conclusion that it will remain encapsulated. However, the agency fails to note the FDA’s conditions of use, specifically its prohibition on the use of PV29 in food contact polymers that have been high temperature heat-sterilized (e.g., > 212 °F).²⁴ This restriction suggests that temperature of production and use is relevant, a fact not explored by the agency. Clearly, the agency has accepted a very broad proposition that PV29 will always stay in place in plastic with minimal evidence cited to support this notion.

Additionally, the agency has not considered the disposition of PV29 when products, including plastics, enter the waste and recycling streams, where any “encapsulated” compound may be released. It has been well-established that any plastic additive, including pigments, can “be released from plastics during the various recycling and recovery processes and from the products produced from recyclates.”²⁵

²² CPMA comment at EPA-HQ-OPPT-2016-0725-0006

²³ Encyclopedia of Polymer Science and Technology, 4th Edition. P. 26, available at <https://onlinelibrary.wiley.com/doi/book/10.1002/0471440264> and Gürses A., Açıkyıldız M., Güneş K., Gürses M.S. (2016) Dyes and Pigments: Their Structure and Properties. In: Dyes and Pigments. SpringerBriefs in Molecular Science. Springer, Cham. Available at: https://link.springer.com/chapter/10.1007/978-3-319-33892-7_2

²⁴ <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=178.3297&SearchTerm=titanium%20dioxide> and <https://www.foodsafetyandinspection.gov/magazine-archive1/october-november-2015/fdae28099s-multiple-e2809cconditions-of-usee2809d/>

²⁵ Hahladakis, John N., et al. 2018. “An overview of chemical additives present in plastics: Migration, release, fate and environmental impact during their use, disposal and recycling.” Journal of Hazardous Materials. 344:179-199. <https://doi.org/10.1016/j.jhazmat.2017.10.014>