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VIA CalSAFER WEBSITE (https://calsafer.dtsc.ca.gov/cms/commentpackage/?rid=12737)

California Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814
calsafer@dtsc.ca.gov

Re: Draft 2018-2020 Priority Product Work Plan

Dear Madam or Sir:

These comments of the Methacrylate Producers Association Inc. (MPA) address the Safer Consumer Products Draft 2018-2020 Priority Product Work Plan (Draft Work Plan) of the California Department of Toxic Substances Control (DTSC).[1] MPA members are producers of methacrylic acid and basic methacrylate monomers (methacrylic acid and the alkyl esters: specifically, methyl methacrylate, ethyl methacrylate, iso-butyl methacrylate, n-butyl methacrylate and ethylhexyl methacrylate).[2] In these comments, we use the term "methacrylates" to refer to these basic monomers, but note that the statements herein may apply to many other methacrylates as well. Please visit http://www.mpausa.org/ for further information on MPA and the methacrylates.

One of the product categories in the Draft Work Plan is "Building Products and Materials Used in Construction and Renovation." In the accompanying Table 4, giving examples of Candidate Chemicals, the Draft Work Plan lists "Acrylate" with a functional use of "Acrylic Coatings".[3] Although the term "methacrylate" is not used, MPA recognizes that "acrylate" and

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[1] R. Brushia, Safer Consumer Products Draft Three Year Priority Product Work Plan (2018-2020) (Feb. 2018), ID #12737, Safer Consumer Products Branch, Department of Toxic Substances Control, Sacramento, CA, http://www.dtsc.ca.gov/SCP/upload/Draft_2018-2020_Priority_Product_Work_Plan.pdf (hereinafter "Draft Work Plan").

[2] MPA addresses safety, health and environment regulatory activities involving the basic methacrylic monomers. The members of MPA are: Arkema, Inc.; The Dow Chemical Company; Evonik Cyro; and Lucite International.

[3] Draft Work Plan, p. 15, Table 4.

"acrylic" are often considered to encompass "methacrylate" and "methacrylic" as well.[4] Review of the references for this category suggests that is the case here. To the extent it is the intent of the Draft Work Plan to encompass "methacrylate" within "acrylate", MPA strongly believes that this should not be the case in the final 2018-2020 Priority Product Work Plan. As explained below, consumer exposure to methacrylates is low to non-existent. Further, methacrylates are not asthmagens – the primary health hazard cited for the Table 4 listings.[5]

DTSC Should Avoid Confusion between Acrylates and Methacrylates

The physical-chemical properties of acrylate and methacrylate monomers differ, which results in differing toxicological profiles.[6] And there are very large differences between monomers and polymers or resins. While in common parlance these terms are often confused, we urge DTSC to not contribute to the confusion. Accurate assessment of the uses and hazards of a given product depend on precise identification of the chemical substances that compose the product. Further detail on this topic is provided in the Attachment to these comments.

Because the Draft Work Plan has not distinguished acrylates and methacrylates, and because both have low exposure potential in coatings, these methacrylate comments read in a similar fashion to the BAMM comments on acrylates. Nevertheless, they are distinct groups and should be kept distinct by DTSC for any evaluation.

Consumer Exposure to Methacrylates in Building Coatings is Low to Non-Existent

Methacrylates are monomers used in the production of polymers for residential, commercial and industrial paints as well as powder coatings. The methacrylic monomers allow paints and coatings to be made and easily applied while producing a durable protective surface coating that will be long lasting as it is highly resilient to weather, sunlight and other factors that can cause failure of other types of coatings. The properties of the methacrylic monomers allow coating polymer manufacturers to design end use coatings that can be applied with reduced emissions of volatile organic compounds (VOCs) that play a role in formation of smog and therefore have been restricted in California.

It is important to understand that the polymers in the coatings are manufactured so as to fully react the methacrylate monomers. The polymers are very large molecules that are of low toxicity.[7] Consumer exposure to methacrylate monomers via contact with coatings and other building materials, if occurring, would be limited to the very low residual monomer levels.

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[4] So-called "acrylic coatings" can be made with copolymers of acrylates and methacrylates.

[5] MPA agrees with the comments being separately submitted by the Basic Acrylic Monomers Manufacturers (BAMM) that these statements also apply to acrylates and that acrylates and acrylic coatings should be deleted from the Work Plan.

[6] There are yet further differences from cyanoacrylates.

[7] For this reason, methacrylate polymers generally qualify for the exemption from Toxic Substance Control Act premanufacture notification requirements at 40 CFR § 723.250.

Therefore, potential exposures do not support including methacrylates as Candidate Chemicals for Building Products and Materials Used in Construction and Renovation.

The Draft Work Plan Does Not Provide Credible Support for Including Methacrylates as Candidate Chemicals

Methacrylates Are Not Detected in Biomonitoring or House Dust

In explaining the basis for inclusion of chemicals in the Table 4 examples of Candidate Chemicals, the Draft Work Plan (p. 15) states:

> Biomonitoring studies show that people are exposed to some of the Candidate Chemicals in these products and that human exposure is widespread. The presence of other Candidate Chemicals has been demonstrated by the fact that they have been detected in indoor air and house dust.

To MPA's knowledge, no methacrylate monomer from coatings or other building or renovation materials has been detected via biomonitoring nor in indoor air or house dust. There have been some reports of indoor dust created by cutting or filing methacrylate polymeric materials, but in such cases any associated respiratory effects may be attributable to physical irritation by the dust particles, versus inherent toxicity of the polymer.

The Draft Work Plan (p. 15) also states:

> The combination of lower ventilation rates and the increased use of synthetic building materials has resulted in elevated levels of certain chemicals in the indoor environment, including some Candidate Chemicals [12].

Citation 12 given to support this statement makes no mention of methacrylates whatsoever.[8]

Thus, biomonitoring, dust, and indoor air data do not support including methacrylates as Candidate Chemicals in building products and materials in construction and renovation.

Methacrylates Are Not Asthmagens

The rationale for listing Candidate Chemicals in Table 4 also cites to a document by Lott and Vallette titled "Full Disclosure: A Strategy to Prevent Asthma Through Building Product

[8] Zhang, J.J. and K.R. Smith, Indoor air pollution: a global health concern. British Medical Bulletin, 2003. 68(1): p. 209-225, available at http://coep.pharmacy.arizona.edu/HOPE/maureen/Indoor%20air%20pollution.pdf.

Selection."[9] This document is not a peer-reviewed journal article nor a government agency document subject to notice and comment. Rather, it is an advocacy piece by a non-profit group. Its sources in turn are lists or databases maintained by non-profit organizations – again, not peer reviewed or subject to notice and comment. These sources largely "cherry-pick" the literature rather than provide a balanced and comprehensive evaluation of the available data, and in some cases the conclusions are so lacking transparency that it is not even possible to rationally comment on those conclusions.[10] In short, the support on which DTSC relies to list acrylates (and thus potentially methacrylates) is a very thin reed that should not meet the standards of a governmental agency.

One of the Lott and Vallette sources is the Association of Occupational and Environmental Clinics (AOEC) Exposure Code List. While AOEC has listed methyl methacrylate as an asthmagen due to respiratory sensitization, MPA strongly believes that this listing is not scientifically justified. Our comments to AOEC on this are provided as Attachment A. As explained therein, the American Conference of Governmental Industrial Hygienists (ACGIH) in 2015 confirmed other expert evaluations by concluding that MMA does not meet the criteria for a respiratory sensitizer (RSEN) notation.[11] No MPA acrylate has been classified as an asthmagen or respiratory sensitizer under regulations of the European Commission and the United States EPA.[12]

Thus, methacrylates do not pose an asthma hazard and should not be considered to be included in Table 4 on such basis.

Methacrylates Are Not Carcinogens

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[9] Lott, S. and J. Vallette, Full Disclosure: A Strategy to Prevent Asthma Through Building Product Selection. 2013, Healthy Building Network, https://healthybuilding.net/uploads/files/full-disclosure-required-a-strategy-to-prevent-asthma-through-building-product-selection.pdf.

[10] For example, the Collaborative on Health and the Environment (CHE), which is cited by Lott and Vallette, lists simply "acrylates" without specifying which acrylates (or methacrylates) are included. It cites only to general references and states, "NOTE: Not all the references are currently available, but they will be added as soon as possible." https://www.healthandenvironment.org/our-work/toxicant-and-disease-database/?showcategory=&showdisease=&showcontaminant=2578&showcas=&showkeyword=. The CHE reference we were able to review, Casarett & Doull's 6th Edition, mentions "acrylic monomers" only as "contact allergens" with no assertion they are asthmagens and no distinction among various (meth)acrylic monomers (pp. 659-660). As another example, the Commission de la santé et de la sécurité du travail (CSST), also cited by Lott and Vallette, lists "Methyl methacrylate & cyanoacrylates" in health care adhesives with no citation. http://www.csst.qc.ca/en/prevention/reptox/occupational-asthma/Pages/bernsteinang.aspx.

[11] ACGIH, 2015 TLVs and BEIs, p. 42; see also letter to Elizabeth Hunt, Executive Director, MPA, from Ryan Peltier, Science and Education Manager, ACGIH (Jan. 30, 2015), included in the Attachment.

[12] The Japan National Institute of Technology and Evaluation (NITE) classifies methyl methacrylate based on a 2004 Japan Society for Occupational Health report. However, the NITE classification procedure provides that, where it is shown that the substance induces asthma in only those who have bronchial hypersensitivity, the substance is determined to be "not classified". Methyl methacrylate meets this exclusion criterion as shown by data in SCOEL (2006). Recommendation from the Scientific Committee for Occupational Exposure Limits for Methyl Methacrylate. SCOEL/SUM/126, http://ec.europa.eu/social/BlobServlet?docId=6686&langId=en.

The Draft Work Plan (p. 15) lists as hazards, "Carcinogenicity, respiratory toxicity, dermatotoxicity, neurotoxicity." No support is given for assigning these effects to acrylates (or methacrylates), other than the asthma citation discussed above. The Safer Consumer Product Candidate Chemical list ascribes these properties to methyl methacrylate, giving as a basis the California Toxic Air Contaminant Identification List at http://www.dtsc.ca.gov/SCP/upload/2-C-Toxic-Air-Contaminant.pdf.[13] That page shows only that methyl methacrylate was listed as a toxic air contaminant (TAC) because it had been listed under the federal Clean Air Act as a hazardous air pollutant (HAP).[14] Neither that TAC list nor the HAP list name any specific health effect of methyl methacrylate. Where the California Air Resources Board (CARB) did evaluate methyl methacrylate, it stated:

> U.S. EPA considered … methyl methacrylate as not likely to be carcinogenic in humans, whereas IARC considered the data as insufficient/inadequate to classify [methyl methacrylate] to [its] carcinogenicity in humans. While both agencies based their findings on the same primary studies, the U.S. EPA classifications were chosen as the most relevant for this Toxic Air Contaminant List.[15]

In other words, for purposes of the TAC list, CARB treats methyl methacrylate as not likely to be a carcinogen.

No other methacrylate is listed as a carcinogen by Proposition 65, the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP). Although sufficiently high levels of methacrylates can cause irritation, corrosion or skin sensitization, such effects are highly unlikely from coatings due to the very low levels of residual monomer. The fact that methacrylates have an unpleasant acrid odor at very low levels further ensures that consumers will avoid exposures to methacrylate monomers at levels that would cause adverse effects.[16]

Therefore, health hazards associated with methacrylates are not a basis for inclusion in Table 4.

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[13] Candidate Chemical Details for Methyl Methacrylate; MMA, https://calsafer.dtsc.ca.gov/chemical/ChemicalDetail.aspx?chemid=22260.

[14] Title 17, CCR, § 93001. Hazardous Air Pollutants Identified as Toxic Air Contaminants.

[15] M. Houghton, Final Staff Report: Update to the Toxic Air Contaminant List, California Environmental Protection Agency Air Resources Board, December 1999, p. 16, https://www.arb.ca.gov/toxics/Finalreport.PDF.

[16] For example, the odor threshold for methyl methacrylate is 0.014-0.66 ppm, whereas the recommended 8-hour time-weighted average limit is 50 ppm. S. Murnane, A. Lehocky and P. Owens (2013), Odor Thresholds for Chemicals with Established Health Standards, 2nd Edition, American Industrial Hygiene Association, p. 38.

Conclusion

For the reasons given herein, methacrylates in coatings and other methacrylate-based materials do not pose a cognizable health risk. They therefore should not be included, directly or indirectly, in the final 2018-2020 Work Plan.

If you have any questions, please contact the undersigned at (757) 903-2194 or e.hunt@comcast.net.

Sincerely,

Elizabeth K. Hunt
Executive Director

Attachment

ATTACHMENT

MPA COMMENTS TO AOEC REGARDING METHYL METHACRYLATE

MPA Letter to AOEC re_ MMA6-19-16.DO

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