AFL-CIO Comments on EPA's Proposed Rule on n-Methylpyrrolidone (NMP); Regulation Under the Toxic Substances Control Act (TSCA)

EPA-HQ-OPPT-2020-0744-0015

July 29, 2024

The AFL-CIO welcomes this opportunity to comment on EPA's proposed risk management rule for n-Methylpyrrolidone (NMP). The AFL-CIO is the federation of 60 national and international labor unions representing 12.5 million working people across a wide variety of industries. Our unions represent workers in a broad range of industries where they are exposed to NMP, including construction; manufacturing of electronic parts, semiconductors, machinery, appliances, and lithium batteries; the petrochemical industry; and an array of other industries in which they regularly use and are exposed to products that contain NMP. The AFL-CIO and its affiliated unions therefore have a vital interest in the elimination of the unreasonable risks posed by workplace exposure to NMP and support EPA finalizing this risk management rule, with changes.

I. The Proposed WCPP Appropriately Incorporates the Hierarchy of Controls for Dermal Exposures

We strongly support EPA's proposed worker chemical protection plan (WCPP), requiring owners and operators to implement the hierarchy of controls to reduce dermal contact to NMP. As EPA explained in the preamble to the proposed rule, addressing workplace exposures through the hierarchy of controls is considered best practice by the industrial hygiene community. This strategy prioritizes "exposure control strategies from most preferred to least preferred techniques," starting with elimination of the hazard as most favored, followed by substitution

with a less hazardous substance, engineering controls, administrative controls, and "finally, use of PPE."[1]

We also strongly support the importance that EPA has placed on access for affected workers and their "designated representatives" to the exposure control plan, which is also consistent with other occupational health standards. Where a union represents the workers exposed to NMP, it is entirely appropriate that they have access to the control plan, since worker health and safety is a mandatory subject of collective bargaining under the National Labor Relations Act, and access to information on hazards and their control is a key means of effectively bargaining on behalf of exposed workers. We urge EPA, however, to also require owners and operators to consult with their workers and their representatives in developing their exposure control plans. Workers often have significant insights into how employers can effectively control chemical exposures, and securing their buy-in for mitigation strategies is key to their successful implementation.

II. The Proposed Prescriptive Controls for Workers Facing Unreasonable Inhalation Risks are Inadequate, and Must Instead Follow the Hierarchy of Controls

While we believe the WCPP establishes an effective means of controlling workplace exposures, the proposal for prescriptive controls falls short. EPA has identified certain conditions of use in which the levels of air concentration contribute to NMP's unreasonable risk, and therefore addressing dermal exposures alone "is not expected to address the unreasonable risk."[2] Yet, even though EPA has explained that under the hierarchy of controls, "the use of respirators

[1] EPA, Proposed Rule, "n-Methylpyrrolidone (NMP); Regulation Under the Toxic Substances Control Act (TSCA)," 89 Fed.Reg. 51124, 51142 (June 14, 2024).
[2] *Id.* at 51170.

and dermal PPE should only be considered after all other steps have been taken to reduce exposures,"[3] the proposed prescriptive controls direct owners and operators to use dermal PPE and respirators, without first determining whether they can eliminate or minimize exposures by implementing more effective control strategies. This is not only inconsistent with EPA's acknowledgment, in the preamble to this rule, of the importance of following the hierarchy of controls--and *not* relying primarily on PPE—it is at odds with the approach EPA has taken in proposing and finalizing its other risk management rules. EPA has given no reasons for departing from that precedent here.

We urge EPA to revise the prescriptive control requirements in proposed Section 751.211 in several respects. First, having already determined that inhalation exposures contribute to unreasonable risks in these identified conditions of use, EPA should set an existing chemical exposure limit (ECEL). Without an ECEL, owners and operators will have no benchmark against which to determine whether they are adequately controlling inhalation exposures and, if respiratory protection is necessary, no basis for selecting the appropriate level of protection. Second, EPA should require monitoring, to determine whether workplace exposures exceed the ECEL in the first instance, and whether the controls owners/operators implement are effective. Third, EPA should require owners and operators to follow the hierarchy of controls in addressing *both* inhalation and dermal exposures. Fourth, given EPA's finding that, as a general matter, dermal exposures are the primary driver of the unreasonable risk NMP poses, EPA must make clear that owners and operators engaged in the conditions of use listed in proposed Section 751.211 remain obligated to address dermal exposures, even if monitoring shows that inhalation exposures are below the ECEL.

[3] *Id.* at 51142.

When the Occupational Safety and Health Administration issued its methylene chloride standard in 1997, many employers substituted NMP, since it was unregulated. EPA now regulates methylene chloride under TSCA, requiring owners and operators to install engineering controls and otherwise follow the hierarchy of controls in those conditions of use in which methylene chloride is still permitted. Setting such weak prescriptive controls for the conditions of use where workers face inhalation risks from NMP exposure will only create incentives for more owners and operators to substitute NMP for methylene chloride.

In short, the requirements for the conditions of use listed in Section 751.211 must be strengthened. They should more closely mirror the WCPP's requirements in Section 751.209 for following the hierarchy of controls, developing an exposure control plan, designating restricted areas, and providing training and access to information. In addition to those requirements, however, EPA should establish an ECEL and monitoring requirements for these conditions of use.

III. EPA's Data Show Lithium-Ion Battery Manufacturing and Additional Conditions of Use Pose Inhalation Risks

EPA has designated certain conditions of use for which it has concluded dermal controls are sufficient (those subject to a WCPP) and others for which both dermal and inhalation controls are necessary (those subject to the prescriptive controls). Its own data, however, show that in addition to the conditions of use listed in Section 751.211, there are other categories in which inhalation contributes significantly to the risk.

EPA has determined that a margin of exposure (MOE) of less than 30 between the point of departure and the modeled exposure represents an unreasonable risk.[4] For some of the life

[4] EPA. Final Revised Unreasonable Risk Determination for n-Methylpyrrolidone, Section 5 at 5 (Dec. 2022). (Ref 2)

cycle categories EPA evaluated, the MOEs and the high exposures the agency reported in its NMP Supplemental File support the conclusion that inhalation exposure is an important driver of unreasonable risk.[5] Lithium-ion battery manufacturing is an example where EPA's data, along with other evidence, clearly show that high inhalation exposures compel more robust worker protections.

EPA's data on lithium-ion cell manufacturing shows 8 chronic male worker scenarios in which the MOE is less than 30 and the 8-hour TWA exceeds 7 mg/m^3. Four of these are cathode coating scenarios in which the 8-hour TWA is 39.7 mg/m^3. There is also one acute female worker scenario in this life cycle category in which the MOE is less than 30 and the duration-based air concentration is 58.4 mg/m^3. Thus, although the Lithium-Ion Cell Manufacturers' Coalition advised EPA that this work is "frequently" performed in closed systems involving no exposure risks,[6] that clearly is not always the case, and these workers potentially face unreasonable risks from inhalation exposures.

This is but one example of how important it is for EPA to stop relying on assertions by any industry alone—without confirmation through independent site visits and testing and worker verifications—to determine the specific risk management practices needed through regulation. In any industry, there will always be better and worse actors. Not only do the employees of the worse actors need to be protected by regulation, but regulation plays an important role in leveling the playing field so the better actors are protected from unfair competition from actors who do not invest in worker and environmental protections. In addition, the fact that members of an

[5] EPA. NMP Supplemental File with Additional Occupational PBPK Runs. December 2023. EPA-HQ-OPPT-2020-0744-0084 (Ref. 37).
[6] 89 Fed.Reg. at 51168.

industry may currently follow voluntary protection measures does not mean that those measures are universally followed or will last into the future, without the issuance of a regulation.

In fact, conditions in the lithium-ion battery industry are not as promising as presented in EPA's proposal. EPA states:

> Another set of conditions of use for which EPA is proposing the WCPP is . . . in lithium-ion battery manufacturing. EPA understands that most workplaces using NMP in semiconductor manufacturing and lithium-ion battery manufacturing already have stringent controls in place that reduce workplace exposures. As described in public comments and through engagement with the Semiconductor Industry Association (SIA), the Lithium Ion Cell Manufacturers' Coalition (LICMC), and individual companies, these manufacturing facilities use NMP in frequent, closed processes, where it does not present opportunity for human exposure and where NMP is completely removed from the final product (Refs. 42, 44)… Information submitted by LICMC indicates that their members manufacturing facilities use engineering controls like automatic mixers, closed system piping and ventilation, and where direct contact with NMP is possible workers are provided powered air purifying respirators (APF 1000) with particulate/organic vapor cartridge, and NMP resistant gloves and boots, and other PPE as necessary including Tyvek suits, face shields, splash goggles, and latex inner gloves (Ref. 44)…[7]

EPA's confidence in this industry is naïve and needs to be independently verified by the agency. In its submission (Reference 44), the Lithium-Ion Cell Manufacturers' Coalition asserts "the Coalition has not identified any information in the administrative record to suggest non-compliance with Occupational Safety and Health Administration (OSHA) regulations, which would be implicit in achieving the scenarios described by the U.S. EPA's approach." To remedy this, we are attaching evidence from OSHA's public enforcement database (OSHA.gov/ords/imis/industry.html) of non-compliance with OSHA regulations, including violations directly related to NMP and violations that indicate that employers in this industry do not always provide appropriate PPE. EPA should be using this and other government databases to independently verify this information rather than taking industry's word.

[7] *Id.* at 89 FR 51168.

Further, in this same section, EPA fails to depict a universe where non-production workers enter closed systems and therefore does not capture workers who should fall within the Direct Dermal Contact Control (DDCC) section of the WCPP. EPA's discussion of conditions in the lithium-ion battery manufacturing industry continues as follows:

> [B]ased on information received for this condition of use and reasonably available information, EPA believes that controls may already be in place to prevent or reduce direct dermal contact with NMP, such as using NMP in a closed system to limit exposures and implementing comprehensive written procedures with added PPE during transfer procedures. For both of these conditions of use (processing as a reactant or intermediate in plastic and resin manufacturing and other non-incorporative processing and industrial and commercial use in semiconductor manufacturing), in the 2022 revised risk determination, EPA determined that exposures to workers drove the unreasonable risk, but exposures to ONUs did not. ONUs include supervisors, managers, and other employees that may be in the production areas but do not perform tasks that result in direct dermal contact with liquids. Additionally, the risk calculation results between worker unreasonable risk and ONU no unreasonable risk were significantly different. This suggests that, for these conditions of use, owners or operators must prevent direct dermal exposure to address the unreasonable risk, even though ONUs are not expected to be at the exposure source like workers. This information, together with other considerations previously described indicating stringent controls may already be in place, adds to EPA's confidence that facilities engaging in these two conditions of use could meet, and may in fact already be meeting, the WCPP requirements.[8]

Contrary to EPA's assumption, some occupational non-users (ONUs) such as maintenance and skilled trades workers, by the nature of their jobs, are often required to open and/or enter closed systems and either routinely or from time-to-time, may have acute exposures that are much higher than production workers. Nowhere does EPA account for these workers who may have no exposure on many days, but on some days have to open and/or enter closed systems to clean, maintain and/or fix them. On those days, they have higher exposures than production workers. Instead, EPA has believed the industry's assertions that they only employ production workers who have enough exposure to be covered by the DDCC but always remain outside closed systems, and ONUs, who are not

[8] *Id.*

exposed to unreasonable risk and therefore do not have to be included in the DDCC. To ensure that no worker is exposed to the unreasonable risks posed by NMP, EPA must make clear—in both the regulatory text and the preamble to the final rule—that owner/operators must provide the same protections required under both the WCPP and the prescriptive controls (as modified according to our recommendations) to all workers exposed to NMP, regardless whether they are regularly working with the substance or are considered "ONUs."

In a glaring example of inhalation exposures driving unreasonable risk, the following data from EPA's files indicate inhalation is an important source of risk for "miscellaneous removal" scenarios within the life cycle category[9] "paint and coating removal":

- 87 chronic male worker "miscellaneous removal" scenarios in which the MOE is less than 30 and the 8-hour time weighted average (TWA) exposure is 32.5 mg/m^3 or greater. All 87 use a mid-range inhalation exposure characterization.
- Seven acute female worker acute exposure scenarios in which the inhalation exposure characterization is "mid-range", the MOE is less than 30 and the duration-based air concentration (more relevant for acute effects) is 65 mg/m^3.
- Seventy-six more male worker scenarios with high-end or high end of range inhalation exposure characterizations in which the MOE is less than 30 and the 8-hour TWA is 35 mg/m^3 or greater.
- Twenty acute female worker scenarios with high-end or high end of range inhalation exposure characterizations in which the MOE is less than 30 and the duration-based air concentration is 64 mg/m^3.

[9] We assume that "life cycle category" is a proxy for "conditions of use."

EPA's data also show four chronic male worker "Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing" scenarios within the life cycle category "Other Electronics," in which the MOE is less than 30 and the 8-hour time weighted average (TWA) exposure is 44.2 mg/m^3. In the same life cycle and exposure scenario categories, there is an acute female exposure scenario in which the MOE is less than 30 and the duration-based air concentration is 353.6 mg/m^3. Finally, among chronic male exposure scenarios, there is a scenario for "aerosol degreasing" within "commercial auto servicing" in which the MOE is less than 30 and the 8-hour TWA is 16.1 mg/m^3.

In summary, EPA's own modeling identifies a number of exposure scenarios—including but not limited to lithium-ion battery manufacture—in which inhalation exposure to NMP contributes significantly to its unreasonable risk. Based on this data, EPA should add these conditions of use to those for which inhalation exposures must be addressed through an ECEL, exposure monitoring, and the hierarchy of controls for inhalation exposures, in addition to dermal exposures.

IV. The Proposal to Limit the Container Size for Consumer Use Will Leave Workers at Risk

The AFL-CIO is also concerned about the worker protection implications of EPA's proposal not to regulate the consumer uses of certain products that have both commercial and consumer uses. EPA has recognized that the industrial and commercial use of certain products listed on Table 1—"Overview of Proposed Regulatory Action and Alternative Regulatory Action by Conditions of Use"—contribute to the unreasonable risk of NMP due to worker exposure, and

the agency is therefore proposing either to prohibit[10] or to impose prescriptive controls (concentration limits and PPE) on their industrial use.[11] However, EPA has assumed that consumer uses will be limited to projects completed on a single project on a given day, which the agency concludes will not give rise to unreasonable risk.[12] EPA is proposing simply to require that these products, when sold for consumer use, be packaged in containers of no more than 16 ounces, on the assumption that these products will not be diverted for industrial or commercial use, because it would be "inefficient" to purchase such limited quantities for such use.[13]

We disagree with EPA's assumption that limiting the size of these containers will ensure that these products are not used for commercial and industrial purposes. While that assumption may hold true for large-scale industrial use, many of these products are used by small enterprises, including small construction contractors, painters, plumbers, furniture refinishers, and automotive repair companies, which routinely purchase their supplies in small quantities and at the same retail outlets frequented by consumers but have workers who use them more routinely than consumers do, creating much more potential for occupational exposures and unreasonable risk. Many of these small businesses may have no information either about the difference between the products readily available on the shelves of hardware stores and the similar products this rule is intended to require them to use, or about the protective measures they are required to follow in using these products, which according to the proposal, is limited to

[10] EPA is proposing to prohibit the industrial or commercial use of NMP in automotive care products, and lubricants and greases; cleaning and furniture care products, including wood cleaners and gasket removers; and lubricant and lubricant additives, including hydrophilic coatings. *Id.* at 51163. It is proposing limiting container size and requiring labeling for the consumer use of all of these products. *Id.* at 51152, 51164.

[11] EPA is proposing to impose concentration limits and PPE requirements on the industrial and commercial use of NMP in paints, coatings, and other adhesive removers; in paints and coatings in lacquers, stains, varnishes, primers and floor finishes; in paint additives and coating additives in construction and other conditions of use; and in adhesives and sealants in glues and adhesives, including lubricant adhesives. *Id.* at 51163. It is proposing limiting container size and requiring labeling for the consumer use of all of these products. *Id.* at 51152, 51164.

[12] *Id.* at 51166.

[13] *Id.*

the proper use of PPE. Permitting these products to be available for sale thus risks exposing workers to levels of exposure that EPA has found pose an unreasonable risk.

Relying on restrictions on how products are packaged or sold is also at odds with EPA's rejection of a similar proposal it had floated in promulgating its methylene chloride risk management rule. After banning the consumer use of methylene chloride-containing paint and coating removal products, EPA proposed preventing their sale to consumers by requiring individuals purchasing these products to be trained and certified in their use.[14] EPA abandoned this plan, instead banning all uses of these products. We urge EPA similarly to abandon reliance on container sizes as a means of restricting the commercial and industrial use of NMP-containing products. Instead, to protect all persons using these products, EPA should limit their concentration levels, recommend safer alternatives and consider removing them from the shelf altogether given the unreasonable risk they pose to workers. We also urge EPA to require these products to carry clear labels that inform owners and operators of the protections they are required to implement when using these products in the workplace.

[14] EPA, Advance Notice of Proposed Rulemaking, "Methylene Chloride; Commercial Paint and Coating Removal Training, Certification and Limited Access Program," 59 Fed.Reg. 11466 (Mar. 27, 2019).