SOLVAY

Sheila A. McConnell, Director
Office of Standards, Regulations, and Variances
Mine Safety and Health Administration
201 12th Street South, Suite 4E401
Arlington, Virginia 22202-5452

Re: RIN 1219-AB36; Docket No. MSHA-2016-0013, Respirable Silica (Quartz)

Date: October 28, 2019

Dear Ms. McConnell:

On behalf of the Solvay Chemicals, Green River Operations, we are pleased to submit the following comments in response to the Mine Safety and Health Administration's ("MSHA") Request for Information ("RFI") regarding Respirable Silica (Quartz), 84 Fed. Reg. 45452 (Aug. 29, 2019).

We appreciate MSHA's efforts to prevent potential overexposure of miners to respirable silica and shares this same goal. We share the information below so that MSHA's information collection for Respirable Silica can benefit from our experiences and ideas.

I. Mining is different from other industries, and metal/non-metal mining is different from coal mining. Any MSHA silica rule should address these industries distinctly.

MSHA's RFI appears to cover both coal mining and metal/non-metal mining, two industries with little in common when it comes to silica issues. MSHA's apparent interest in developing new regulations for silica seems to stem largely from a concern over increased incidences of black lung disease (coal workers pneumoconiosis or CWP), specifically progressive massive fibrosis (PMF), among coal miners in certain geographic locations, including Kentucky, West Virginia and Virginia. The work environment in an underground coal mine, the tasks performed in that environment and the presence of both coal dust and respirable silica may well be combining to create this problem in some coal mines. It is, however, clearly and quite obviously a problem that is specific to coal mining and to the particular coal mines in those areas.

Metal/non-metal mining includes a wide range of different types of mines and facilities, both underground and on the surface. For example, MSHA regulates cement plants, lime plants, alumina refineries, open pit copper mines, open pit gold mines, underground narrow-vein gold mines, oil mines, underground salt and trona mines and underground zinc mines as "metal/non-metal mines." Quite obviously, the differences between metal/non-metal mines and facilities and underground coal mines are very broad. A soda ash mine and refinery is very different from a coal mine specifically, without exposure to coal dust. We are not aware of, nor has MSHA indicated any increase in the prevalence of silicosis within the M/NM mining industry. If this information is available, the agency must be transparent and share that information with the regulated community.

Though there is an increased prevalence of CWP within the coal mining sector, the RFI does not refer to any epidemiology data that suggests that there are similar silicosis trends in metal/non-metal. Underground metal/non-metal mines can have wide open spaces dozens of feet high, vastly different atmospheres, and much greater ventilation. Surface operations in the metal/non-metal industry often look and function more like chemical plants and manufacturing facilities, which process raw materials in enclosed vessels and systems. Many miners in open pit metal/non-metal mines work in enclosed equipment cabs with filtered air. Such mines increasingly feature automation that limits worker exposure to processes.

The Mine Act recognizes the clear, obvious differences between coal and metal/non-metal mines when it comes to protecting miners from airborne contaminants. In Sections 201 and 202, for instance, the Act limits how coal mines may use respirators to protect workers while no such limits exist in the metal/non-metal industry. MSHA has promulgated different sets of regulations, one for coal and one for other mines (metal/non-metal). Moreover, MSHA has different sets of regulations, specifically health regulations, for underground coal and surface coal. Exposure concerns in one environment do not apply in the same way or to the same degree in the other. Solutions that work in one mine type may not be effective in another. That which is feasible in coal may not be in metal/non-metal. For all of these reasons—and to continue to provide each miner with maximum protection—MSHA should continue to address silica in these two very different industries in a ways that reflect each type of mine. As discussed further below, giving operators different means of complying based on the circumstances at each mine will ease implementation, increase overall compliance, and better achieve the goal of miner health and safety.

II. Clear rules will increase compliance. MSHA can thus enhance silica regulation by adopting an OSHA Table 1-type list of tasks and clear protective measures to comply. Because mining often features confined and defined environments, there is no need for or benefit from a separate action level.

As mentioned above, mines come in all shapes and sizes. Conditions in an open pit are likely to be very different from those in an underground trona mine. As a result, industry-specific requirements that focus on the hazards miners are likely to encounter at a given workplace will likely result in the best safety, and health, outcomes. One measure might be totally inapplicable or even counter-productive in one mine, whereas it might be absolutely essential in another. For example, the more water used in hard rock material handling systems has a positive effect, though that same amount of water will be detrimental to the process in a trona mine where the product is water soluble.

However, mines do share certain tasks, processes, and environments, which can be characterized by the extent to which they may release respirable silica, mechanisms for dust emissions, and effective exposure controls. MSHA could propose controls that address each such case in a format similar to Table 1 in OSHA's construction silica rule, 29 C.F.R. § 1926.1153. As in the case of OSHA it could be an alternative that provides a safe harbor. Mine operators could choose between adopting their own controls and being held accountable to a permissible exposure limit ("PEL") or to follow the pre-set controls in the table to know they are compliant with MSHA requirements.

This approach has many advantages. Normally, complying with an airborne dust standard can be time-consuming, expensive, and complicated. It requires multiple rounds of sampling and

analysis, industrial hygiene expertise for both MSHA and the mine operators, a search for sources of dust, and trial-and-error experimentation with controls, and often repeating this process until exposure levels come down. This process is beyond the reach of many small operators and can even be cumbersome for more sophisticated operations employing industrial hygiene professionals. Individual miners, moreover, do not have sampling tools at their disposal to ensure that their workplaces are compliant. It is also worth mentioning that sampling devices must remain with the individual miner and not the job/task to determine the effectiveness of all controls employed, engineering and administrative alike. Although swapping the sampling device between personnel is generally only done in coal mines, this practice also allows for additional risk of voiding the sample due to manual handling of the pump and cyclone. Without maintaining a breathing zone sample on an individual miner, the agency is ignoring their own commitment to the hierarchy of controls in protecting the 'individual' miner.

A clear list of controls to implement for each type of task, exposure, or process simplifies this effort and puts compliance within everyone's reach. In this way, regardless of what the PEL is, giving mine operators and miners an alternative means to comply by following straightforward exposure controls for given situations should help more facilities comply and thus spread the benefits even of existing limits. It would be encouraging if MSHA and industry experts jointly reviewed OSHA's Table 1 to determine which elements are appropriate and effective for mining before adding new solutions. The opportunity to clarify compliance with a Table 1-type approach also highlights the confined and defined environments in mining; wherein a separate action level offers no additional benefit.

III. Exposures and monitoring should be defined by the development of Similar Exposure Groups based upon risk and control methodologies employed. Exposure monitoring must also be performed with accuracy and according to accepted industrial hygiene practices.

For operators that do not elect to follow defined Table 1-type controls, exposure monitoring need not occur everywhere or constantly. Specific Exposure Group (SEG) analysis will define the areas where higher levels of respirable silica may be present and will allow operators to be in a position to take appropriate protective action and focus their exposure monitoring. Likewise, they will be in a position to assess whether operations or processes have changed in such a way as to increase or decrease respirable silica liberation. Rather than requiring blanket sampling or exposure monitoring across a mine, health concerns would be better served by allowing operators to focus on higher risk areas for potential exposure above the PEL. These are areas where exposures may be reasonably expected to be above the PEL. Exceeding the PEL anywhere will still be a violation, but this reasonable risk-based approach to monitoring gives operators important flexibility to comply.

The compliance sampling process also requires MSHA enforcement personnel to fully understand the sampling process. A significant gap exists in sampling proficiency within the agency between MSHA coal and MSHA metal/non-metal inspectors. Proper industrial hygiene sampling protocols must be part of inspector training and expected within the regulatory agency. These sampling procedures must begin with proper calibration, pre- and post-sample pump flow checks, proper flow rates for the sampling equipment used, and proper care of sample media. MSHA must also follow recognized industrial hygiene practices to ensure flow rates match the size selective sampling device employed, by following the manufacturer's design criteria as well as the NIOSH guidance found in the NIOSH Manual of Analytical Methods for respirable dust/silica. Inadequate sampling practices and antiquated exposure conversion factors like the British Medical Research Council's 1.38 multiplier for coal dust samples, must be remedied to

fully understand real time exposures to respirable silica. As part of this realization, MSHA should also utilize Time Weighted Average calculations to more closely determine exposures instead of arbitrary exposure calculations from the current Shift Weighted Average calculations. Within any proposed changes to regulations, MSHA should utilize common IH calculations to accurately determine exposures when shift lengths are greater than 8 hours. NIOSH should be utilized for the development of sampling protocols to assist with exposure compliance determinations. It is difficult to understand why MSHA fails to utilize NIOSH guidance for proper sampling procedures, a process that must also be corrected within the agency as part of any future rulemaking. Proper monitoring is critical to exposure control and deviation from sampling protocols allows for error in the entire risk based system designed to protect worker health.

MSHA seeks to determine whether or not the existing standard can adequately protect miners from respirable silica. This question could easily be answered by evaluating the prevalence of silicosis, not black lung disease, in the M/NM mining sector. It is entirely possible that the M/NM regulations, proper exposure sampling methods, PPE requirements and miner training could substantially influence disease outcomes in the coal sector if adopted. The intent of the RFI needs clarified in this regard whether MSHA is seeking information on changing the M/NM regulations or whether the agency's desire is to push the inadequate coal standards to the M/NM industry. More clarity needs interjected into the M/NM issues rather than making continued comparisons to the MSHA coal requirements for dust exposure, which based on epidemiology data could easily be described as woefully inadequate.

IV. PAPRs and supplied air helmets are effective micro-engineering controls and should be recognized as such. When engineering or administrative controls cannot reasonably reduce atmospheric exposures below the PEL, the proper use of respirators should be considered compliant as presently required.

In recent years, a new control has become more widely available, has been proven to be very effective and is increasingly popular: powered, air-purifying respirators ("PAPRs"). Rather than fitting snugly on a worker's face and creating breathing resistance or heat, these devices create a cool, comfortable, purified atmosphere around each worker's breathing zone. These devices do not require fit testing or medical clearance to be used effectively. In this way, they function as environmental engineering controls, an even more personalized version of the kind of single-user atmosphere created by the sealed mobile equipment cab.

PAPRs (and supplied-air helmets) work like engineering controls and exposure monitoring inside the helmet versus outside the helmet have proven them highly effective. Thus, MSHA could encourage their use without abandoning the hierarchy of controls. It need only recognize that PAPRs are not "respirators," as they existed and were understood when the Mine Act passed. Presently, these controls possess none of the drawbacks that have long made respirators a last-choice method of protection. As such, commenters have cited all the problems with wearing a traditional respirator but an overwhelming majority of miners will readily wear a PAPR. Better health outcomes would be achieved by allowing operators and miners to use all effective tools at their disposal to maintain compliance.

In addition, nothing in the principle of hierarchy of controls or in the Mine Act prevents using even traditional respirators as a means of complying with a PEL. MSHA cites to Sections 201 and 202 of the Mine Act in the RFI and suggests that respirators may not be used to comply with the PEL even when sufficient engineering controls are infeasible. It bears repeating that these Mine Act sections explicitly apply only to underground coal mines: "The provisions of sections 202 through 206 . . . shall be interim mandatory health standards applicable to all underground coal mines." 30 U.S.C. § 842(a). Traditional respirators may not be a tool of first

choice in controlling miner exposures to silica, but they are definitely important tools in the toolbox, especially when engineering controls cannot completely and feasibly bring exposures below acceptable levels. MSHA has even required the use of respiratory protection in the body of citations when overexposures have occurred and readily cites the 1969 ANSI Standard for respiratory protection programs in the metal/non-metal regulations. MSHA should not place artificial roadblocks on the effective use of respiratory protection.

Significant drawbacks in progression of worker protections, such as the use of PAPR's, is the continued reliance on the MSHA approval process for permissible equipment. The agency has to acknowledge new technology, equivalent approvals, and move forward to add to the available controls on the market. For example, a PAPR on the market today is rated as intrinsically safe for use in hazardous atmospheres, yet cannot be used in a gassy mine because MSHA hasn't approved it. This approval process must be simplified as equipment manufacturers are unwilling to absorb the time and money required by MSHA when they have already undergone UL, CE, BSIF, IECEX, AS/NZS Australian standards, etc. for intrinsic safety. (Some of these PAPR's are used in underground coal mines in Australia today, yet MSHA's requirements prohibit the use of these safe, advanced protections in the United States.) Let's face it, mining is a very small piece of the market where PPE manufacturers are concerned. We must change the process to allow new technologies to be introduced to our industry, progress our use of technology for our miners, and strengthen our mining industry.

Solvay Chemicals, Green River operations appreciates the opportunity to provide information on this important subject. Solvay is willing to answer any questions you may have regarding this document as necessary. A single point of contact at Solvay Chemicals is as follows:

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Regards,

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HSEQ Manager

From: Crum, Mike <mike.crum@solvay.com>
Sent: Monday, October 28, 2019 7:21 PM
To: zzMSHA-Standards - Comments to Fed Reg Group
Subject: RIN 1219-AB36
Attachments: Solvay comments RFI- RIN1219-AB36 Respirable Silica - Final.pdf

Please accept the attached comments for the RFI on Respirable Silica on behalf of Solvay Green River Operations.
Regards,
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