

## AGENCY

Occupational Safety and Health Administration

*Rule title*

Occupational Exposure to Respirable Crystalline Silica

RIN	1218-AB70
Publication Date	September 12, 2013
Comment Period Closing Date	December 11, 2013
Stage	Proposed rule

## REGULATORY SCORING

	SCORE
<b>1. Systemic Problem:</b> How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?	3/5
<b>2. Alternatives:</b> How well does the analysis assess the effectiveness of alternative approaches?	4/5
<b>3. Benefits (or Other Outcomes):</b> How well does the analysis identify the benefits or other desired outcomes and demonstrate that the regulation will achieve them? <sup>1</sup>	4/5
<b>4. Costs:</b> How well does the analysis assess costs?	3/5
<b>5. Use of Analysis:</b> Does the proposed rule or the RIA present evidence that the agency used the Regulatory Impact Analysis in any decisions?	4/5
<b>6. Cognizance of Net Benefits:</b> Did the agency maximize net benefits or explain why it chose another alternative?	4/5
<b>Total Score</b>	<b>22/30</b>

## SUMMARY

The proposed regulation deals with the dangers of high levels of silica exposure. OSHA's goal is to reduce the excess lifetime risk to workers from the current permissible exposure limit (PEL) of 100  $\mu\text{g}/\text{m}^3$  for the general industry and maritime and 250  $\mu\text{g}/\text{m}^3$  for the construction industry to 50  $\mu\text{g}/\text{m}^3$ . This will reduce the incidence of lung cancer deaths, renal disease, silicosis, etc. OSHA estimates that the regulation will provide a benefit mainly to workers and their family and friends, estimated around \$3.466 billion to \$5.190 billion annually. The cost of the regulation is estimated to be between \$637 million and \$658 million annually. However, these estimates are based on perfect compliance, which OSHA acknowledges is unlikely as it has not been able to enforce previous regulations that were in place for many decades.

The focus of the discussion on market failure is mostly on the issue of imperfect information, where employers lack information about workplace hazards, workers are unable to understand risk, and workers are unable to ascertain their average silica exposure. OSHA offers no direct evidence for these arguments regarding silica exposure and seems intent on regulation and not interested in alternatives, such as information dissemination.

1. Systemic Problem: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?	3		
Does the analysis identify a market failure or other systemic problem?	5	1A	While many firms protect their workers from harm from silica, many do not. A detailed discussion on market imperfections is completed in four areas. They are: imperfect information, externalities, imperfect competition, and market transmitted inequities or injustices. The topic of imperfect information has additional subcategories, including: lack of employer information, lack of worker information, and inability to process risk information. The discussion many times is linked to the issue at hand, i.e., the dangers of too much silica exposure.
Does the analysis outline a coherent and testable theory that explains why the problem (associated with the outcome above) is systemic rather than anecdotal?	4	1B	There is a broad discussion of many avenues that systematically explain why private markets may fail to efficiently allocate resources in affected markets.
Does the analysis present credible empirical support for the theory?	3	1C	OSHA argues there is a market failure due to imperfect information about hazards of silica exposure that is present at several levels: employers frequently lack knowledge about workplace hazards, employers have limited incentives to identify risks their workers bear since it will raise salaries; workers are often unaware of workplace risks they are exposed to; and workers have difficulty understanding risk information they obtain. But OSHA offers no direct evidence for these arguments regarding silica exposure. Rather, OSHA calls upon the risk literature in general before broadly applying it to the specific case of silica.
Does the analysis adequately address the baseline? That is, what the state of the world is likely to be in the absence of federal intervention not just now but in the future?	2	1D	Analysis assumes no changes in output or employment in affected industries and assumes that firms will not substitute into other inputs. It also assumes that future technology will not find input substitutes for silica. There is no serious discussion about the future in a no-intervention world.
Does the analysis adequately assess uncertainty about the existence or size of the problem?	2	1E	OSHA assumes the problem to exist and require regulation. The analysis discusses uncertainty to some extent.
2. Alternatives: How well does the analysis assess alternative approaches?	4		
Does the analysis enumerate other alternatives to address the problem?	4	2A	Two other permissible exposure limits (25 and 100 $\mu\text{g}/\text{m}^3$ ) are considered, along with various alternatives affecting ancillary provisions.
Is the range of alternatives considered narrow (e.g., some exemptions to a regulation) or broad (e.g., performance-based regulation vs. command and control, market mechanisms, nonbinding guidance, information disclosure, addressing any government failures that caused the original problem)?	1	2B	The range of alternatives considered is narrow. Two alternative permissible exposure limits (PELs) are the focus (25 and 100 $\mu\text{g}/\text{m}^3$ ) and both represent variations in a command-and-control regulation.
Does the analysis evaluate how alternative approaches would affect the amount of benefits or other outcome achieved?	5	2C	Yes, benefits are estimated for the two alternative PELs.

Does the analysis identify and quantify incremental costs of all alternatives considered?	5	2D	Incremental costs of 25, 50, and 100 $\mu\text{g}/\text{m}^3$ and alternatives affecting ancillary provisions are estimated.
Does the analysis identify the alternative that maximizes net benefits?	4	2E	The OSH Act does not allow the agency to set the standard based on net benefits; rather, it requires OSHA to set standards based on eliminating significant risk, to the extent feasible. But net benefits of PEL of 25, 50, and 100 $\mu\text{g}/\text{m}^3$ are estimated for informational purposes.
Does the analysis identify the cost-effectiveness of each alternative considered?	4	2F	Outcome/cost can be easily determined from the data provided. Costs are known. Benefits are calculated based on findings in the literature on people's willingness to pay.
3. Benefits (or other Outcomes): How well does the analysis identify the benefits or other desired outcomes and demonstrate that the regulation will achieve them?	4		
Does the analysis clearly identify ultimate outcomes that affect citizens' quality of life?	5	3A	The analysis identifies improved worker health in both lower death rates and costs associated with illnesses as outcomes affecting citizens' quality of life.
Does the analysis identify how these outcomes are to be measured?	5	3B	OSHA forecasted the number of silica-related diseases prevented as a result of the proposed rule, projected the timing of the avoided diseases, monetized their economic value (using willingness to pay criteria), and discounted them.
Does the analysis provide a coherent and testable theory showing how the regulation will produce the desired outcomes?	3	3C	The analysis estimated benefits for the proposed silica rule that represent the additional benefits derived from employers achieving full compliance with the proposed PEL relative to the current PELs. OSHA expects a low compliance rate and inability to enforce said regulation. OSHA's theory that reduced exposure to silica improves health improves worker health is coherent and testable.
Does the analysis present credible empirical support for the theory?	3	3D	The analysis applies dose-response relationships to estimate exposures at or below the current PELs across industries to project the number of cases of fatal lung cancer, non-malignant respiratory disease, end-stage renal disease, and cases of silicosis morbidity. Perfect enforcement of the said regulation is unlikely, hence the expected outcomes are unlikely to occur.
Does the analysis adequately assess uncertainty about the outcomes?	3	3E	The analysis provides low, midpoint, and high estimates of monetized benefits associated with changes in morbidity and mortality using discount rates of 0%, 3%, and 7%.
Does the analysis identify all parties who would receive benefits and assess the incidence of benefits?	3	3F	The main benefits would be to workers in various industries that are exposed to the silica. Calculations are completed for different regulatory alternatives also. Immediate family and friends benefit as well. There would be a reduction in public health expenditures as well.

4. Costs: How well does the analysis assess costs of the regulation?	3		
Does the analysis identify all expenditures likely to arise as a result of the regulation?	4	4A	Estimation of the costs of the proposed rule for general industry and maritime industry is broken out below for three categories of costs: (1) control costs (via engineering and work place controls) to comply with the proposed PEL of 50 $\mu\text{g}/\text{m}^3$ ; (2) respirator costs, in those cases where engineering controls are not sufficient to guarantee compliance with the proposed PEL; and (3) "program" costs to comply with the ancillary provisions of the rule.
Does the analysis identify how the regulation would likely affect the prices of goods and services?	2	4B	The analysis has a theoretical discussion of whether businesses will pass on costs to customers, but does not directly estimate them. The analysis claims that even full price shifting to customers is unlikely to be a very large increase. OSHA also reviewed retrospective studies and found evidence to support this view.
Does the analysis examine costs that stem from changes in human behavior as consumers and producers respond to the regulation?	1	4C	There is little on how producers might alter production (e.g., assumes little substitution of inputs). There is no discussion of consumer changes. OSHA holds constant employment and production in affected industries "for purposes of the analysis."
If costs are uncertain, does the analysis present a range of estimates and/or perform a sensitivity analysis?	4	4D	OSHA provides a sensitivity analysis of its cost estimates by modifying certain critical unit cost factors. Beyond the sensitivity analysis, OSHA notes that its cost estimates do not reflect the possibility that industry may be able to take two types of actions to reduce compliance costs: (1) businesses might assign fewer construction workers to perform tasks involving silica exposure, and (2) likely development and dissemination of cost-reducing compliance technology in response to the rule, such as safe substitutes for silica sand and abrasive blasting.
Does the analysis identify all parties who would bear costs and assess the incidence of costs?	3	4E	The analysis estimates costs by size of business and finds that small and very small businesses are likely to be more adversely affected. The effect from foreign competitors is also not seen as a big issue. There is no real discussion from a consumer's perspective.
5. Use of Analysis: Does the proposed rule or the RIA present evidence that the agency used the analysis in any decisions?	4	5	OSHA appears to have used the analysis to support the 50 $\mu\text{g}/\text{m}^3$ PEL because it would significantly raise worker health in affected industries.
6. Net Benefits: Did the agency maximize net benefits or explain why it chose another alternative?	4	6	The OSH Act does not allow the agency to determine which rule maximizes net benefits; rather, it requires OSHA to set standards based on eliminating significant risk, to the extent feasible.