Preventing Silicosis in Construction

- Respirable Crystalline Silica
- Respiratory Protection
- N95 & Cartridge Respirators
- When to Replace
- Facial Hair
- Enforcement
- Enclosed Spaces
- Conclusion

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RESPIRABLE CRYSTALLINE SILICA (RCS):

- Make sure your co-workers are aware of the hazards of silica dust AND know how to prevent developing silicosis by following Table 1 of CFR 1926.1153 to prevent employees being exposed to an airborne concentration of RCS in excess of 50 micrograms per one cubic meter of air over an 8-hour time weighted average.

- NOTE: Just because Table 1 of the CFR does not specify Stucco mixing as an equipment task in the linked Table 1 above, the protection from inhaling silica dust is covered under…

1926.1153(i)(2)(i)(B)

Specific tasks in the workplace that could result in exposure to respirable crystalline silica;

Common types of construction materials that contain silica and are affected by the rule are:

- Asphalt
- Brick
- Cement
- Concrete
- Fiber Cement Products
- Gunite
- Drywall
- Grout
- Mortar
- Plaster
- Rock & Stone (exterior cladding, pavers, and counter tops)
- Roof Tiles
- Sand & Soil
- Stucco
- Tile (clay and ceramic)

Adding bags of cement & sand into a stucco mixer exceeds the Permissible Exposure Limit (PEL) while pouring and requires an N95 mask for respiratory protection (in addition to eye, hearing and head protection)

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RESPIRATORY PROTECTION:

- Respirators: If you or your employees use ANY type of respiratory protection while on the jobsite (see examples to the right) you must:
  - Employers – Provide training to employee on how to safely use including:
    - Knowing type of respiratory protection needed for the task
    - Inspecting
    - Properly wearing and fit testing
    - Checking the seal
    - When to replace the filter or mask
    - Have employee must complete a medical evaluation & form
    - Retain the medical evaluation form for a minimum of 30 years
  - Employees –
    - Complete a medical evaluation and give form to your employer
    - Use the right type of respiratory protection needed to complete a task
    - Before each use inspect and replace cartridges or mask as needed
    - Seal check to ensure a proper seal before use
    - Properly store respirators when not in use

Using a disposable N95 mask requires training to safely use on the jobsite!

[Appendix B-1 to § 1910.134: User Seal Check Procedures (Mandatory)]

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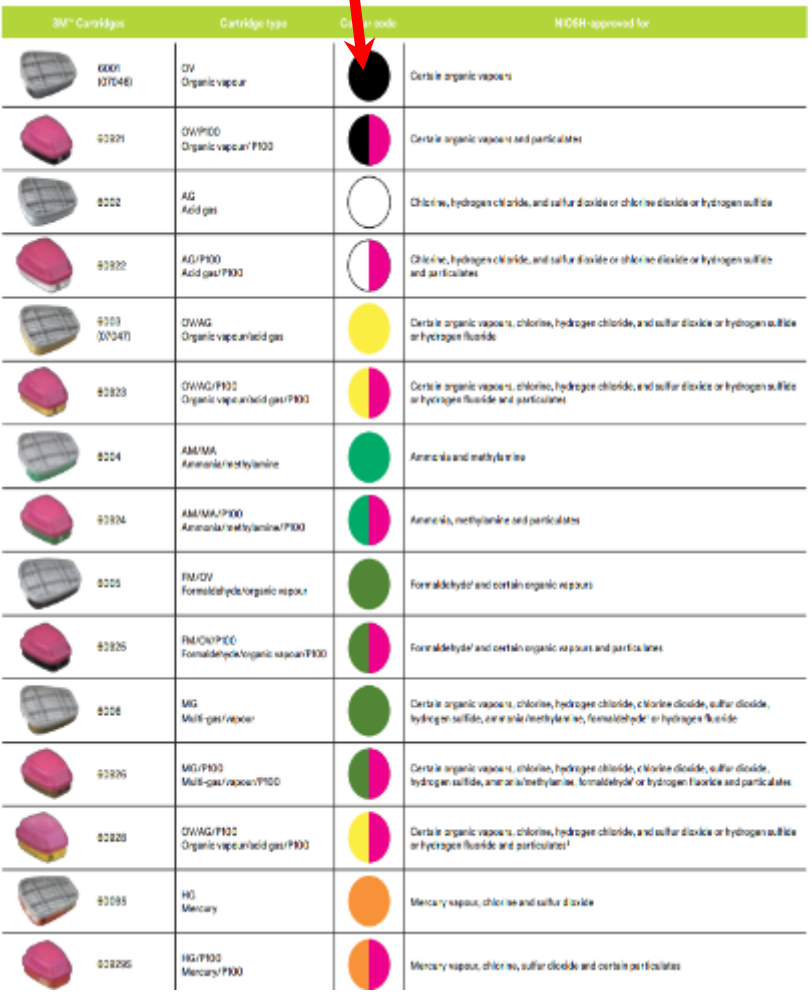
KNOW YOUR FILTER TYPE!

[3M: select-the-right-cartridges-and-filters-reusable-respirators-english.pdf]

RESPIRATORY PROTECTION:



3M™ Cartridges	Cartridge type	Colour code	NIOSH-approved for
6001 (07048)	OV Organic vapour		Certain organic vapours
60921	OV/P100 Organic vapour/P100		Certain organic vapours and particulates
6002	AG Acid gas		Chlorine, hydrogen chloride, and sulfur dioxide or chlorine dioxide or hydrogen sulfide
60922	AG/P100 Acid gas/P100		Chlorine, hydrogen chloride, and sulfur dioxide or chlorine dioxide or hydrogen sulfide and particulates
6003 (07047)	OV/AG Organic vapour/acid gas		Certain organic vapours, chlorine, hydrogen chloride, and sulfur dioxide or hydrogen sulfide or hydrogen fluoride
60923	OV/AG/P100 Organic vapour/acid gas/P100		Certain organic vapours, chlorine, hydrogen chloride, and sulfur dioxide or hydrogen sulfide or hydrogen fluoride and particulates
6004	AM/MA Ammonia/methylamine		Ammonia and methylamine
60924	AM/MA/P100 Ammonia/methylamine/P100		Ammonia, methylamine and particulates
6005	FM/OV Formaldehyde/organic vapour		Formaldehyde* and certain organic vapours
60925	FM/OV/P100 Formaldehyde/organic vapour/P100		Formaldehyde* and certain organic vapours and particulates
6006	MG Multi-gas/vapour		Certain organic vapours, chlorine, hydrogen chloride, chlorine dioxide, sulfur dioxide, hydrogen sulfide, ammonia/methylamine, formaldehyde* or hydrogen fluoride
60926	MG/P100 Multi-gas/vapour/P100		Certain organic vapours, chlorine, hydrogen chloride, chlorine dioxide, sulfur dioxide, hydrogen sulfide, ammonia/methylamine, formaldehyde* or hydrogen fluoride and particulates
60928	OV/AG/P100 Organic vapour/acid gas/P100		Certain organic vapours, chlorine, hydrogen chloride, and sulfur dioxide or hydrogen sulfide or hydrogen fluoride and particulates*
60095	HG Mercury		Mercury vapour, chlorine and sulfur dioxide
603295	HG/P100 Mercury/P100		Mercury vapour, chlorine, sulfur dioxide and certain particulates

- Reusable cartridges:
  - Select the correct type of cartridge per task (example Magenta label is for dust, Black label is for paint)
  - Make sure the label is readable and the color type is identifiable (not painted over like the one pictured above)
  - Know when to replace the cartridge

  (NOTE: A pre-filter to the cartridge may need to be replaced more often than the cartridge)
- How does OSHA check a respirator used on the job site?
  - Verify employee has been trained & medically certified

  (NOTE: An employer that allows an employee to use a respirator with a beard will be cited)
  - Visually inspect mask and filters
  - Check the level of knowledge of the employee in the use of the respiratory protection
  - Swab the mask and send to a laboratory for a testing level of contaminants inside mask

Employee was only replacing pre-filter and did not know when the cartridge was last replaced

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WHEN TO REPLACE:

- N95 “Masks”:
  - In the construction industry only good for 8 hours of continuous use
  - N95 masks are considered respirators, medical evaluation and fit test requirements also apply to use this type
  - Must be properly stored between uses in an airtight container (example a sealable plastic bag)
  - Manufacturing and type information must be readable

- Quick recognition - Dust mask vs. N95 respirator:
  - Always check the label for a printed “N95” on the mask
  - N95 masks will have two straps to secure mask around head and create a seal. Dust masks normally have one strap
  - N95 respirators will a have bendable metal strip to conform to the nose to create a proper seal
  - N95 may or may not have a plastic cap over the mouth area to help exhaust breathe
  - If you cannot determine what type of mask, throw it away and get the right type of mask

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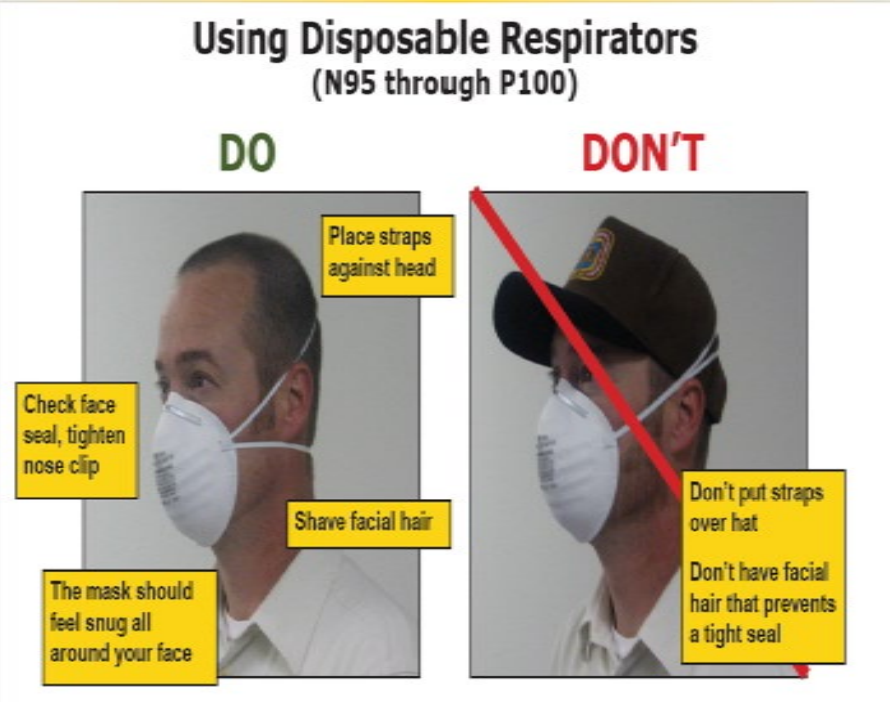
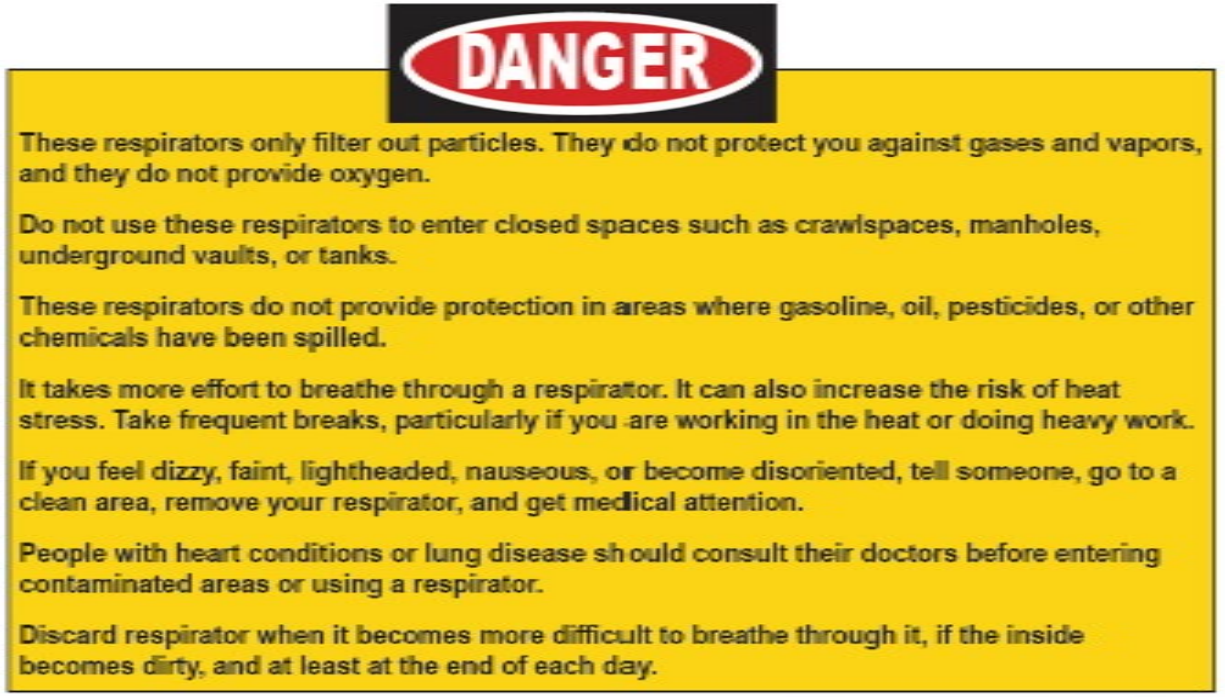
THE HARD PARTS:

- **#1** - N95's only work if there is a tight seal and are clean/properly maintained – having a beard or infrequently shaving does not prevent silica from entering lungs.
- **#2** - Enforcement – Superintendents, Supervisors and Foreman don't want to enforce the standard and protect someone who may be affected years or even decades later to continue production or use a stereotype of language barrier as an excuse not to enforce.





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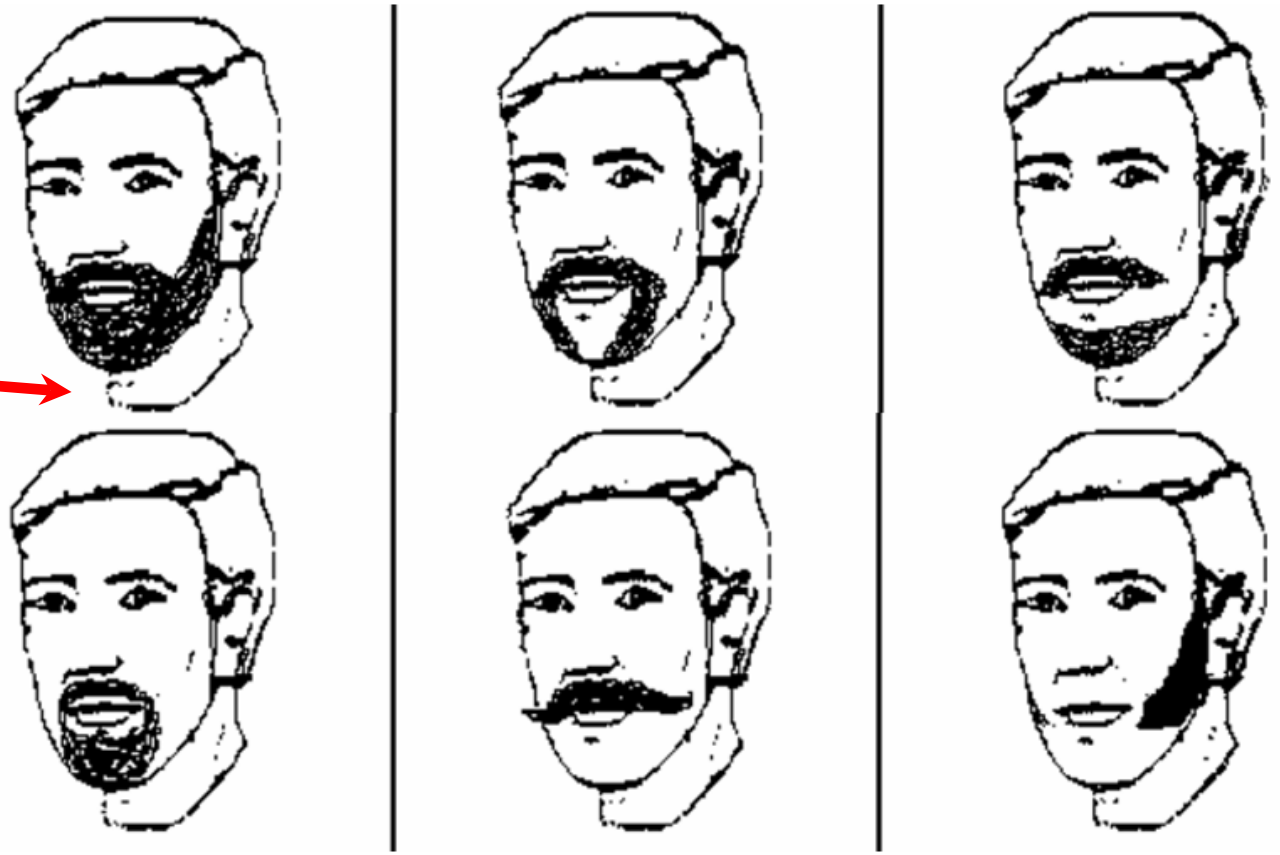
FACIAL HAIR:

None of these styles of facial hair will give you a proper seal with a respirator.



User seal check: An essential everyday procedure

Fit Testing | Respiratory Protection | 3M

ENFORCEMENT:

- Read the labels – Products state the hazards.
- Enforcement – Talk to the employee, be creative to communicate. Not every person exposed to silica speaks English. But, using your phone or to look up the word “mask” to correct a safety hazard will help.
- Best Practices: Wet Saws, Face Shields *with* N95 Masks.

MASCARA
(MAS-KA-RA)

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Respirable Crystalline Silica (RCS): Enclosed Spaces

Cutting inside a garage is an enclosed space per OSHA (3 walls & a roof):

- Workers must wear an N95 (APF10) mask
- Materials with silica must be cut with a wet-saw or a manufacturer designed HEPA filter vacuum attached to the tool to capture RCS dust.
- When cutting any materials approved safety glasses and or face shield must be worn (worker was wearing sunglasses that were not ANSI Z87 safety rated)

SAFETY TRAINING IS CONTINUOUS:

An ongoing safety training program is necessary. Human nature is to get lax after about 90 days after getting corrected on a safety hazard. When conducting safety training:

- Immediately correct any safety hazard
- Make the training relevant – the topic should apply to your workers
- Train regularly – Don't conduct training after an accident, train to prevent accidents on a regular basis (weekly or a monthly toolbox training)
- Record the training – Each employee must print their name and provide their signature next to their name
- Inspect what you expect – frequent monitoring is necessary to ensure that safety standards are not degrading

POLVO DE SILICA

¿QUÉ PUEDO HACER PARA PROTEGERME A MÍ MISMO Y A MI FAMILIA?

Folleto para los empleados

CONSEJOS PARA LOS TRABAJADORES EXPUESTOS A LA SÍLICE CRISTALINA

Infórmate

- Tenga en cuenta los efectos sobre la salud de respirar aire que contiene polvo de silice.
- Sepa qué causa el polvo de silice en su lugar de trabajo.

Reduzca su exposición al polvo

- Recuerde, incluso si no hay polvo, aún podría estar en riesgo.
- Evite trabajar en polvo siempre que sea posible.
- Reduzca la cantidad de polvo de silice haciendo lo siguiente:
  - Use rociadores de agua y ventilación cuando trabaje en estructuras confinadas. Por ejemplo:
    - Use una manguera de agua para humedecer el polvo antes de que se transmita por el aire.
    - Use sierras que agreguen agua a la hoja.
    - Use taladros que agreguen agua a través del tallo o tengan sistemas de recolección de polvo.
    - Utilice máquinas de limpieza rápida o armarios para controlar el polvo.

Use respiradores cuando sea necesario

- Cuando los rociadores de agua y la ventilación por si solos no son suficientes para reducir los niveles de polvo de silice, su empleador DEBE proporcionarle un respirador debidamente ajustado y seleccionado (por ejemplo, un filtro de particulas o un respirador con suministro de aire de la aerolínea) designado para la protección contra la silice cristalina.
- No se deben hacer cambios en el respirador.
- Los trabajadores que usan respiradores ajustados no pueden tener barba ni bigote porque no permiten que el respirador se selle correctamente a la cara.
- El chorro de arena o el chorro abrasivo requieren el más alto nivel de protección, que es un respirador de chorro abrasivo tipo CE.

Participar en exámenes médicos

- Tome los programas de salud (o de detección pulmonar) que ofrece su empleador.

Practique una buena higiene personal en el lugar de trabajo

- No coma, beba ni use productos de tabaco en áreas polvorientas.
- Lávese las manos y la cara antes de comer, beber o fumar fuera de áreas polvorientas.
- Cámbiese a ropa de trabajo desechable o lavable en el lugar de trabajo.
- Dúchese (si es posible) y póngase ropa limpia antes de salir del lugar de trabajo para evitar la contaminación de otras áreas de trabajo, automóviles y hogares.
- Estacione los autos donde no estén contaminados con silice.

Es la responsabilidad legal de su empleador proporcionar un lugar de trabajo seguro. Si cree que no está protegido, llame a OSHA al 1-800-321-OSHA (6742) o visite el sitio web de OSHA.

Su empleador debe asegurarse de que usted tenga y use el equipo de protección adecuado para reducir los niveles de polvo de silice.

Vale la pena tomarse el tiempo para protegerse en el trabajo.

(Adaptado de la Publicación de NIOSH No. 2004-108: Silicosis: ¡Conozca los hechos!)

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Daily Safety Reminders:

- ☑ Everyone goes home to their families *SAFELY* at the end of the day!
- ☑ Every time you walk your jobsite you are doing a "Safety Walk"… Looking out for unsafe work habits
- ☑ Don't ignore a safety problem, be professional, proactive and intervene
- ☑ Lead by example… especially with PPE

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