

CleanSpace[®]
R E S P I R A T O R S

Tim Costa, CSHO

Director Safety Solutions &
Distributor Partnerships

May 2023 US Coal Show



That if you got hurt,
their life would be
impacted or never
the same...



WHY

Think of our 5

Our children need their parents

Our grandchildren need their grandparents

Our wives need their husbands

Our husbands need their wives

Our friends need their friends

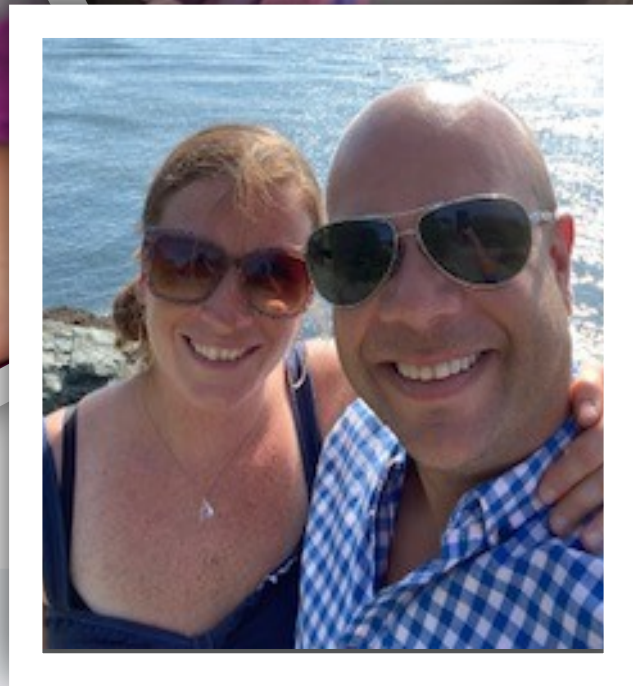
Our community needs their community
members

We need you to be safe

CleanSpace has the solution



CleanSpace[®]
RESPIRATOR



**Are you 1
of the 5?**





WHY DO I DO THIS?

A black and white photograph of railroad tracks receding into the distance. The tracks are made of wooden ties and metal rails, and they lead the eye towards a vanishing point in the center of the frame. The surrounding landscape is dark and appears to be a field or a wooded area. The overall mood is contemplative and evocative.

Life changing
moments



Angry Residents Storm Aquapark After Bodies of Drowned Children Found

July 30, 1993

LISBON, Portugal (AP) — Hundreds of outraged residents stormed an aquapark today after police found the bodies of two children - including an 8-year-old girl - who drowned when they were sucked into the pump of a ride.

The rioters tore through the grounds of the Aquapark de Restelo, tearing up a restaurant's glass walls and throwing stones at riot police, who cleared the park.

The park remained open despite the disappearance Tuesday of two children, 10-year-old Carlos Mendes of Pawtucket, R.I., and Frederico Mendonca of Lisbon, Portugal.

The bodies were found wedged in underground pipes under the park's vast water-pump. They had been sucked into the stream-like ride and trapped in the pipes.

The father, who is a native of Portugal.





None of these incidents had to happen.

We need to take the time to be safe...all the time

ROI

Return on Investment for
Safety

ROI Poll by Liberty Mutual

Most executives
polled by LM said that
for every \$1 they
spent on safety, they
saved at least **\$3**

National Safety Council

For every \$1 in
safety, companies
can see a return **\$2**
-\$6

OSHA's Findings

Evidence suggests
companies that
implement effective
safety and health
program can expect
reductions of 20% or
greater in their injury and
illness rates and a return
of **\$4-\$6** for every \$1
invested

Michael McGuire





WHY?

Our mines are focused on maintaining the highest standards in quality and safety. We take your respiratory protection very seriously.

The CleanSpace EX powered air purifying respirator (PAPR) offers very high-level protection.

It will also allow you to work comfortably and interact naturally in your work environment.



MODULE 1



Learning Objectives:

- Understand CleanSpace technology and how it works.
- Appreciate long and short-term health benefits from using high level respiratory protection.
- Know where and when you might be required to wear the CleanSpace EX in your work-place.
- Identify the correct components to assemble the CleanSpace EX.

NO-ONE KNOWS YOUR BUSINESS & SITE SAFETY BETTER THAN YOU

CleanSpace feels we have some experience of your complex, harsh and dangerous working environment. Our first sale was to one of the largest miners in the world. From this first sale, for over a decade we have worked closely with leading miners around the world to protect their teams above and below the ground.

Our biomedical engineering team, the designers of the AirSensit™ technology that powers our respirators, are frequent visitors to mine sites, speaking with mine managers and their teams to ensure our customer solutions and services can perform in this unique and challenging workplace – this includes travelling with our clients underground.

Our solutions are built tough and safe. CleanSpace EX is the most advanced intrinsically certified PAPR on the market and considered the respirator of choice for major coal mining operations.



GLENCORE



RioTinto

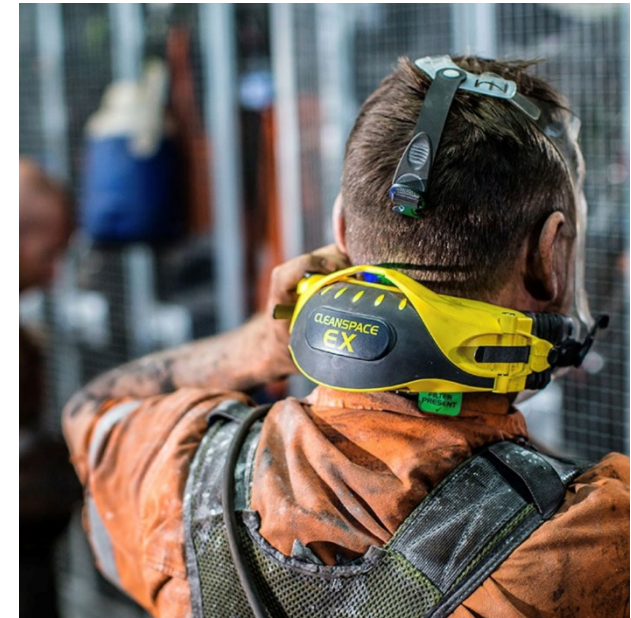




WHY IS RESPIRATORY PROTECTION IMPORTANT?

DUST IN THE WORK-PLACE

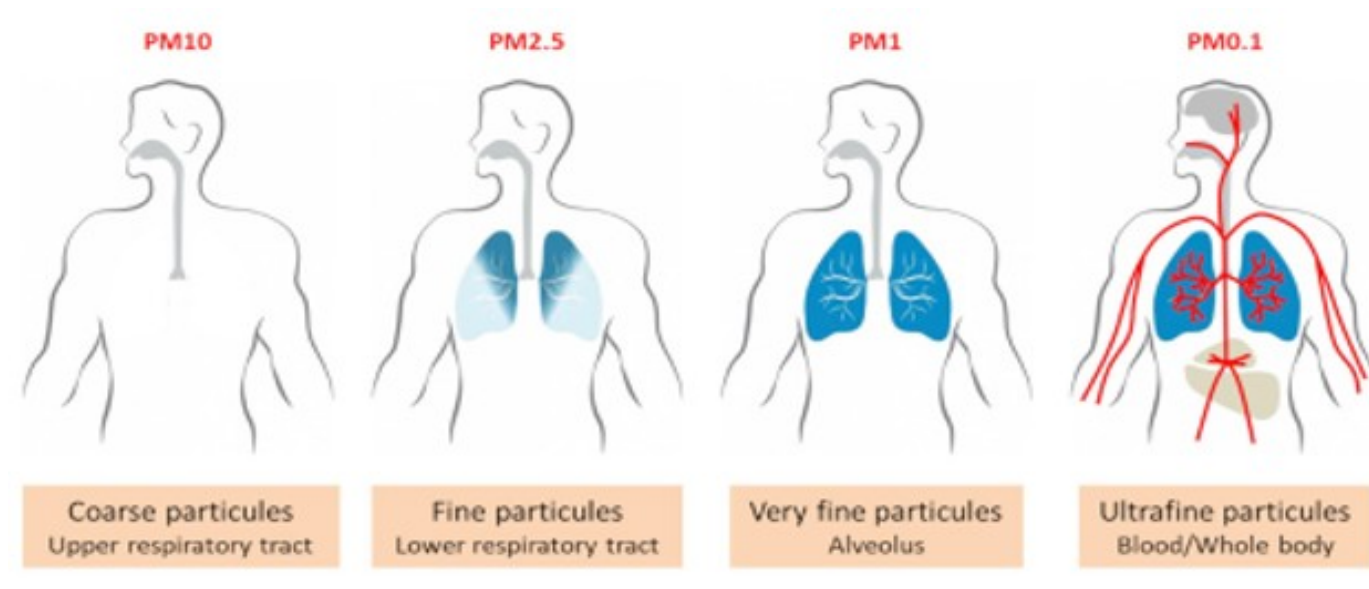
- Exposure to any dust in excessive amounts can lead to health problems.
- Harmful effects of dust can vary, from skin irritation to lung cancer.
- Dust may not be an obvious hazard because the particles are often invisible and the health effects of exposure can take years to develop.
- Long term health effects caused by dust in the lungs are usually permanent and may be disabling.
- Dust can leave workers more vulnerable to infections and more susceptible to occupational lung disease.



Source : WorkSafe QLD, Australia. Health & Safety Executive. Dust in the workplace.

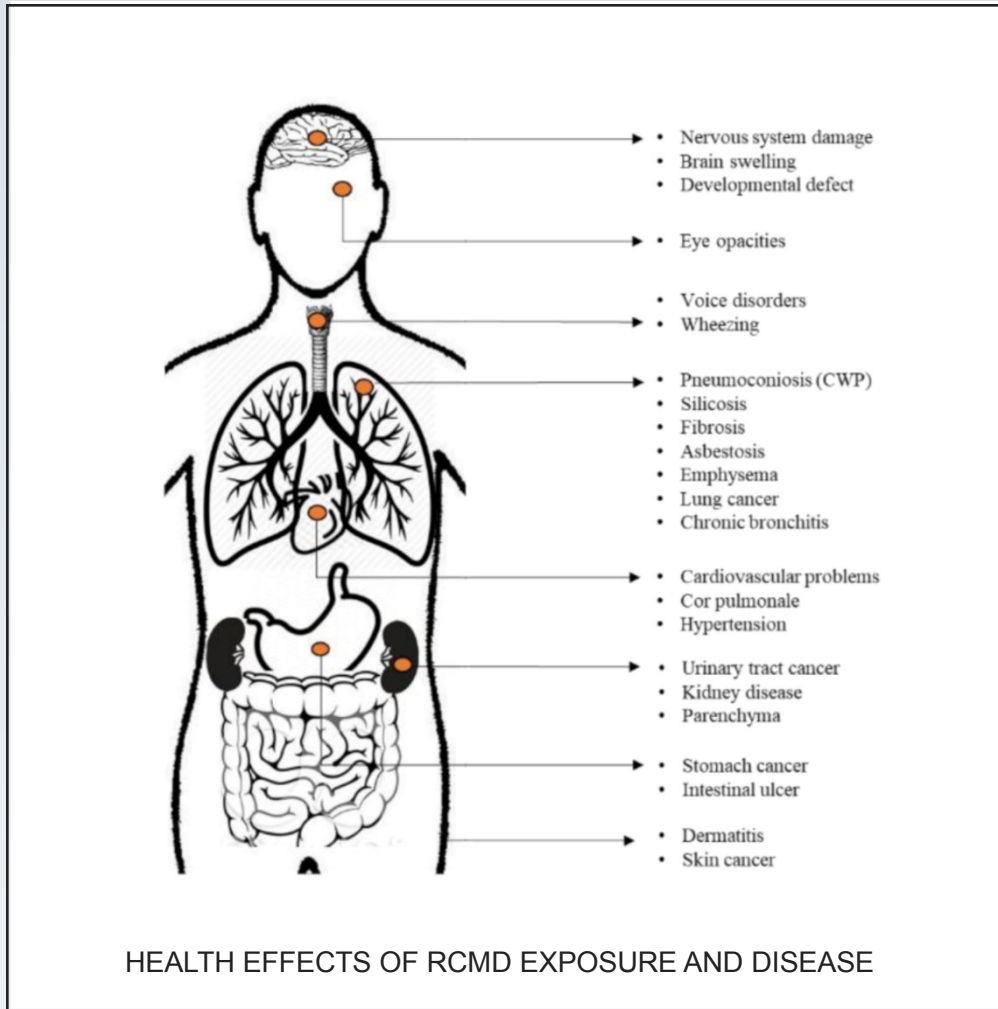
RESPIRABLE COAL MINE DUST (RCMD)

It is estimated that 40 - 95% of respirable coal mine dust (RCMD) in an underground coal mine is pure coal and the rest contains particles generated from cutting the roof and floor, diesel equipment, rock dusting practices, etc.



Source : Respirable Coal Mine Dust: A Review of Respiratory Deposition, Regulations, and Characterization
Y. Shekarian, E. Rahimi, M. Rezaee, W. Su & P. Roghanchi

RESPIRABLE COAL MINE DUST (RCMD)



Inhalation of respirable coal dust can lead to coal workers' pneumoconiosis (CWP), a potentially disabling lung disease.

Inhalation of respirable silica dust can lead to silicosis, another disabling lung disease.

The most severe form of these diseases, progressive massive fibrosis (PMF), can be fatal.

Source: US Department of Health & Human Services, NIOSH
<https://www.cdc.gov/niosh/mining/topics/respirabledust.html>

CLEANSPACE EX



HALF MASK



FULL FACE MASK

MAIN COMPONENTS



CLEANSPACE EX – INTRINSICALLY SAFE

INTRINSICALLY SAFE:

Suitable for use in certain ignitable or potentially explosive atmospheres where there is a risk of explosion.



- CleanSpace EX components are certified to be used in environments requiring intrinsically safe equipment.
- CleanSpace EX Half Masks have been treated with an electrically conductive coating.

High Efficiency Particulate Air (HEPA) Filtration

- 99.97% filtration efficiency for particulates.

Silicone Mask

- Conforms to the shape of your face.
- Full Face Mask also offers high impact protection.

Positive Air Pressure Technology

- The Power Unit adjusts output to maintain positive air pressure. If a gap is created during work tasks the power unit will compensate; air will flow out and contaminants will be prevented from flowing in.



FILTER SELECTION

- Your facility will select a CleanSpace filter based on application and hazard.
- The CleanSpace 'Filter Selection Table' and 'Safety Data Sheet' assist in establishing hazard concentration and filter selection.
- All CleanSpace industrial respirators are compatible with standard and high-capacity particulate filters.

STANDARD PARTICULATE FILTER

CleanSpace Standard Particulate Filters are suitable for protection against airborne particles (dust, mist and fumes).



STANDARD PRE-FILTER / COVERALL



PRE-FILTER



COVERALL

- Removes coarse particles and enhances life of Particulate Filter.
- Protects Power Unit from dirt and splashes (eg. Water, paint, cement, etc.).
- Disposable: One time use only.

HIGH CAPACITY PARTICULATE FILTER

CleanSpace High Capacity Particulate Filters are suitable for protection against airborne particles (dust, mist and fumes).



HIGH CAPACITY COVER / COVERALL



COVER



COVERALL

- Removes coarse particles and enhances life of Particulate Filter.
- Protects Power Unit from dirt and splashes (eg. Water, paint, cement, etc.).
- Disposable: One time use only.

Petition for Modification

U. S. Department of Labor

Mine Safety and Health Administration
201 12th Street South, Suite 401
Arlington, VA 22202-5452



05/06/2022

PETITION FOR MODIFICATION

Docket No. M-2021-017-C

PROPOSED DECISION AND ORDER

On April 28, 2021, filed a petition seeking modification of the application of 30 C.F.R. § 75.500(d) at its The petitioner alleges that the alternative method in the petition will at all times guarantee no less than the same measure of protection afforded to the miners by the standard.

The petitioned standard, 30 Code of Federal Regulations (30 C.F.R.) § 75.500(d) states, in relevant part,

(d) All other electric face equipment which is taken into or used in by the last open crosscut of any coal mine, except a coal mine referred to in §75.501, which has not been classified under any provision of law as a gassy mine prior to March, 1970, shall be permissible.

Petitioner is requesting a modification of the standard to allow the use of unapproved Power Air Purifying Respirators (PAPRs) in by the last open crosscut. Specifically, the petitioner is requesting to utilize the CleanSpace EX PAPR and sealed

Table 1 - Electrical Equipment Typically Worn or Carried:

Equipment	Manufacturer & Model	PAPR Interference	
		CleanSpace EX	3M Versaflo
Communication	Kenwood - TK-390 Radio	No	No
Tracking System	Strata CommTrac - C202 Miner Communicator	No	No
Cordless Cap Lamp	Wisdom - Wise Lite 2	No	No
CPDM	Thermo Fisher Scientific - PDM 3700	No	No
Gas Detector	MSA - Altair	No	No
Continuous Miner Remote	Joy - Part No. 100280304	No	No
PWS MWC	Strata HazardAvert PAD	Yes *	Yes*

* Interference only when manufacturer recommendations not followed

Table 2 - Other Electrical Equipment

Equipment	Manufacturer - Model	PAPR Interference	
		CleanSpace EX	3M Versaflo
Longwall Shearer Remotes	JOY - XR1	No	No
Longwall Shield Control Panel	Caterpillar - PMC-R	No	No
Atmosphere Monitoring System	Conspec - 2030KP-M	No	No

THANK YOU



CleanSpace[®]
RESPIRATORS

MINING INDUSTRY

CONTACT US
sales@cleanspacetechnology.com
www.cleanspaceusa.com

PROTECTION NEVER LOOKED SO GOOD
WITH THE LATEST MODERN PAPR
TECHNOLOGY



with AirSensit[®]
TECHNOLOGY

CleanSpace EX

Powered air purifying respirators (PAPR) designed for high protection, comfort and cost effectiveness

NIOSH approved PAPR with HEPA filtration

No hoses, belts or waist mounted battery packs

Lightweight (1.1 lb/500g) and compact

Fresh airflow, no fogging and easy to wear over long periods

Reliable and fast cleaning

Reusable and cost effective



LEARN MORE

www.cleanspaceusa.com



CleanSpace[®]

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