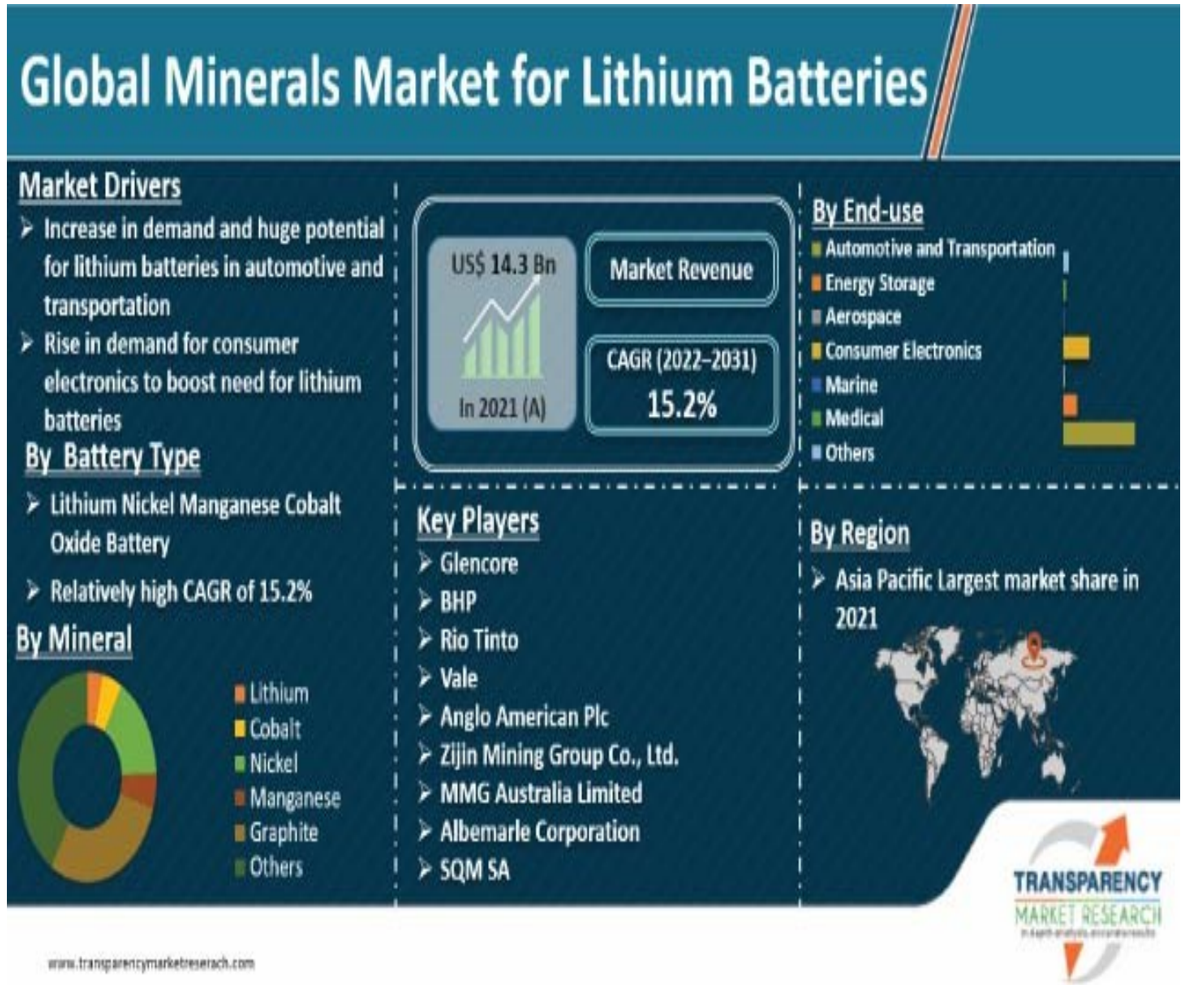

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Contributions

The editors welcome news items, press releases, articles and photographs relating to the Mining Industry. These will be considered and, if accepted, published. No responsibility will be accepted should contributions be lost, damaged or incorrectly printed.

Powering the Future:

South Africa's Battery Metal Mining

South Africa is home to some of the world's richest deposits of battery metals, such as lithium, cobalt, and manganese. These metals are essential for the production of electric vehicles (EVs) and other clean energy technologies. As the demand for these metals grows, so too will the mining industry in South Africa.

Lithium is a key component of EV batteries. It is used to store the electricity that powers the car. South Africa is the world's fourth-largest producer of lithium, and it has the potential to become a major player in the global EV market.

Cobalt is another important battery metal. It is used to make the cathodes of EV batteries. South Africa is the world's third-largest producer of cobalt, and it is also a major producer of manganese, which is used to make the anodes of EV batteries.

The demand for battery metals is expected to grow significantly in the coming years. This is due to the increasing popularity of EVs and other clean energy technologies.

The International Energy Agency (IEA) predicts that the global demand for lithium will increase by 400% by 2030, and the demand for cobalt will increase by 600%.

The rise of battery metals mining in South Africa has the potential to create jobs and boost economic growth. The mining industry is a major employer in South Africa, and it is estimated that the battery metals sector could create up to 60,000 jobs in the country.

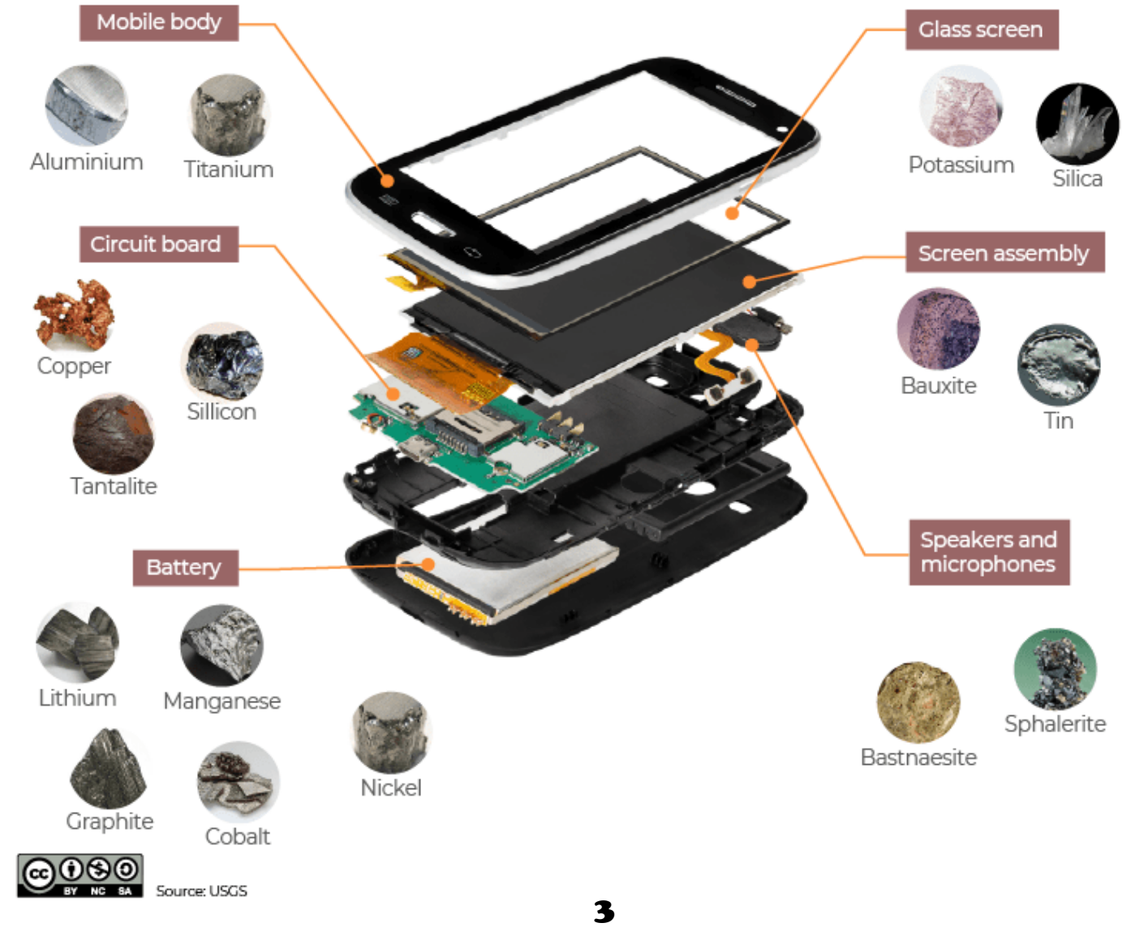
However, there are some challenges that need to be addressed in order to ensure the sustainable development of the battery metals mining industry in South Africa. These challenges include environmental pollution, water scarcity, and social conflict.

The government of South Africa is committed to developing the battery metals mining industry in a sustainable way. It has put in place a number of policies and regulations to address the environmental and social challenges associated with the industry.

NATURAL RESOURCES

A world of minerals in your mobile phone

More than half of a mobile phone's components - including its electronics, display, battery and speakers - are made from mined and semi-processed. materials.



Source: USGS

The rise of battery metals mining in South Africa is an opportunity for the country to create jobs, boost economic growth, and transition to a clean energy future. However, it is important to ensure that the industry is developed in a sustainable way.

Here are some of the ways in which the government of South Africa is promoting the sustainable development of the battery metals mining industry:

The Mineral Beneficiation Strategy: This strategy aims to increase the value of minerals produced in South Africa by encouraging local processing and beneficiation.

This will create jobs and reduce the amount of minerals that need to be exported.

- **The Green Mining Charter:** This charter sets out environmental and social standards for the mining industry. It aims to ensure that mining operations are conducted in a way that minimizes pollution and social conflict.
- **The Water for Mining Strategy:** This strategy aims to ensure that the mining industry has access to water in a sustainable way. It includes measures to improve water efficiency and to reduce water pollution.

The government of South Africa is committed to developing the battery metals mining industry in a sustainable way. The policies and regulations that it has put in place are designed to create jobs, boost economic growth, and protect the environment.

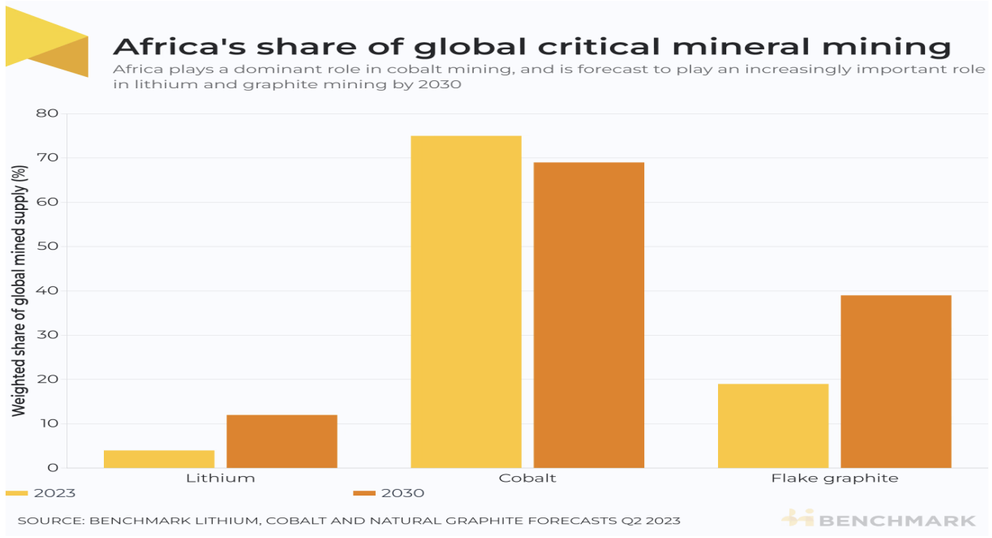


Table 6: Top firms in Africa's battery mineral extracting countries

Lithium	Graphite	Cobalt	Nickel	Manganese
DRC • AVZ Minerals: Minerals Exploration Company	Mozambique • Battery Minerals Limited • Syrah Resources: Balama Graphite Mine Operation	Madagascar • Sumitomo Ambatovy	Madagascar • Sumitomo Ambatovy	South Africa • South32 • Manganese Metal Company (Refinery)
Namibia • Desert Lion Energy	Tanzania • Magnis Resources: Nachu Graphite Project	Namibia • Celsius Resources: Opuwo Cobalt Project	South Africa • Thakadu Nickel Sulphate Project • URU Metals	Botswana • Giyani Metals Corp: K Hill Manganese Project Exploration
Zimbabwe • Prospect Resources • Bikita Minerals		DRC • Gecamines SA • Glencore • China Molybdenum: Tenke Fungurume copper-cobalt mine	Zimbabwe • Bindura Nickel Corporation	
Mozambique • Tempest Minerals		Zambia • Arc Minerals: Zamsort Copper-Copper Project • ERG Africa: Chambishi Metals: Cobalt Refinery		

Source: Foli (2020), South African Institute of International Affairs

WearCheck extends its footprint to second India lab

Condition monitoring specialist company, WearCheck, recently opened the doors to its second laboratory in India – this one in Durgapur – after the success of its Chennai-based laboratory, which has operated successfully since 2010.

The South Africa-based company, recognised as a leader in the preventive maintenance sector across the African continent and beyond since 1976, offers an extensive range of world-class condition monitoring services in 16 state-of-the-art laboratories in Africa, the Middle East and India.

Now, plant maintenance in the West Bengal region is set to be revolutionised - speedy analysis and reporting on a wide range of condition monitoring services are provided by the brand new WearCheck laboratory in Durgapur, India.

WearCheck Durgapur opens – South African condition monitoring specialist company, WearCheck, opened its second laboratory in India recently, (the company's 16th laboratory), following the successful operation of its laboratory in Chennai, Tamil-Naidu.
Pictured at the launch in Durgapur are WearCheck staffers from three countries, from left: back row: Mr. Barun, Mr. Panchu Gopal Singh (regional manager).

Middle row: Mr. Bhupendra Yadav (diagnostician), Mr. Sundip More (managing director - India & Middle East), and from South Africa: Mr. Neil Robinson - managing director and Mr. Scott Sowman (financial director, South Africa) with Mr. Nissar Ahamed (country manager – India),
Front row Mrs. Nisha Balo (admin) and Mr. Anil Kumar - chemist (Dubai). Kneeling, are Mr. Tanmoy and Mr. Some Das (both lab chemists).

WearCheck's fundamental goals are to save time and money for customers by ensuring that industrial machinery operates at peak performance, with reduced maintenance costs.

WearCheck services clients in sectors ranging from power generation and renewable energy to mining, fleet management, aviation, maritime and more.

The company's core business is the scientific analysis of used oil, fuel and other fluids, whereby samples are analysed in the laboratory for trace particles, which indicate which component is suffering unusual wear patterns. since the company's inception over 45 years ago.

Neil Robinson, WearCheck managing director from the company's head office in Durban, South Africa, travelled to India to cut the ribbon of the new, world-class WearCheck Durgapur laboratory. Looking on are team members from the Durgapur laboratory.

This information is assessed by highly trained diagnosticians, who make recommendations on the required remedial action for the component in question. WearCheck's diagnosticians have access to a huge database of information on performance trends for different machinery components - data which has been carefully collected and collated.

The new Indian laboratory, strategically located in the major industrial city and mining hub catering to the Eastern Region, West Bengal, addresses the growing demand for top-drawer condition monitoring services in the region. As a major industrial hub, Durgapur is home to a variety of operations, including manufacturing, power generation and more. The experienced and highly qualified WearCheck team is standing by to provide world-class condition monitoring services to the Bengalese mechanised sector.

WearCheck regional managing director, Sundip More, outlines the concept of proactive maintenance,

'By monitoring a component's condition regularly over time, our scientific techniques provide reliable data which enables our diagnosticians to predict -

WearCheck Durgapur is equipped with cutting-edge, high-tech laboratory instruments to provide condition monitoring services for clients in many industries, including mining, renewable energy, power generation, construction, aviation, marine and more.

-accurately whether and when that component will potentially fail.

'We identify a potential failure before it occurs and recommend a remedy.

This way, catastrophic failure is avoided, thereby enhancing machine availability and performance. The repair work to the component can be scheduled for a time that suits the work programme.

'Unplanned component failure can be extremely costly and preferably avoided. With forewarning about potential component failure, our customers dodge unnecessary maintenance costs and maintain efficiency by upholding optimum production levels.'

WearCheck Durgapur can be contacted on

Telephone +91 343 2545422, and samples can be delivered to the

Laboratory: Ground Floor, MNA V21-C, Ambuja, City Centre. Alternatively, contact WearCheck via

Email on info@wearcheck.co.in.

For more information, please visit www.wearcheck.co.za email marketing@wearcheck.co.za or call WearCheck's head office in Durban, South Africa on +27 (31) 700-5460.

South Africa's Iron Ore Industry Faces Hurdles in 2023 Production Projections"

South Africa's iron ore industry is facing a number of challenges that are likely to weigh down production forecasts for 2023. These challenges include:

- **A decline in ore grades:** The ore grades at South Africa's iron ore mines are declining, which means that it is taking more ore to produce the same amount of iron.
- **Higher production costs:** The cost of production is rising at South Africa's iron ore mines, due to factors such as rising energy costs and labor costs.
- **Rail disruptions:** Rail disruptions are a major challenge for South Africa's iron ore industry. The country's rail network is aging and unreliable, which makes it difficult to transport iron ore to ports.

- **Geopolitical uncertainty:** Geopolitical uncertainty is also a challenge for South Africa's iron ore industry. The country is a major supplier of iron ore to China, and any disruptions to trade between the two countries could have a significant impact on South Africa's iron ore industry.

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As a result of these challenges, production forecasts for South Africa's iron ore industry in 2023 have been revised down. The Minerals Council South Africa, the industry's trade association, now expects production to reach 66 million tonnes in 2023, down from 71 million tonnes in 2022.

The decline in production is likely to have a negative impact on South Africa's economy. The iron ore industry is a major contributor to the country's GDP, and it also provides employment for thousands of people.

The government is taking steps to address the challenges facing the iron ore industry. These steps include:

- **Investing in exploration:** The government is investing in exploration to discover new iron ore deposits. This will help to ensure that the country's iron ore production remains sustainable in the long term.
- **Reducing production costs:** The government is working with the industry to reduce production costs. This includes measures such as improving the efficiency of the rail network and providing tax breaks to the industry.
- **Attracting investment:** The government is working to attract investment into the iron ore industry. This will help to boost production and create jobs.

UAE-DRC Resource Alliance: A $1.9 Billion Deal Ignites Prosperity and Cooperation

Picture: Mining Technology

The United Arab Emirates (UAE) has signed a $1.9 billion deal with the Democratic Republic of the Congo (DRC) to develop at least four mines in the country's turbulent east. The deal was announced on Monday by the Congolese presidency.

The deal will see the UAE's state-owned mining company, Mubadala Investment Company, partner with the DRC's state-owned mining company, Societe Aurifere du Kivu et du Maniema (Sakima). The mines that will be developed are located in the provinces of South Kivu and Maniema, which are home to some of the DRC's richest mineral deposits.

The minerals that will be extracted from the mines have not been disclosed, but they are likely to include gold, tin, tantalum, and tungsten. These are all important minerals for the electronics and telecommunications industries.

The deal is a major boost for the DRC's mining sector, which has been plagued by corruption and mismanagement in recent years. The DRC is home to some of the world's richest mineral deposits, but it has not been able to benefit from its mineral wealth due to poor governance.

The deal with the UAE is seen as a way to bring in much-needed investment and expertise to the DRC's mining sector. The UAE has a strong track record in the mining industry, and it is expected to help the DRC to develop its mineral resources in a sustainable and responsible way.

The deal is also a sign of growing interest in the DRC's mining sector. In recent years, there has been a surge of investment in the DRC's mining sector, as investors have become more optimistic about the country's economic prospects.

The $1.9 billion deal with the UAE is a major vote of confidence in the DRC's mining sector. It is a sign that investors are willing to invest in the DRC, and it is a major step forward for the country's economic development.

Here is a timeline of the events leading up to the deal:

- **2017:** Mubadala Investment Company first expresses interest in investing in the DRC's mining sector.
- **2018:** Mubadala and Sakima sign a memorandum of understanding to explore potential investment opportunities in the DRC.
- **2019:** Mubadala and Sakima conduct a feasibility study on the development of four mines in South Kivu and Maniema.
- **2020:** Mubadala and Sakima finalize the terms of the $1.9 billion deal.
- **2023:** The deal is signed by the DRC and UAE governments.

The deal has been in the works for several years, and it is the culmination of a long process of negotiation and due diligence. The deal is a major boost for the DRC's mining sector, and it is a sign of growing interest in the country's mineral wealth.

South Africa's mining industry sees improvement in safety performance

All sectors reduced their loss of lives by between 15% and 43%

The South African mining industry saw a marked improvement in its safety performance in 2022, with fatalities down to 49, compared to 74 in 2021. This is the lowest number of fatalities on record, and it is a testament to the hard work and dedication of all stakeholders in the industry towards ensuring the safest possible working conditioans.

The improvement in safety performance is due to a number of factors, including:

- Increased investment in safety training and equipment
- Improved safety management systems

A greater focus on safety culture

However, despite the progress that has been made, there is still more work to be done to achieve zero harm in the South African mining industry. The Minerals Council South Africa has set a target of zero fatalities by 2050, and it is working with its members to develop and implement strategies to achieve this goal.

some of the specific safety initiatives that are being undertaken in the South African mining industry:

- **MineSafe:** MineSafe is a national safety campaign that is aimed at reducing fatalities and injuries in the mining industry. The campaign focuses on a number of key areas, including safety training, risk management, and safety leadership.

Zero Harm: Zero Harm is a safety philosophy that is aimed at achieving zero fatalities and injuries in the workplace. A number of South African mining companies have adopted the Zero Harm philosophy, and they are working to implement its principles in their operations.

- **Technology:** Technology is also being used to improve safety in the South African mining industry. For example, some mines are using drones to inspect dangerous areas and to monitor for potential hazards. Other mines are using wearable devices to track the location and movements of workers.

The improvement in safety performance in the South African mining industry is a welcome development. However, there is still more work to be done to achieve zero harm. The Minerals Council South Africa and its members are committed to working together to make the industry as safe as possible.

In addition to the safety initiatives mentioned above, the South African mining industry is also working to improve safety by:

- **Investing in research and development:** The Minerals Council South Africa and its members are investing in research and development to identify new ways to improve safety in the mining industry. For example, the council is funding research into the development of new safety technologies and the prevention of occupational diseases.

- **Promoting safety culture:** The Minerals Council South Africa and its members are promoting safety culture throughout the mining industry. This includes raising awareness of safety issues, providing training on safety procedures, and rewarding employees for their safety performance.

The improvement in safety performance in the South African mining industry is a positive sign. However, it is important to note that there is still more work to be done to achieve zero harm. The industry is committed to continuous improvement, and it is working to identify and implement new ways to improve safety.

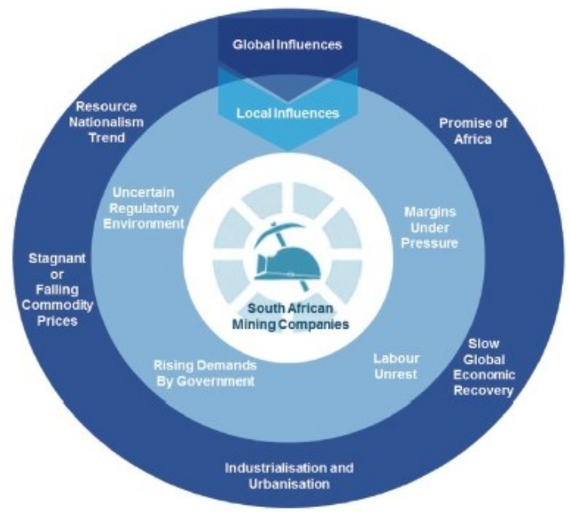


Figure 1 – Global and local influences on mining companies with South African operations

PROPER USE OF RESPIRATORS IN MINES AND MINING PLANTS

Protect yourself from occupational lung disease

Common contaminants in mines and mining plants that can affect your breathing

1. Particulates - silica, metal dusts, diesel
2. Organic vapours
3. Gases – ammonia and sulphur dioxide

Health Effects from Exposure

Top short-term health effects

1. Pneumonia
2. Respiratory irritation
3. Metal fume fever

Top long-term health effects

1. Silicosis
2. Lung cancer
3. Respiratory illnesses

Ontario Mining Sector

WSIB Allowed Fatal Claims
Registered between: 2005 to 2016

Source: WSIB EW Claims Cost Analysis March 2017 Snapshot

Air-purifying respirators are commonly worn in mines and mining plants. These respirators are hazard-specific and use cartridges to protect against specific contaminants. Based on a risk assessment, when other controls are not available, an APR should be selected by a competent individual in consultation with the Joint Health and Safety Committee or a worker safety representative.

Respirator Checklist

Red light:

1. Use the NIOSH-approved mask selected for your work environment
2. Fully trained on use, care, cleaning, and maintenance according to manufacturer instructions
3. Get fit tested at least every two years

Yellow light:

1. Inspect your mask
2. You must be clean shaven
3. Choose the proper cartridges for your work environment

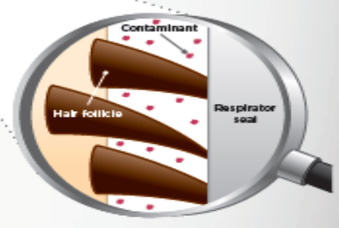
Green light:

1. Install proper cartridges
2. Properly position mask and straps
3. Conduct positive and negative pressure test to ensure proper seal

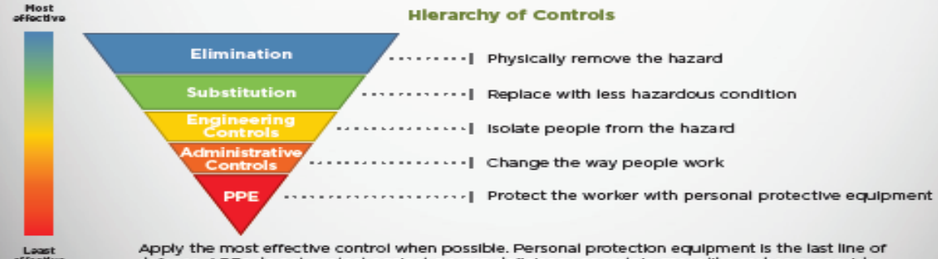
Ready to go!

Workers must be clean shaven for respirators to protect against contaminants. Even light stubble can compromise the respirator seal.

Contaminants are smaller than you think:



Hierarchy of Controls



- Elimination: Physically remove the hazard
- Substitution: Replace with less hazardous condition
- Engineering Controls: Isolate people from the hazard
- Administrative Controls: Change the way people work
- PPE: Protect the worker with personal protective equipment

Apply the most effective control when possible. Personal protection equipment is the last line of defense. APRs do not protect against oxygen deficiency or certain gases like carbon monoxide.

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