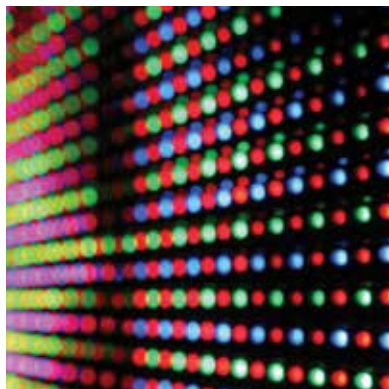


LEADING THE WORLD IN MOLY





Climax Mine, Colorado



1879



1890

INTRODUCTION

There is a growing global demand for molybdenum, a versatile element with diverse applications in the chemical, engineering and petroleum industries. Molybdenum and its alloys are key components in chemical and metallurgical applications.

Climax Molybdenum Company, a subsidiary of Freeport-McMoRan, is one of the world's leading molybdenum producers. From our early beginnings in Colorado, Climax Molybdenum has grown into a global, diversified company with downstream operations and a proven commercial presence worldwide.



1918

CLIMAX MINE BEGINS PRODUCTION

On April 2, 1918, Climax ships its first concentrate totaling 21,000 pounds with a market value of \$100,000.

Climax is a major contributor to the allied war effort during World War I.

1918

GLOBAL OPERATIONS

HENDERSON, COLORADO
Primary Mine

CLIMAX, COLORADO
Primary Mine

PHOENIX, ARIZONA
Global Headquarters, Sales
Office

SIERRITA, ARIZONA
By-product Mine
Roasting

BAGDAD, ARIZONA
By-product Mine
Pressure Leach

FORT MADISON, IOWA
Roasting, Chemicals

CERRO VERDE, PERU
By-product Mine

Our operations in North America and South America include both primary and by-product molybdenum mines.

We are also one of the leading global producers of molybdenum with chemical and metallurgical products manufactured at our production facilities in the United States and Europe. Our Fort Madison's conversion capabilities provide Climax Molybdenum with a premier source for upgraded molybdenum chemical products.

The Climax Stowmarket plant in the United Kingdom provides ferromolybdenum and Climax Molybdenum B.V. in the Netherlands produces technical molybdic oxide, ammonium dimolybdate and pure molybdic oxide.

Serving customers worldwide, Climax Molybdenum's resources are well positioned to maintain molybdenum production rates for decades to come.

ROTTERDAM, NETHERLANDS
Roasting, Chemicals

TOKYO, JAPAN
Representative Office

STOWMARKET, UNITED KINGDOM
Ferromolybdenum
Sales Office

SHANGHAI, CHINA
Representative Office



Henderson Mine, Colorado

MINING AND DOWN STREAM PRODUCTION

Climax Molybdenum operates the Henderson Mine and Mill in the Rocky Mountains, west of Denver. It is the world's largest primary producer of molybdenum and has been in operation since 1976. Henderson has the capability to produce between 30 and 40 million pounds of molybdenum per year.

Separated by the Continental Divide, the Henderson Mine and Mill are connected by one of the world's longest conveyor systems, a 10 mile elevated belt that runs underneath the Continental Divide and emerges above ground for the final five miles.

Our Climax mine near Leadville, Colorado, restarted in 2012 and has a potential production capacity of 30 million pounds per year.

1945

WORLD'S LARGEST MINE

Climax becomes the world's largest underground mine.



1945

CHEMICAL APPLICATIONS OF MOLYBDENUM



CATALYSTS

Molybdenum chemicals are used in the production of catalysts for a variety of reactions, notably hydrotreating and selective oxidation. The increasingly stringent requirements for low sulfur fuel oils, gasoline and diesel fuel make this application a particularly important use for molybdenum.



METAL PRODUCTS

Molybdenum metal and alloys are used in a number of important end products including lamp applications, glass melting electrodes and electronic devices. The characteristics of molybdenum metal powders are determined not only by the process conditions during reduction, but also by the physical and chemical properties of the starting materials.



LUBRICANTS

The naturally occurring form of molybdenum (MoS_2) is an important solid lubricant used primarily for reduction of wear and friction, and maintains good lubricating performance in tough conditions. Molybdenum complexes, soluble in petroleum oils and other organic solvents, are finding increased use as antiwear and extreme pressure additives as well as friction modifiers in lubricating oils, greases and coatings.

1957

CLIMAX MERGES

Climax and American
Metal Trading Company
merge to become
AMAX.



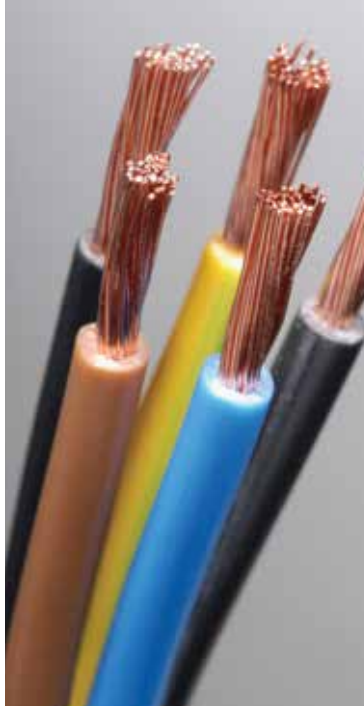
1957

CHEMICAL APPLICATIONS OF MOLYBDENUM



CORROSION INHIBITION

Molybdate, usually in the form of sodium molybdate, is used as an anodic corrosion inhibitor in aqueous systems, such as cooling water treatments and automobile anti-freeze/coolant products. It is effective in inhibiting corrosion of steel, cast iron, aluminum, copper, brass, cadmium and solder, and is typically used with other corrosion inhibitors.



SMOKE SUPPRESSANTS

Molybdenum in the form of ammonium octamolybdate (AOM) or molybdic oxide is used as a smoke suppressant in plastics, especially polyvinyl chloride (PVC). Common applications include wire and cable for use in plenum spaces, interiors of mass transit vehicles, carpet backing for commercial grades of vinyl backed carpet, and building materials for interior use in public buildings.



PIGMENTS

Historically molybdenum compounds have been used in pigments generally called molybdenum orange, for use in paints, plastics and inks providing a reddish hue, cleanliness and striking colors. White corrosion inhibiting pigments are used as paint primers and other molybdenum compounds are important components in organic toners. More recent uses include incorporation into bismuth vanadate yellow and the emerging classes of rare earth molybdenum high-performance pigments.



1976

HENDERSON MINE PRODUCES

Henderson begins production at the rate of 10,000 tons per day via panel caving from the 8,100 foot level.

METALLURGICAL APPLICATIONS OF MOLYBDENUM



STAINLESS STEEL

Molybdenum is primarily used to improve the corrosion resistance of stainless steel in more demanding applications, such as chemical processing plants or in marine applications. The addition of molybdenum increases the pitting and crevice corrosion resistance of stainless steels in chloride containing solutions.



ALLOY STEEL & IRON

To increase hardness and wear resistance over a broad temperature, molybdenum is added to tool- and high-speed steel. It increases the strength and hardness of cast iron, as well as increases elevated temperature strength and creep resistance. In high-strength, low-alloy steels (HSLA) molybdenum improves strength and weldability.



NICKEL BASE ALLOYS

Molybdenum is an important alloying element in high-performance nickel base alloys. The corrosion-resistant nickel base alloys find extensive use in the chemical processing, pharmaceutical, oil and gas, petrochemical, and pollution-control industries.

1980

BREAKING RECORDS

Climax and Henderson mines produce a record 100 million pounds of molybdenum; employment peaks at 3,000 at Climax and at 2,000 at Henderson.



1980



Climax Mine, Colorado



Stowmarket, United Kingdom

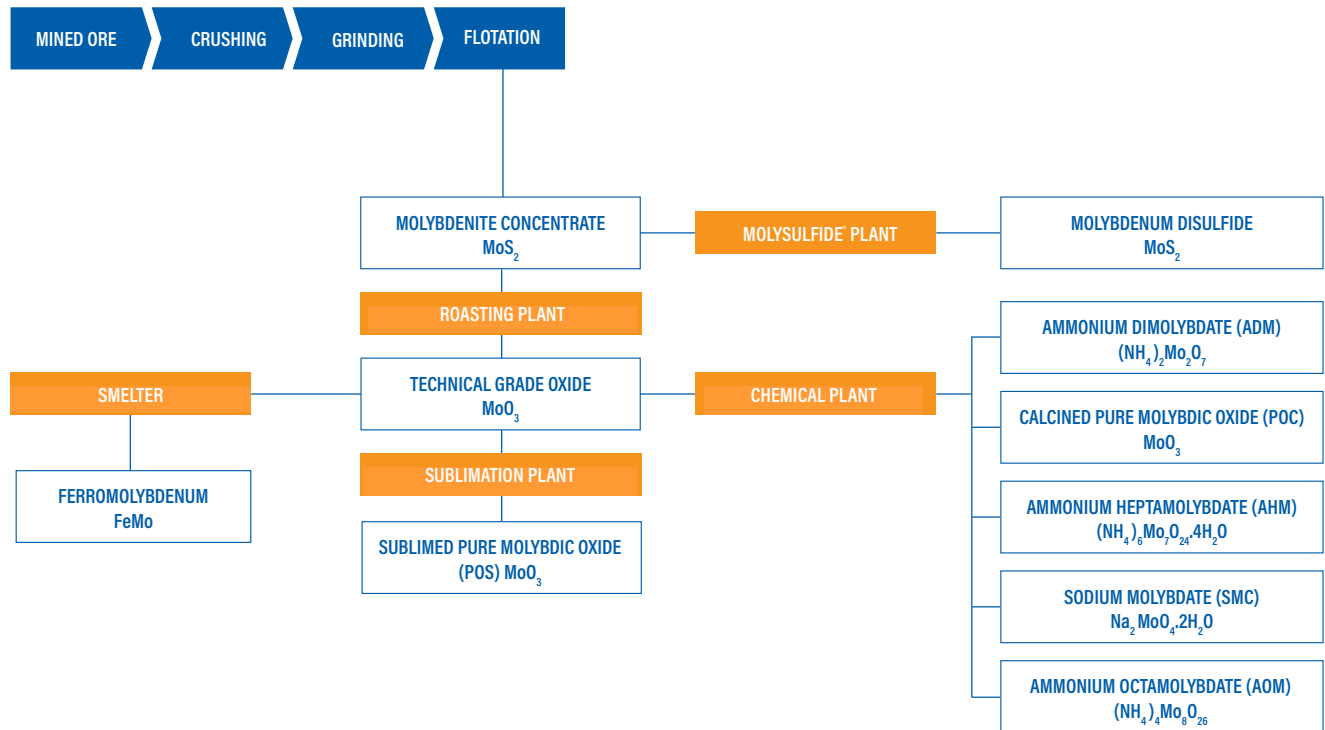
1993

AMAX MERGER

Cyprus Minerals and
AMAX merge becoming
Cyprus AMAX.

1993

PRODUCTION OF MOLYBDENUM PRODUCTS



1996

HENDERSON REPLACES TRAIN

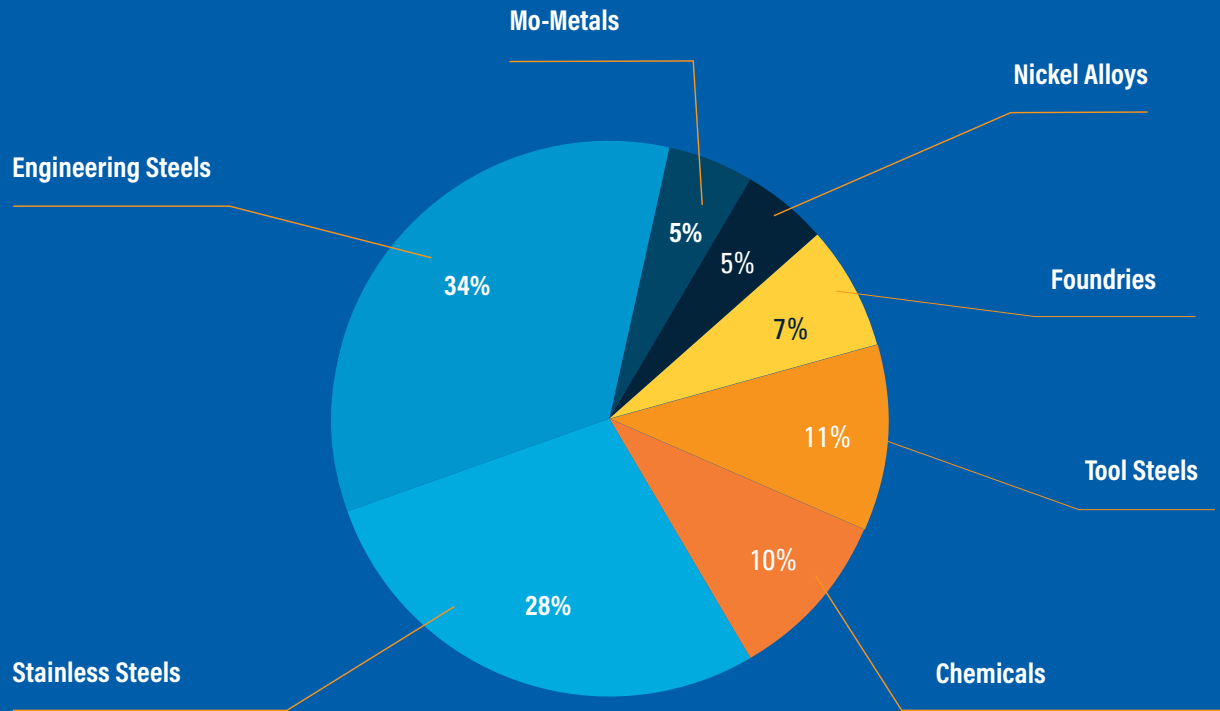
Project at Henderson commences to replace train with an underground crusher and 15 mile long conveyor system.



1996

MARKETS

The markets for molybdenum products are diverse, and we serve both the chemical and metallurgical market segments on a global basis.



SOURCE: INTERNATIONAL MOLYBDENUM ASSOCIATION'S SMR END USE 2019 EXECUTIVE SUMMARY



1999

CONVEYOR SYSTEM COMPLETE

Phelps Dodge purchases Cyprus AMAX; conversion from train haulage to conveyor system is completed.

1999



ENVIRONMENT AND COMMUNITY

Climax Molybdenum is committed to sustainable development, combining social and environmental responsibility with economic growth. We aim to minimize environmental impacts by implementing strategies based on valid data and sound science, and we work to maintain a safe workplace by having a solid framework for managing risk and meeting compliance obligations.



2000

HENDERSON MODERNIZATION COMPLETED

Over one million
hours worked without
a lost time accident.
Highest yield ever.



2000



Sierrita Mine, Arizona

2007

PHELPS DODGE ACQUISITION
FCX acquires Phelps Dodge and
announces restart of Climax.



2007

LEADING THE WORLD OF MOLY INTO THE FUTURE

At Climax Molybdenum, we mine metals and produce products for the future. With growth in demand for our products, we continue to explore opportunities to provide more molybdenum to the world while respecting our sustainable priorities and maintaining safe operations.



2012

CLIMAX OPERATIONS START

Commercial operation starts at Climax with first shipment of molybdenum in May.



Henderson Mine Empire, Colorado

 **Climax** Molybdenum
A Freeport-McMoRan Company

COLO. MINED LAND RECLAMATION
BOARD PERMIT NO. 77-242

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PRODUCTS

CHEMICAL PRODUCTS

Ammonium Octamolybdate
Ammonium Dimolybdate
Ammonium Heptamolybdate
Calcined Pure Molybdic Oxide
Sublimed Pure Molybdic Oxide
Sodium Molybdate
Molybdenum Disulfide

METALLURGICAL PRODUCTS

Ferromolybdenum
Technical Molybdenum Oxide
• Powder
• Carbon Free Briquettes

OTHER

Ammonium Perrhenate
Rhenium Pellets

LOCATIONS AND CONTACTS

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