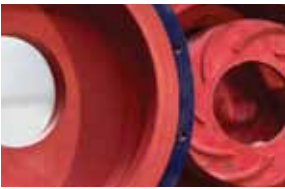
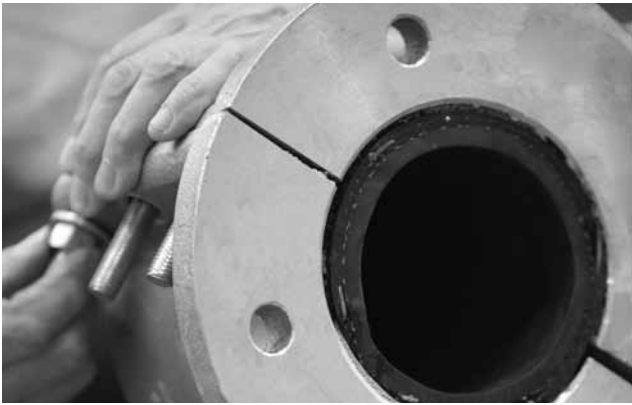


LINATEX®
Rubber Products

Linatex® Rubber Range

Excellent
Minerals
Solutions

WEHR
MINERALS



The Linatex® rubber range provides unmatched wear performance in the toughest abrasion environments.

At Weir Minerals our rubber experts are acknowledged around the world as the foremost authority in the use of premium natural rubber for abrasion, impact and corrosion resistance.

With a history dating back to the first processing of commercial rubber in Malaysia, Bernard Wilkinson invented Linatex® in the 1920s. Wilkinson's invention of Linatex® Premium Rubber revolutionised the industry.

Linatex® is a proprietary vulcanised natural gum rubber, produced through a unique compounding process, using high quality natural latex. It exhibits outstanding strength, resilience, and resistance to cutting and tearing, giving superior performance in wet abrasion.

Our sustained performance advantage in the rubber industry lies in our well-proven, patented manufacturing process. Our unique process creates a product that provides superior performance when compared to other wear materials.

Our rubber products are extremely strong, tough and resilient. When this is combined with the excellent tear, cut and abrasion resistance, our rubber products are irreplaceable in abrasion trouble spots.



Weir Minerals is a manufacturer and global supplier of high quality rubber products across a variety of industries. Our commitment to our customers is simple. Selecting the correct rubber from the Linatex® range will provide the end user with the 'best in field' performance and lowest cost of ownership.

Sheet Rubber

Our global presence combined with our vast experience across a variety of industries allows us to confidently provide a 'Complete Solution' to your needs.

The Linatex® Range

Linatex®: A 95% natural rubber that exhibits outstanding resilience, strength and resistance to cutting, tearing and abrasion. Produced using a proprietary manufacturing process, Linatex® is still ranked as the premium wear resistant rubber for sliding and wet abrasion applications. There is no equivalent.

Linatex® VS: A newly developed premium uncured natural rubber with proven differentiated wear performance when compared to other uncured natural rubber products. Specifically designed for slurry applications where hot bonding is preferred.

The Linard® Range

The Linard® range has been developed for applications where heavy duty impact and wear resistance is required.

Linard® 60: Is a uniquely designed silica reinforced natural rubber with high resilience, resistance to deformation and wear. These qualities come together to make Linard® 60 the perfect solution for many hard to solve problems. Suitable for screen panels where its superior resilience minimises plugging and blinding, skirting rubber and any applications where sticking is an issue.

Linard® HD and HDS Range: These products are natural/synthetic rubber blends specifically designed to exhibit exceptional toughness without compromising natural elasticity. The range:

- Linard® HD60
- Linard® HD70
- Linard® HDS

Formulated to withstand severe abrasion in heavy duty applications. Suitable for primary screen decks and underpans, heavy duty transfer chutes lining and heavy duty impact applications.

The Linagard™ Range

The Linagard™ range of rubber products has been developed for applications where more than just resistance to wear is required.

Linagard™ NBR: A Nitrile based rubber reinforced with silica fillers specifically formulated to give unmatched wear performance. Ideally suited for applications where there is the presence of oils, chemicals and/or high temperature.

Linagard™ BB: (Bromo Butyl) has been specifically formulated to provide excellent protection where resistance to acids, alkalis and corrosion is required to prolong service life. Suitable for rubber lining of acid tanks that experience high temperatures, or where UV and Ozone protection is required.

Linagard™ FG: A natural rubber compound that offers outstanding wear resistance. Manufactured from FDA approved ingredients, Linagard™ FG is recommended for a wide range of applications including general linings in areas of food processing, pharmaceutical and cosmetic manufacturing.

Linagard™ OSR: A high quality rubber compound designed to provide resistance to oils, wet abrasion and elevated temperatures. Linagard™ OSR's combination of wear and oil resistance is unmatched in the industry. Initially designed to meet the rigorous demands of the Oil Sands industry, Linagard™ OSR's unique properties make it adaptable for many other applications.

Lining and Fabricated Products

The Linatex® rubber range is extremely versatile and suitable as protective lining for a variety of surfaces to minimise wear and corrosion of the base structure.

Typical lining applications include:

- Chute lining
- Pipe lining
- Vessel lining
- Hose construction

In addition to our product's versatility, Linatex® rubbers are lighter and more flexible than other wear liner materials, such as steel and ceramics. This aids installation, which can be completed at one of our many service centres or on site. Linatex® rubber can be bonded quickly and permanently using our proprietary range of adhesives. Both our cured and uncured rubber products are manufactured in sheet form of varying thicknesses, allowing it to be cut or configured into any shape that the application may require.

Supported by an unparalleled worldwide network of experts, Weir Minerals' distributors and applicators are fully trained and qualified to complete rubber linings and fabrications to suit your specific requirements.

Performance Components (Moulded Products)

At Weir Minerals we manufacture high quality and complex mouldings utilising some of the largest presses commercially available. These facilities are strategically located across the globe to ensure local access to our product range.

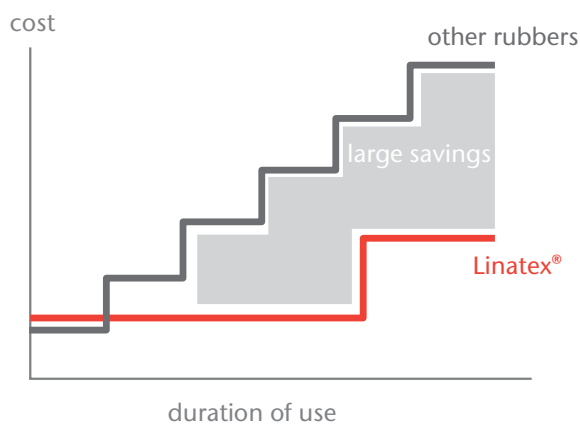
Our highly experienced engineers continuously develop innovative new moulds that utilise the unique properties of the Linatex® rubber range. This produces a final product that is precise and delivers exceptional performance. All of our moulded components are specifically designed to meet exacting process requirements across an extensive range of industries and applications.

The range of performance components consists of replacement wear parts for use in process equipment across all elements of mining and industrial processes. This includes pumps, hydrocyclones, flotation cells, screens (moulded deck panels), conveyor systems, material handling systems and grinding mills.

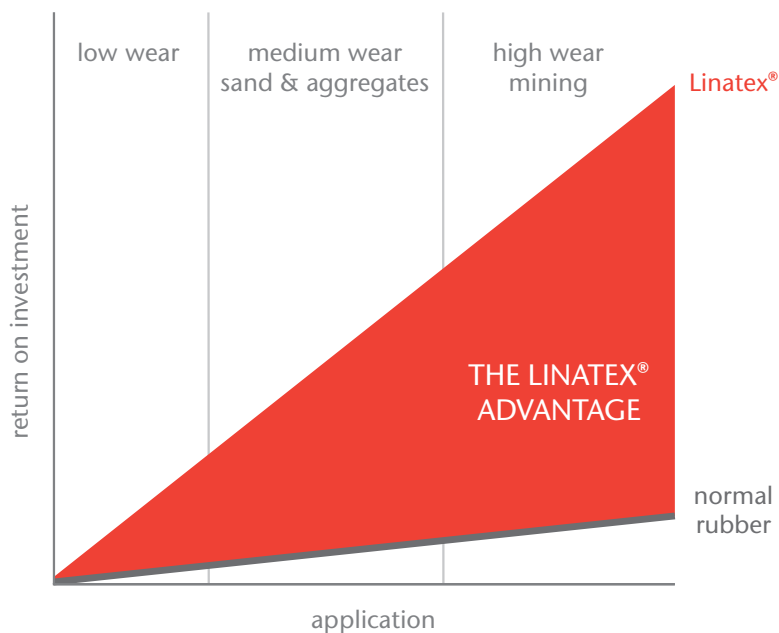
We believe that our proven track record combined with our well developed industry experience and knowledge is what differentiates our moulding facilities from other moulding facilities around the globe.



Linatex® vs Substitute Products in Wet Abrasion Environment



The Linatex® Advantage Over Normal Rubber



When using Linatex®, experience proves that the more aggressive the wear environment, the greater the return on investment.

Cost of Wear

Linatex® natural rubbers demonstrate exceptional performance over time in both wet and dry applications.

These charts demonstrate typical performance/ replacement time lines for Linatex® rubber in comparison to other rubbers.

Although the initial upfront costs of using Linatex® might be slightly higher, the superior performance of Linatex® rubber products results in a lower cost of ownership. Linatex® products pay for themselves over and over again.

What Makes Linatex® Rubber Better?

Pure natural rubber is an outstanding abrasion resistant material, particularly for handling slurries. The inherent properties of strength, resilience and cut resistance have a direct effect on wear performance.

Wear properties are at their best straight from the tree. The more work that is put into mixing the rubber, the more these properties are destroyed by shearing and breaking up the long molecular chains.

Conventional dry processing is based on shearing the rubber during mixing. This significantly changes the average molecular weight distribution and leads to a significant drop off in properties and performance. The effect is similar to starting out with a perfectly good elastic band, cutting it up into short lengths then trying to join it back together again.

In contrast, our unique method gently blends the latex, causing minimal damage to the microstructure of the rubber. This results in a product fundamentally as nature intended; strong, resilient and resistant to abrasion.



Technology Benefits

The processing of natural rubber from natural latex encompasses two distinct operations. The compounding and coagulation of the latex into uncured rubber crepe, and the pressing and curing of the uncured rubber into finished sheets.

For decades these processes have been accomplished by processing individual batches of product which, even with the utmost care, increases the potential for batch to batch variation.

Our state of the art rubber processing facility achieves three key aims:

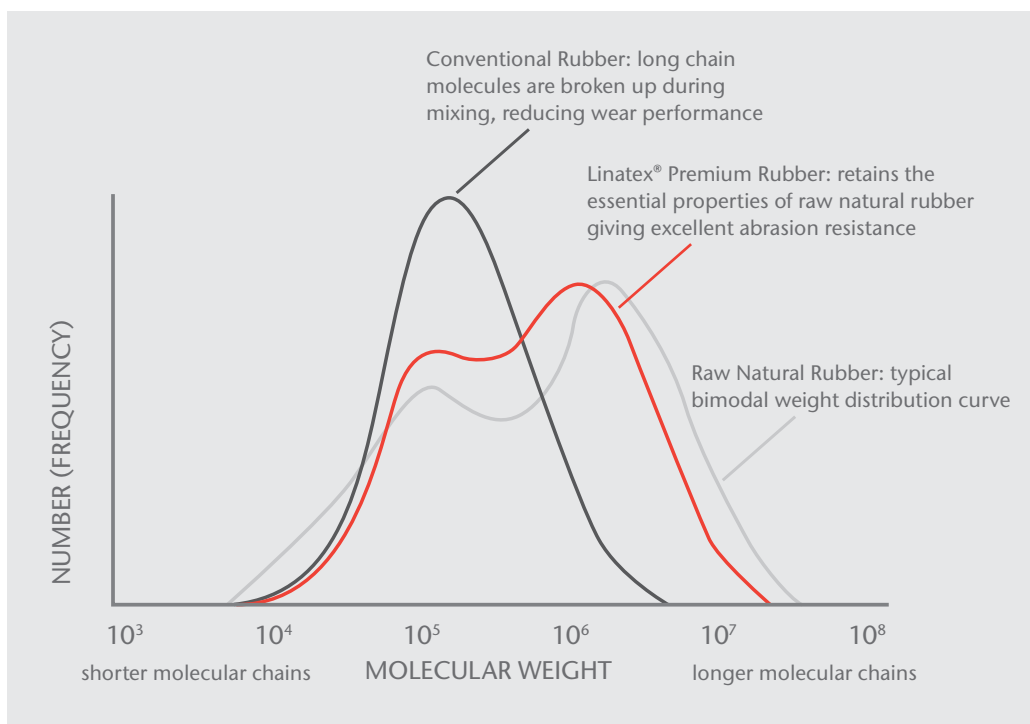
1. A 100% commitment to the preservation of superior natural rubber properties.
2. High technology automated processes, allowing improvements in volume and output.
3. Continuous processing, allowing better control, higher tolerances and improved consistency over batch processing.

The process is fully automated. Coagulation of the compound latex is now heat assisted and the drying of the crepe is accomplished using microwave energy, all within a single computer controlled process.

Advanced Continuous Press Technology

As the compounded uncured rubber moves from the process operation to the pressing phase, the thickness of each sheet is digitally controlled to achieve thickness and uniformity which is consistently repeatable, or changeable according to requirements.

Linatex® Premium Rubber is an amazing combination of natural rubber properties and twenty-first century manufacturing capabilities.





Selecting the Appropriate Rubber

To select the most appropriate compound for an application, many factors need to be taken into account. Understanding the following factors is critical to making the right selection:

Particle Size and Weight

In order to achieve the best possible operating economy and the longest service life, it is usual to increase rubber thickness within certain limits to cope with larger and heavier particles.

Impact of particles from increasing height also requires increased rubber thickness to absorb compressive forces.

As the particle hits the surface, the rubber deforms, absorbing the kinetic energy of the particle. The resilient nature of rubber returns most of this energy to the particle, causing it to rebound. There will be little or no wear and no permanent deformation.

However, if the particle momentum is too great relative to the rubber thickness, the impact force cannot be absorbed and the rubber may cut or tear.

Velocity

In impact and sliding abrasion situations there is a critical speed above which elastomers are unable to recover and absorb energy. In this case, the product's resilience cannot be used to its full extent and the surface may deteriorate more rapidly.

For velocities above 10m/s (30ft/s) consult your Weir Minerals representative.

Angle of Impact and Sliding Wear

The angle of impact of the particle relative to the wear surface is of great importance in designing chutes, hoppers and rubber linings in general. The effect of different angles on wear rate can be significant.

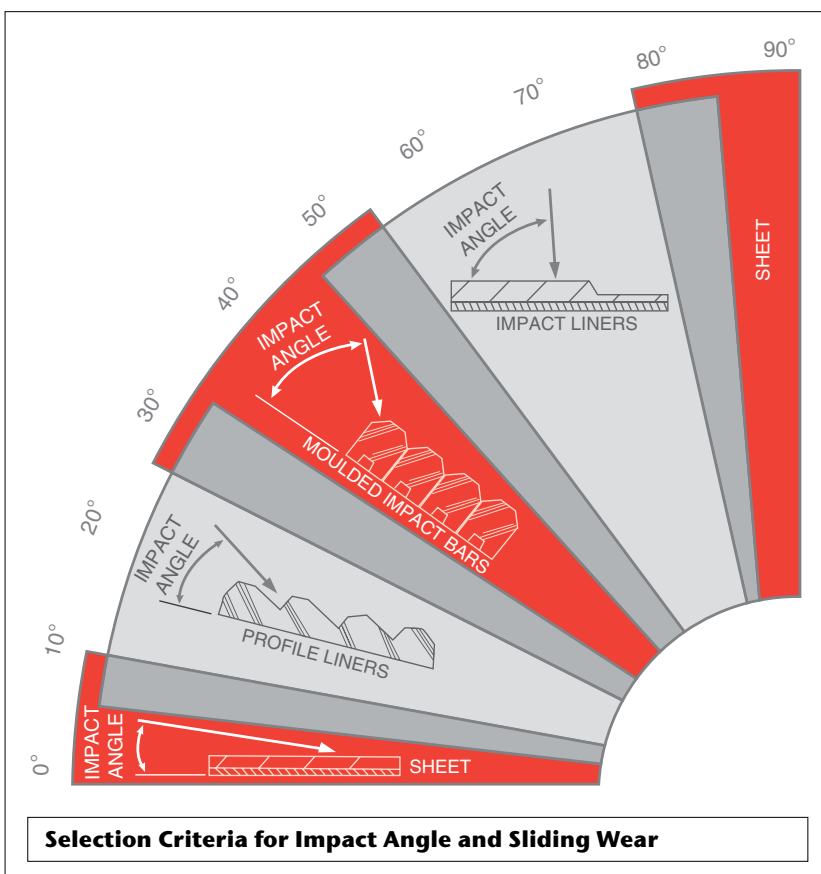
At 90° impact angle, resilience is the major factor in resisting wear, but as the impact angle reduces to around 50°, tear resistance becomes more important. At very low impact angles, slurries are best handled by flat Linatex® sheet. This applies to pulley lagging and applications involving general sliding wear, where the abrasive force is tangential or in-plane to the surface.

Rubber Hardness and Physical Properties

In broad terms, harder rubbers such as the Linard® range are preferred for combating high impact/cutting forces that often occur when handling coarse materials. Linatex® Premium Rubber, a low durometer rubber, gives excellent results when used in abrasive slurry service or sliding abrasion, where fine to medium particles are being handled.

Other physical properties can often play a significant role in optimising performance. For example, good resilience is required when screening sticky materials. Rubber elongation is the important factor in the design of fabricated seals and bellows. The key to specifying the correct rubber is in selecting the best combination of properties to suit the application.

We will work with you to select the optimum rubber for your specific application.



Temperature

The temperature of the application in which the rubber will be used is important. The temperature limits of Linatex® rubber compounds vary. For example, natural rubbers are generally not recommended in applications above 70°C/158°F, whereas synthetic rubber compounds such as Linagard™ BB and Linagard™ NBR can be used in applications where temperatures exceed 100°C/212°F.

It is also important to take into account the temperature limits of the adhesive system being used if rubber lining is taking place. Most rubber adhesive systems are limited to temperatures up to 90°C/194°F.

If you have any questions, please contact your local Weir Minerals representative and/or the relevant product specification sheet.

Chemical Environment

Different rubber compounds exhibit varying degrees of resistance to chemicals. Natural rubber, for example, is unsuitable for use in contact with hydrocarbons. In this situation, a Linagard™ formulation is more suited.

We offer a range of rubber materials which maximise potential applications in chemical environments. A chemical resistance reference chart for the Linatex® range is available upon request. The chemical composition of the slurry or application should always be verified to confirm that the rubber being selected is suitable.

Noise and Vibration

Occupational health and safety regulations in many countries require that industry complies with specific noise level standards for the protection of employees.

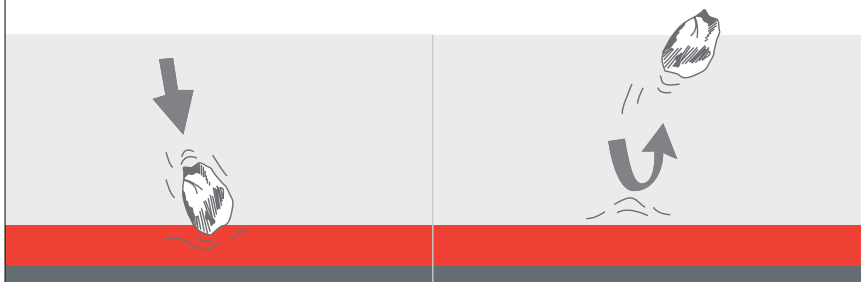
Rubber lined structures and fabrications play a prominent role in creating a more comfortable working environment. This is done by reducing noise and vibrations, often with the additional benefit of controlling dust dispersion. Weir Minerals has a large list of Linatex® reference sites on which to draw their expertise and can advise the optimum design of rubber lining and estimate noise and vibration reduction for your project.

Selecting Rubber

This diagram demonstrates the reason rubber outperforms steel in many abrasive environments. It is the ability of the rubber to absorb an impact and then return the energy from the impact back to the particle that results in higher wear performance.



Abrasive particle striking non-elastic metal surface. Conversion of kinetic energy into impact, friction and noise.



Abrasive particle striking resilient rubber surface. Rubber deforms under load and returns most of kinetic energy to the particle without rate of wear experienced above.



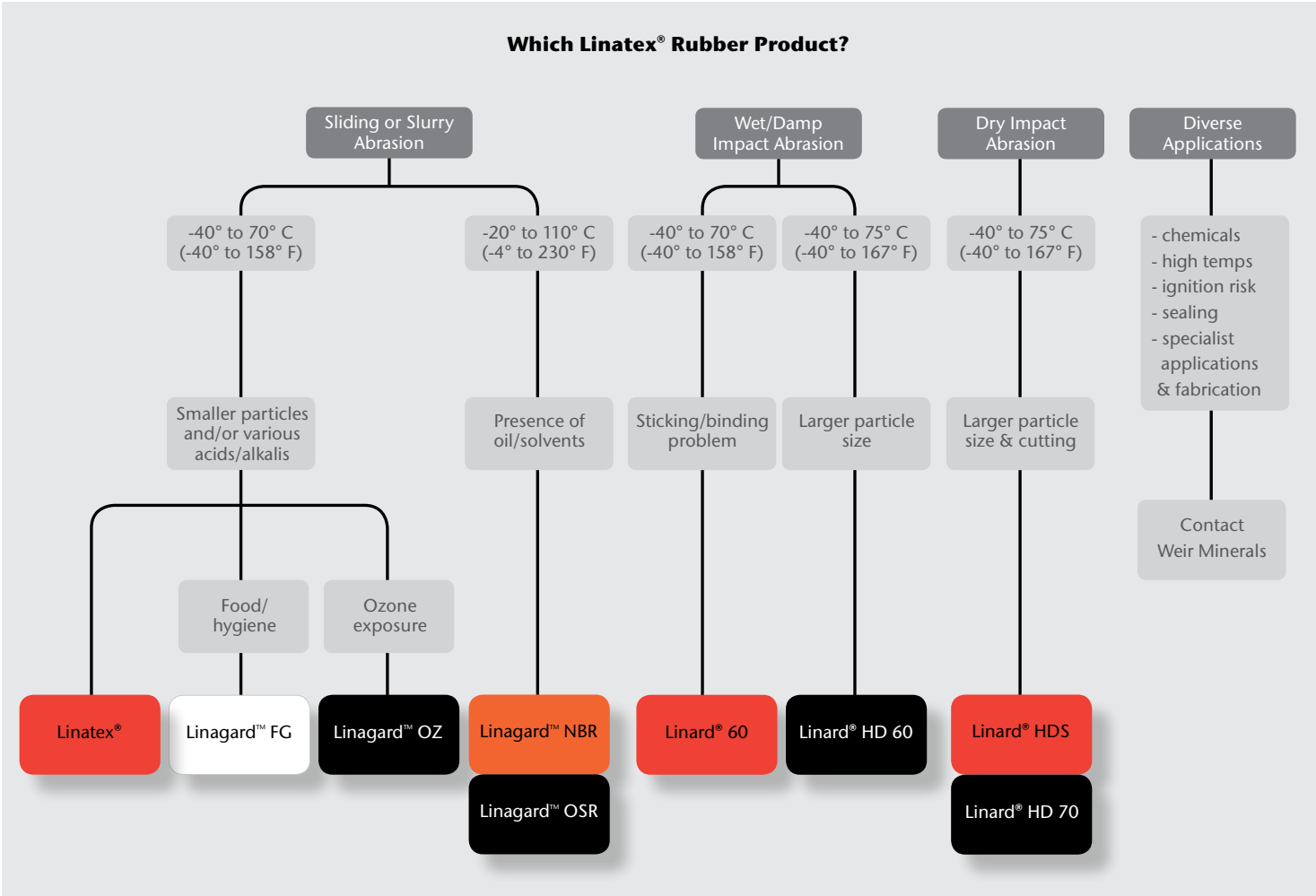


The Complete Solution

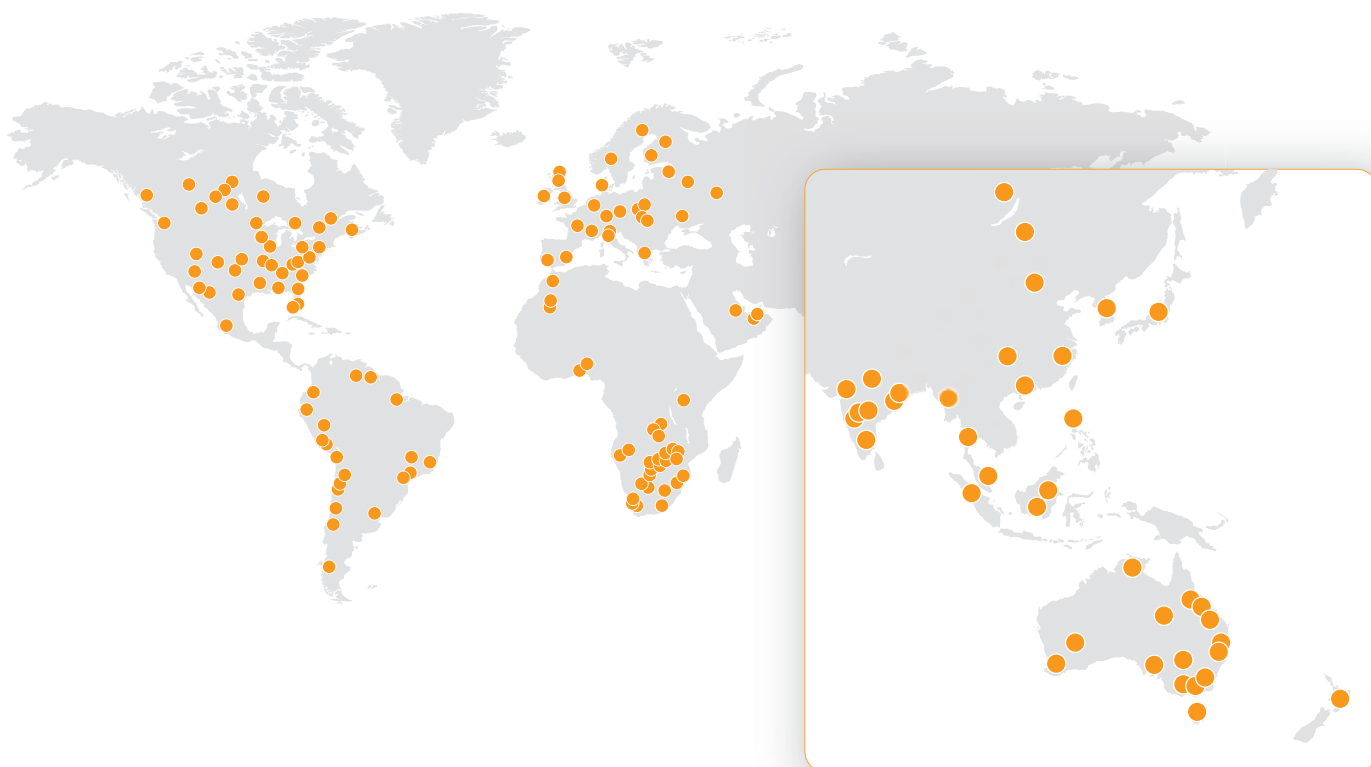
Many companies may claim to provide a rubber solution, however we deliver on this claim. We have over 85 years experience in the production, testing and application of rubber products into many industries. As a supplier and applicator of our rubber products, Weir Minerals takes full responsibility for all facets of the lining project.

We appreciate that the correct application of rubber is just as critical to the success as the quality of the rubber employed. We utilise high quality proprietary adhesives and employ highly capable rubber liners. This ensures the best in field performance that customers have come to expect from Linatex® products is achievable every time.

We have facilities in most of the major mining regions of the world, supported by an extensive list of distributors. This gives customers the reassurance that when they purchase our products, support is close by.



NOTE: This chart indicates basic specifications only. Please consult Weir Minerals for specific applications.



WARMAN®
Centrifugal Slurry Pumps

GEHO®
PD Slurry Pumps

LINATEX®
Rubber Products

VULCO®
Wear Resistant Linings

CAVEX®
Hydrocyclones

FLOWAY® PUMPS
Vertical Turbine Pumps

ISOGATE®
Slurry Valves

MULTIFLO®
Mine Dewatering Solutions

HAZLETON®
Specialty Slurry Pumps

LEWIS® PUMPS
Vertical Chemical Pumps

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