

NEWSLETTER

THE IMPORTANCE OF STEMMING IN OPENCAST BLASTING

DEAR STEMWIZE COMMUNITY,

Welcome back to another edition of the Stemwize newsletter! This month, we delve into a crucial aspect of opencast blasting: stemming. As pioneers in the field of blasting technology, it's essential to understand the significance of proper stemming techniques and their impact on safety, efficiency, and environmental sustainability.

What is Stemming?

Stemming refers to the process of placing inert material into blast holes to confine the explosive energy and improve the fragmentation and displacement of rock during blasting operations. It involves the strategic placement of stemming material on top of the explosive charge within the blast hole.

Why is Stemming Important in Opencast Blasting?

- 1. Enhanced Fragmentation:** Proper stemming ensures that the explosive energy is directed downwards, maximizing rock fragmentation. This leads to better ore recovery and reduces the need for secondary blasting, resulting in cost savings and increased productivity.
- 2. Safety:** Effective stemming helps contain the blast energy within the blast hole, minimizing flyrock and ground vibration. This is crucial for maintaining a safe working environment for personnel and preventing potential damage to nearby infrastructure.
- 3. Environmental Considerations:** By optimizing stemming practices, operators can minimize the generation of airborne dust and reduce the environmental impact of blasting operations. This aligns with sustainability goals and regulatory requirements, fostering responsible mining practices.
- 4. Improved Blast Performance:** Proper stemming ensures uniform energy distribution throughout the blast pattern, resulting in more consistent blast outcomes. This allows for better control over muckpile formation and facilitates efficient material handling and processing.

BEST PRACTICES FOR STEMMING IN OPENCAST BLASTING:

- 1. Selection of Stemming Material:** Choose inert, non-compressible materials such as crushed stone, gravel, or coarse sand for stemming. Avoid using organic materials or fine particles that may compact under pressure.
- 2. Optimal Stemming Height:** Maintain the recommended stemming height to achieve the desired confinement of explosive energy. This typically ranges from 15 to 20 times the diameter of the blast hole.
- 3. Optimal Stemming material size:** Maintain the recommended stemming size, the desired size is approximately 1/10th the hole diameter. This typically ranges from -19 mm to -25mm diameter for blast holes commonly used in South Africa. This should be a screened material with the fines fraction (-6mm) removed.
- 4. Uniform Placement:** Ensure uniform distribution of stemming material within the blast hole to prevent preferential pathways for gas expansion and rock displacement.
- 5. Monitoring and Quality Assurance:** Implement regular inspections and quality checks to verify the effectiveness of stemming practices and address any deviations promptly.

CONCLUSION

At Stemwize, we are committed to advancing blasting technology and promoting best practices for safe and efficient mining operations. By emphasizing the importance of stemming in opencast blasting, we aim to empower industry professionals with the knowledge and tools to optimize their blasting processes while minimizing environmental impact.

Thank you for your continued support and dedication to excellence in mining.



Best Regards,
Stemwize Team