Improving Industrial Efficiency: Nonmetallic Mineral Production

Nonmetallic mineral production covers a wide variety of final products, including cement, bricks, glass, ceramics, and mineral wool. Many of the processes used to make these products require energy intensive grinding and heating to homogenize and then create finished products from the raw material. Energy conservation measures related to these types of processes may also be similar across sectors.

A Berkeley National Laboratory publication by Worrell et al (2008a) recommended several ways to significantly reduce electricity usage and achieve measurable savings throughout your facility by improving the efficiency of the top energy intensive production processes.

Upgrade Preparation, Separation, and Finish Grinding Systems

- Replace traditional ball mills with roller mills or presses to reduce electrical demand.
- Install a control system to optimize the grinding process, increasing production and saving 3-8% on electricity.
- Install a high efficiency classifier/separator to reduce over-grinding of particulates that are properly sized, saving on raw materials.

Optimize Peripheral Fan, Motor, and Pump Systems.

- Use variable speed drives to better match speed to load, saving up to 40% on electricity usage.
- Install high efficiency notched belts on motors to reduce slippage and save up to 10% on electricity.

Take Care of Your Air.

- Maintain and repair your compressed air systems to minimize leaks, saving up to 20% on electricity.
- Replace compressed air systems with blowers where appropriate.

NYSERDA's Industrial and Process Efficiency Program has **OVER $100 MILLION AVAILABLE** to improve productivity and your bottom line

To learn more about how NYSERDA can help you significantly reduce electricity usage and achieve measurable savings throughout your non-metalic mineral manufacturing process, call **1-866-NYSERDA,** email us at **IPEoutreach@nyserda.org** or visit **www.NYSERDA.org/IPE**.

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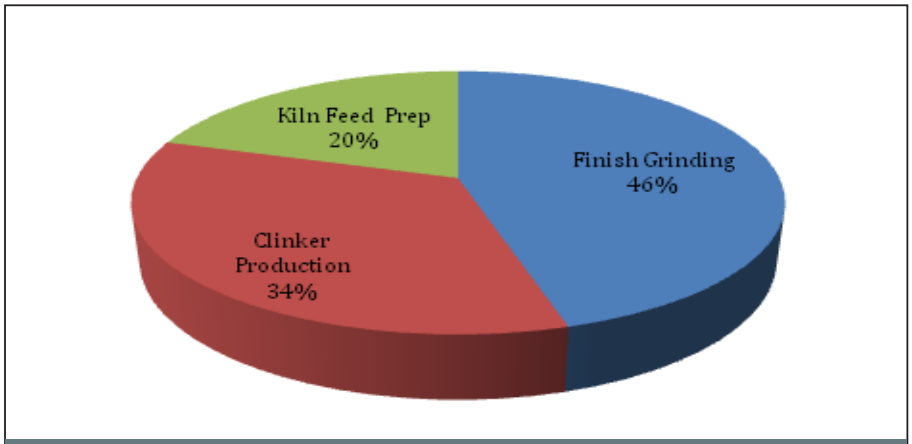
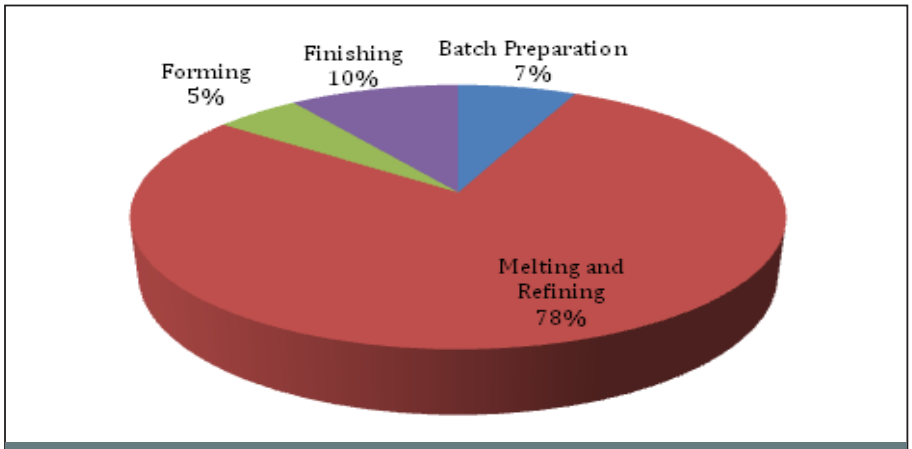
According to the Berkeley National Laboratory (BNL) publication by Worrell et al (2008a) on energy savings opportunities in the cement industry, the most electricity-intensive process steps are finish grinding, clinker production, and kiln feed preparation. Overall, grinding is the most electricity-intensive cement process. Significant energy savings opportunities may be available by replacing traditional ball mills and using high efficiency particle classifiers.



Electricity Intensive Steps in Cement Manufacturing

Another BNL (2008b) publication focused on energy conservation strategies for glass manufacturing, including improving the efficiency of melting and refining furnaces and peripheral fan and motor systems.



Electricity Intensive Steps in Glass Manufacturing

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References

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