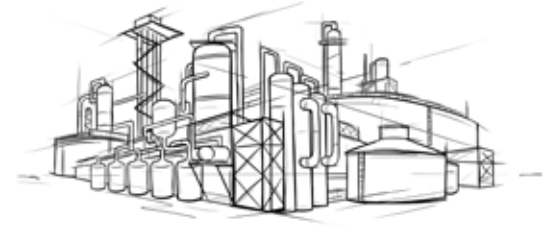
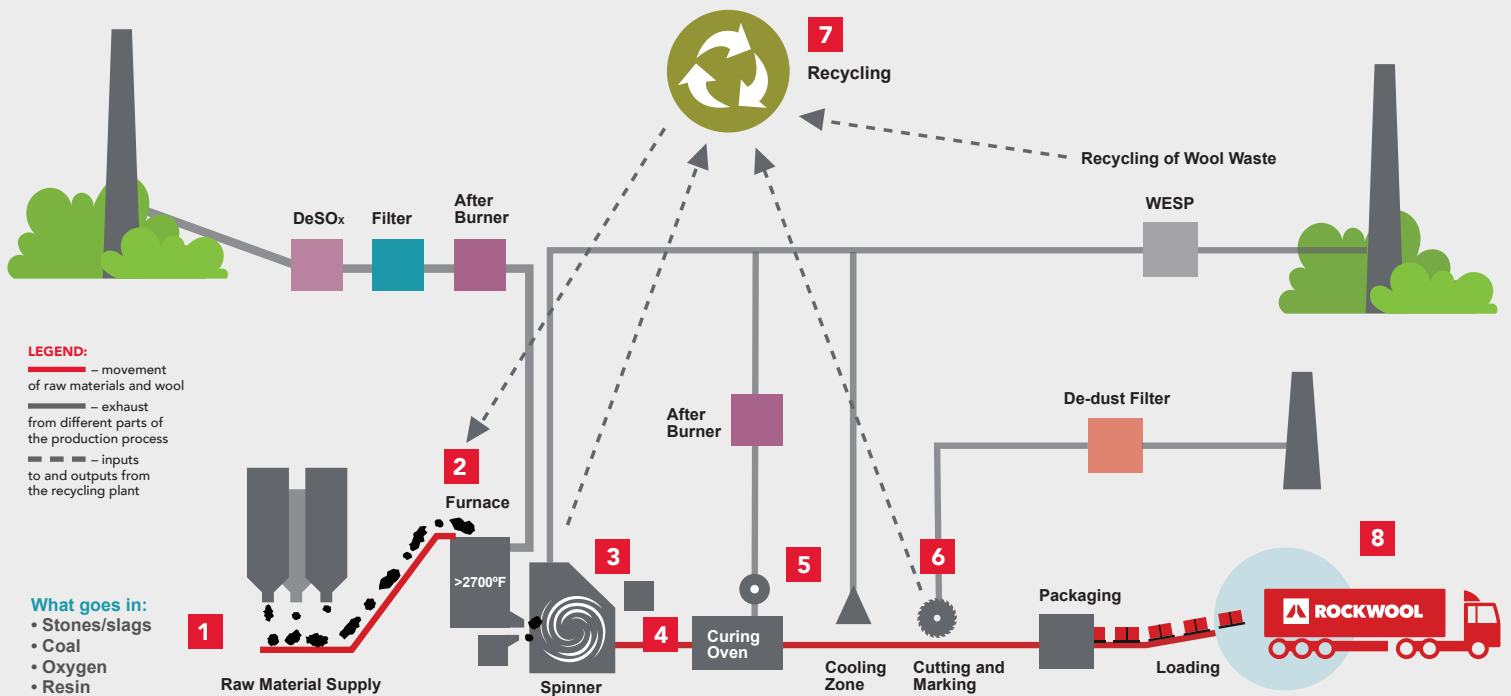


Production Process in Ranson, West Virginia



The ROCKWOOL stone wool insulation production process consists of eight steps

This document provides in-depth information on each step involved beginning from raw materials through to the packaging and shipment of the products seen in store.



* The above graphic is a visual representation only.

1. Material Handling / Charging

- Raw materials (stones) will be transported to the site via truck, where they are stored under roof and fed via enclosed conveyors to indoor silos. Materials are individually weighed and mixed before they are taken to the furnace.
- Coal is delivered and loaded in a closed system in pre-milled form, where the storage silos are equipped with highly efficient filters.
- Natural gas will be delivered to the site by pipeline and is used to heat air in both the melting and

curing processes, as well as for specific abatement equipment.

- Oxygen will be delivered to tanks or produced onsite from the ambient air and is used as an enrichment in the melting furnace.
- Binder will be delivered pre-mixed, meaning that we will not mix chemicals or produce resins at the Ranson facility. The resin is a pre-made material from an external supplier and it is classified as non-hazardous material.

2. Melting

- In the furnace, pre-heated raw materials are mixed with coal, natural gas and combustion air. Coal and natural gas are required to achieve the necessary energy to convert the raw materials into "melt." Temperatures reach >2700°F.
- A heat recovery system uses waste energy from the furnace to heat the buildings. Natural gas-fired boilers will be installed as a backup to be used only when the furnace is not in operation.

3. Spinning

- The melt flows from the furnace and is applied to the spinning wheels. The fibers are drawn from the spinning wheels with a powerful air stream that is blown into the spinning chamber.
- While that is happening, binder and cooling water are added to the flow of fibers. De-dusting oil gives the wool water-repellent properties and reduces any dust during cutting and in the finished products.

4. Wool Collection

- Cured wool is recycled back into the spinning chamber where new fibers are produced. These fibers are collected on a large rotating drum and dropped onto a conveyor in a thin layer.
- The wool is uniformly layered into the desired thickness. The wool fibers are then set up as either single or dual density depending on the product (batts or boards).

5. Curing / Cooling

- The wool is then conveyed into the curing oven, where water is evaporated and the binder is cured by hot air supplied from two natural gas-fired burners.
- After leaving the curing oven, the wool is conveyed through a cooling section where ambient air from the production hall cools it in preparation for cutting.
- All exhausts from spinning, curing and cooling processes are directed to the filters to remove particulate matter (PM) prior to emissions leaving the factory.

> Have a question?
Send us an email at
ransonquestions@rockwool.com



Looking to find out more about how ROCKWOOL stone wool is made? Watch our advanced manufacturing plant tour video by visiting rockwool.com/west-virginia/factory-operations-and-production/

6. Cutting and Marking

- After the cooling zone, the wool is cut to size.
- Dust from cutting is captured in a bag-filter and transported to the internal recycling plant.
- The product is marked (branded) on either the top and/or bottom of the wool as required to meet building codes.

7. Recycling Plant

- After cut products are visually inspected, any waste or non-conformities are dropped into a granulator and recycled directly back to the spinning chamber (step 3).
- The indoor recycling plant is used to recover internal wool waste from the process and on occasion also receives clean mineral wool products returned from ROCKWOOL customers.

8. Packing / Unit Load

- Product is stacked and packaged in polyethylene film and palletized before being transported to storage areas for finished goods.
- Loading of finished goods into trucks takes place from the loading area either directly off the line or from storage.