

MANUFACTURING PROCESS FOR KELZYME



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Kelzyme Research and Development Center LLC 1000 State
Route 400 Mill City NV 89418

An overview of the mining practices and processes in extracting and packaging Kelzyme@ at the mine site in Mill City Nevada

DESCRIPTION OF DEPOSIT:

The deposit holding the aggregate marketed as Kelzyme is approximately 80 million years old, deposited during the period of an inland sea. The deposit known as Kelzyme contains high levels of calcium and trace minerals. The deposit occurs in layers of varying thicknesses directly related to the evaporative cycles of the ancient inland sea. The deposit of Kelzyme contains fossilized sea kelp. The deposit known as Kelzyme also contains evidence of volcanic hydrothermic activity in the form of mineralized vents and fissures inside the formation. The surface area of the deposit currently under development encompasses approximately 900 meters square and extends in depth to approximately 500 meters.

DESCRIPTION OF MINING PROCEDURE:

Kelzyme is a mined aggregate product. The Kelzyme Research and Development Center LLC is located at 1000 State Route 400 approximately 2.33 km E of the Mill City, Nevada (town site as surveyed in 1862).

Kelzyme is extracted in a standard surface mining operation in which soil and rock overlying the mineral deposit (the overburden) are removed. It is the opposite of underground mining, in which the overlying rock is left in place, and the mineral removed through shafts or tunnels. The exact method of extracting Kelzyme would be called contour stripping which involves removing the overburden above the mineral seam near the outcrop in hilly terrain, where the mineral outcrop usually follows the contour of the land. Contour stripping is often followed by auger mining into the hillside, to remove more of the mineral. This method commonly leaves behind terraces in mountainsides.

The order of the processes in extracting Kelzyme are as follows:

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DRILLING:

The 6 x 6 drill pattern used for extracting Kelzyme was found to be optimum for the hardness and stratification of the material. 4" holes were bored to 20' in depth.



BLASTING:

The above described bores are then loaded with a series of blue sausage like explosive packs. The packs contain approximately 25 lbs of Fortrell Pro X blasting agent which consists of Ammonium Nitrate. Once loaded these charges are electronically detonated using high explosive caps. This detonation initiates the rapid oxidation of the blasting agent which shatters the rock into manageable sizes of approximately 2' minus. With an Ammonium Nitrate only blasting agent there is no residue left over from the oxidation process.

MUCKING:

The process of removing the aggregate after the blast and moving it away from the high-wall is called mucking. During the initial crushing run at the Kelzyme mine site this was done with a Komatsu PC 220 excavator.



TRAMMING:

The process of moving the mucked material from the muck pile to the crusher for processing is called “Tramming”. During the initial run at Kelzyme Research and Development Center this was performed using a CAT 980 C Loader with an 8 cubic yard bucket.



CRUSHING:

Once trammed to the crusher ore bin the 2' minus material is gravity fed from the wheel loader bucket into a rotary type crusher where it is reduced to 2" minus. The specific machine used in the initial production of Kelzyme was a diesel powered Terex 7100.



FINE CRUSHING:

The Terex Model crusher that feeds the 2" Minus aggregate to a cone crusher via conveyor belt for reduction to 3/16" minus. The Model of Cone Crusher used in the initial production run of Kelzime was a Terex Pegson 1300 Max Trax.



CLASSIFICATION:

Once processed by the Terex Pegson 1400 Cone Crusher the 3/16" minus aggregate is classified according to size using a Terex Powerscreen. The specific model used during this process was a Terex Powerscreen Chieftan 1400 S. During the initial production run of Kelzime only two classifications of aggregate were produced on the mine site. These were 3/16" minus and 3/8" screen reject which is commonly referred to as fractured pea gravel.



STOCKPILING:

The 3/16" minus aggregate used in Kelzime is transported by the discharge belt of the Power Screen 1400 and then gravity fed onto a secondary discharge conveyor commonly referred to as a stacker. The material then accumulates a height 7 feet below the head pulley of the stacker per MSHA regulations. When this elevation has been attained the stacker is moved away from the accumulated pile and the process begins anew. Once the full width of the stacker footprint is used the aggregate is pushed into a singular pile via Dozer. The machine used during the initial production run of Kelzime was a CAT D9H. The screen reject IE: 3/8" pea gravel was transported to a secondary stockpile using the CAT 980 C wheel loader. Once the initial production run was completed the 3/16" minus stockpile was covered for protection from the elements and to avoid contamination with a poly tarp at the Kelzime Research and Development mine site.



OFF-SITE PROCESSING:

220 Tons of the 3/16" minus aggregate was loaded into 20 cubic yard end dump trailers using the CAT 980 C wheel loader. The material was then transported via Interstate 80 by semi-truck approximately 30 miles east to Winnemucca, NV where it was stockpiled. It was then reduced to 325 mesh by a milling contractor and packaged the 325 mesh material into poly bulk bags for storage. A Raymond milling process was used to reduce the Kelzyme to 325 mesh. At this time the 325 material is stored in 2000 lb poly bulk bags awaiting distribution or packaging into smaller sized bags.

The material bagged in 2000 lb Poly bags was then transported to a storage facility at 6066 Old Jungo Rd in Winnemucca, Nevada.

It was offloaded by forklift on pallets and carried inside the warehouse for storage until the product is distributed or packaged into smaller sized bags. Currently there is no system in place to package Kelzyme. Kelzyme does not degrade in storage and there is no pre-determined time the product is stored inside the warehouse. It is stored until sold. There are no other products stored in the warehouse with the bagged Kelzyme.