

BreakQuik

When You're Stuck Between A Rock & A Hard Spot

Drill your holes

Drill your holes using either a air or electric motor drill, with the appropriate drill bit size. When dealing with large diameter holes, position them closer together, this help accelerate the breaking time. Holes should not be drilled any further than 10 times the hole diameter. Example, 1 inch would equal 10"x10" hole pattern. Once you have all of your holes drilled, you can then begin the mixing process.

Mixing of BreakQuik

1. Prepare the following...

- (a) Container : For the BreakQuik powder
- (b) Mixer : Hand mixer
- (c) Paddle : Attach to mixer, for blending
- (d) Water meter : Breaker or measuring cylinder
- (e) Protector : Gloves, safety goggles

Mixing Method

2. First pour approximately 1.5-1.7 liters of water into container and one bag of BreakQuik and mix until all lumps are dissolved. Mix one bag of BreakQuik with water at a time with a mechanical mixer. When the texture of BreakQuik is too thick add a small amount of water and mix, this should make it easier to pour the product into the holes. Mixing should take approximately one minute with your mixing drill.

Mixing water

3. Make sure you use clean cold water when mixing with BreakQuik. When weather is hot you should use ice cold water, this helps the BreakQuik remain fluid.

Standard Quantity

4. The quantity of BreakQuik to be used for cracking differs with the hole spaces and diameters. In Table 5, the reaction between the quantity of BreakQuik used and the hole diameter is indicated for a hole of 1 m depth, where BreakQuik was mixed at a water ratio of 30%.

Table 5 Quantity of BreakQuik used per hole depth and the hole diameters.

Hole diameter	(mm)	36	38	40	42	44	46	48	50
BreakQuik	(kg/m)	1.7	1.9	2.1	2.3	2.5	2.8	3.0	3.2
Hole diameter	(inch)	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2		
BreakQuik	(Lb/yd)	3.1	3.7	4.4	5.1	5.8	6.7		

The average quantity of BreakQuik used per 1 m³ is 5 kg for the material to be broken when dealing with virgin rock (8.4 lb/yd³). For fragmentation and reinforced concrete, an amount of 2 to 4 times of that is required. Design the hole diameter and the spacing by also referring to table 5.

6. Filling the holes with BreakQuik

The hydro-chemical reaction begins as soon as you mix the BreakQuik with water. Every effort should be made to load holes within 3-4 minutes of mixing. It will thicken up and start to heat if you wait too long. When filling your holes start from the farthest point and work your way back to the closest point, this way you're not walking over your holes. If you notice a partially filled hole that has not been touched for more than ten minutes, do not continue to fill, move onto your next hole. If any of the holes that you drilled have a pocket at the top make sure you do not fill with mortar. If you accidentally fill a pocket remove excess mortar from the pocket to keep it from overheating.

7. Caution

After you have completed filling in all of your holes, make sure you do not walk over loaded area or look down any holes for at least 10-12 hours. This is because the product may overheat and cause a blowout. A blowout is a rapid steam release. The blowout can throw powder and wet mortar into the air. If conditions indicate that a blowout is possible, a temperature probe can be placed in the first loaded hole. If a rapid rise in temperature occurs that exceeds 140 degrees Fahrenheit (60 degrees Celsius) cover the loaded area with a heavy tarp that has ropes attached. Depending on the type of rock you are trying to break it can take up to 48 hours for the process to complete. The weather may change during that time, it's a good idea to cover your holes with a tarp incase it rains. BreakQuik absorbs water and weakens the chemicals, which slows down the process. When covering your holes, make sure the tarp does not directly touch the holes, it will cause overheating.

8. Time required for crack formation

The time required for crack formation in material depends on the temperature. The lower the temperature the longer it will take for you to see cracking formation in the rock. The higher the temperature the quicker the rock will crack. The biggest factor is relative to the strength of the rock or concrete. The longer the product sits in the holes the more it expands and stresses the rock if there is till resistance. The Hydro-chemical reaction begins at once after mixing the BreakQuik with water. During the setting and hardening of this product a remarkable solid expansion occurs. This reaction can produce more than 300kg/cm², of expansive pressure in the filled holes. Usually, the cracks appear between 8-24 hours after filling, depending on the amount of BreakQuik used. The cracks will spread further and become wider and wider by time for about a week. The tensile stress which is created by more than 300kg/cm² of expansive pressure that occurs inside the hole is much greater than the tensile stress of 20-40kg/cm² in concrete and 40-100kg/cm² in rock. As the BreakQuik generates its expansive stress; the material to be cracked undergoes a process of (1) crack initiation, (2) crack propagation, (3) the increase of crack width. Therefore, this fracture mechanism is distinguished from a breakage by blasting.

9. Packaging

BreakQuik is available by the box which holds 4 bags each bag holds 10kgs. For large jobs you can also purchase by the pallet.

10. Shelf Life

When stored properly away from moisture in cool dry conditions shelf life is typically 2 years. BreakQuik can remain usable for 3-4 years. The older material is often mixed with fresher material with no noticeable loss of strength.

