BETONAMIT®
The original.

TECHNICAL MANUAL

Betonamit has been used safely and with great results by thousands of contractors and homeowners all over the world. Safe use depends on following instructions and **wearing safety goggles** at all times. Although non-toxic, **Betonamit** is caustic, and can cause severe eye injury if splashed into eyes while mixing or pouring.

Also, the chemical reaction of **Betonamit** and water generates heat. If this reaction goes too quickly, the temperature can go above the boiling point of water before all the water has chemically combined with the **Betonamit**. This can result in a steam-driven explosion which blows the **Betonamit** from the hole with sudden force.

To avoid blowouts, follow the instructions regarding mix water temperatures and hole sizes, as told later in the manual. **Always wear safety goggles**, and never use drill holes larger than 1½" diameter. Blow dust out of the holes after drilling and keep **Betonamit** cool before use.

Hole Depth

1. Maximum Hole Depth is 10 feet.
2. Minimum Hole Depth is 4 times hole diameter;
   for example, 5" with 1¼" hole, 6" with 1½".
3. Holes shallower than 4 times diameter are likely to blow out.
4. In reinforced concrete, drill 85 to 90% of its depth. In ledge, drill as deep as you want to remove. In boulders, drill ⅔ to ¾ of the rock's thickness.

Hole Pattern

1. Holes must be drilled so as to allow a free face for the **Betonamit** to push toward. For example, drilling at 45° angle in a flat surface of ledge will push it upwards, but drilling straight down might not allow anywhere for the pressure to go.

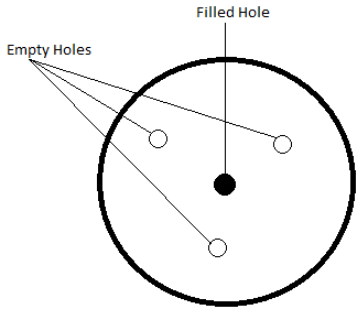
2. To demolish a slab without pushing out the walls which surround it, drill a cone shaped pattern at the center and fill these holes first. The cone will pop upwards and create a free face.

3. Hole pattern depends on tensile strength of what you're breaking, amount of rebar if any, and the size of the pieces you want when you're done. This can often be determined by experiment; a good starting point is to space holes one foot on center in rows one and a half feet on center. In non-reinforced concrete, holes may be spaced as far apart as 24".

4. Hole pattern also depends on how fast you need results. More holes spaced closer together will give faster break times and smaller pieces, but this costs more in labor and **Betonamit**.

5. Boulders are much easier to break than reinforced concrete or ledge, and drill holes can be spaced further apart, especially if breaking speed is not critical.

6. When removing part of a slab, you will want to prevent cracks from spreading into the rest of the slab. Drill holes 6" on center in a line between the "demolish" section and the "keep" section, then fill every third hole. The empty holes form weak points and prevent cracks from spreading into the "keep" section.



7. Empty holes can also be used to direct cracks -they cost less than filled holes. For example, if you want to break a boulder into thirds, you can use this pattern:

This will save money compared to filling all the holes but will slow down the breaking time.

These instructions are essential for safe and effective use of Betonamit

Temperature Chart		
Rock or Concrete Temp	Water Temp(°F)	Hole Size
25 to 40 °F	75 °F max	1½" dia.
41 to 57 °F	70 °F max	1½" or 1⅜" dia.
58 to 72 °F	65 °F max	1¼", 1⅜", or 1½" dia.
73 to 80 °F	60 °F max	1¼" or 1⅜" dia.
81 to 95 °F	50 °F max	1¼" dia.

When rock or concrete is above 73 °F, use 40 ounces per 11 LBS (5kg).
When over 95 °F cool holes with cold water,
then blow out before installing Betonamit.

1. Hole temperature can often be reduced by waiting until late night or early morning.
2. When rock or concrete is above 65°F, keep the **Betonamit** as cool as possible before use.
3. When rock or concrete is above 85°F, store **Betonamit** in a cooler with ice or in a refrigerator before use.
4. When rock or concrete is above 73°F, do not mix more than one 11 LBS (5kg) container at a time.
5. Measure the rock or concrete temperature - **DON'T GUESS!** Tie a string onto the thermometer and lower it into the drill hole.

Mixing Betonamit -Type R (Liquid)

1. Read this manual page for page before using **Betonamit**.
2. **Wear safety goggles** and clear the area of all non-essential personnel.
3. Measure temperature of drill holes.
4. Dump one 11 LBS (5kg) container of **Betonamit** into a plastic mixing bucket.
5. Add 34 to maximum 40 ounces (1.0 to max. 1.2 liter) of clean water of proper temperature to plastic mixing bucket. See Temperature Chart on preceding page.
6. Begin mixing immediately with ½" electric drill with mixing attachment.
7. **Betonamit** will seem dry at first - ***do not add more water!***
8. ***Once mixing begins, you have only 5 minutes to finish mixing and fill holes***. Do not stop to take a phone call or fool around. Longer mixing times increase likelihood of blowouts.
9. Fill holes as quickly as possible. Do not use a funnel. Do not plug holes or place heavy objects on holes.
10. Cover holes with a tarp if people will remain in the area -especially in hot weather, when blowouts are more likely to occur.

Notes:

1. Never fill glass or metal containers with **Betonamit**, or any container which widens towards the bottom.
2. Never pump **Betonamit**.
3. Mixing by hand lengthens mix time and is more likely to result in a blowout.
4. When rock or concrete is above 73°F, use 40 ounces per 11 LBS (5kg) container.
5. 1⅜" diameter holes are the best choice.

Estimating Quantity Required

11 LBS (5kg)

Each 11 LBS (5kg) container will fill:

7½ linear feet of **1½**" hole | 10 linear feet of **1⅜**" hole | 11 feet of **1¼**" hole.

For 1½" holes: # of holes x depth in feet divided by 7.5 = # of 11 LBS (5kg) containers needed.

For 1⅜" holes: # of holes x depth in feet divided by 10 = # of 11 LBS (5kg) containers needed.

For 1¼" holes: # of holes x depth in feet divided by 11 = # of 11 LBS (5kg) containers needed.

Always wear safety goggles when working with Betonamit.

Additional Notes

1. **Betonamit** is usually not cost effective in slabs less than 5" thick. A pavement breaker or hydraulic hammer works well, unless noise is a problem.
2. The most cost-effective demolition technique for ledge is often a combination of **Betonamit** (to produce cracks) and a hydraulic hammer. Drill holes can be spaced out further in this case.
3. **Betonamit** must be used in holes; pouring it into existing cracks in rock will not work.
4. **Safety goggles must be worn at all times by everyone in the area**. When using the temperature chart, bear in mind that the actual drill hole temperature may be much higher than the surrounding air temperature if it is in the sun or affected by nearby heat from machinery or from drilling the holes.
5. Cold temperature, hard rock, or holes spaced too far apart can lengthen breaking times. If it did not break overnight - wait a while before assuming failure. **Betonamit** continues to increase pressure for 3 days.
6. If **Betonamit** drops below freezing, the reaction will stop, but it will start up again once it thaws.
7. If mixed **Betonamit** begins to steam in the bucket, add ½ gallon or more of water, stir, and throw it away. You've allowed too much time to pass from beginning to mix.
8. If filled holes start to smoke or steam, that is a sign they may be about to blow out. Immediately clear the area of people. The vapors are only steam and are not hazardous or toxic in any way.
9. Make sure that everyone working with **Betonamit** understands the possibility of blowouts and has read this technical manual thoroughly.

Ledge, boulder, and concrete will vary in strength, but there is nothing on Earth too strong for Betonamit to break, as long as there is a free face to break towards.

What Can Cause a Blowout?

1. Using too large a hole diameter. *See temperature chart.*
2. Using too warm mix water. *See temperature chart.*
3. Using too little water, especially when rock or concrete is above 73 F.
4. Lots of dry dust in holes can absorb water from the mixed **Betonamit**, causing same as #3 above.
5. Too much time passing between beginning to mix and filling holes.
6. Mixing by hand can result in #5 above.
7. Guessing at drill hole temperature instead of measuring it.
8. Guessing at water temperature instead of measuring it.
9. Holes that are too shallow. Depth must be 4 times diameter or more.
10. Allowing the **Betonamit** powder to become too hot before mixing with water.
11. A "know-it-all" attitude that causes some people to ignore this manual instead of reading it thoroughly, cover to cover.
12. Holes drilled closer than 10" apart in soft rock or concrete, in hot weather.

Always wear safety goggles when working with Betonamit.