Product Manual of Expansive Mortar



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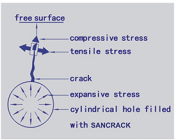
SPLIT.AG
CRACK.AG

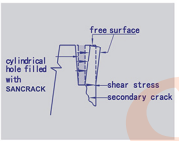


PRODUCTS

As a leading, professional manufacturer of EXPANSIVE MORTAR in the world, **Xiamen Sansung Co.** has been engaged in developing the safe, economical, controllable, silent and highly Expansive Mortar with the latest non-explosive demolition technology over twelve years.

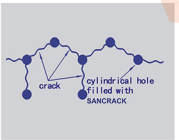
EXPANSIVE MORTAR is an alternative to explosive and other dangerous materials, which applies to granite and marble quarrying, concrete cutting,concrete demolition, rock breaking, mining and so on. After EXPANSIVE MORTAR is mixed with water and poured into the holes, it expands with a force over 200Mpa overcoming the tensile strength of any rock or concrete.

Other terms by which EXPANSIVE MORTAR are known including Non-Explosive demolition agent, Soundless Cracking Agent, Expansive Agent, Expansive concrete, Soundless Chemical Demolition Agent and other related variations of these terms.



TECHNOLOGY

EXPANSIVE MORTAR has been proven to be effective substitutes for the use of explosives. EXPANSIVE MORTAR is powdery materials that will expand considerably when mixed with water. This expansion, when occurring under confinement, generates significant expansive pressures. These pressures are sufficient to break up rock and concrete when the EXPANSIVE MORTARS is confined in a borehole or a series of boreholes. Experiments have been conducted with EXPANSIVE MORTAR to learn more about those variables that tend to hamper or change EXPANSIVE MORTAR performance. Results show that the amount of mixing water and the ambient temperature are the most important variables in influencing the generation of EXPANSIVE MORTARS expansive pressures.



The preparatory procedures involved in using EXPANSIVE MORTAR are similar to those followed in traditional blasting techniques. As with explosives, boreholes must be drilled to contain the EXPANSIVE MORTAR. Beyond this, however, the similarities diminish. The EXPANSIVE MORTARS must be mixed with a measured quantity of water and poured into the boreholes. It will then begin to hydrate, generating heat and crystallizing while hardening and expanding. If hydration takes place under confinement, significant expansive pressure will result. The pressures can be of sufficient magnitude that, after a period of time, they will fracture the confining material. Depending on the type of EXPANSIVE MORTAR, significant expansive pressure may be generated as quickly within 2-8 hrs.

APPLICATION

A. Granite, marble, sandstone, limestone, quartzite quarrying.

B. Rocks pre-splitting, fracture, cutting, demolishing and removal.

C. Controlled demolition or cutting concrete.

D. Fracture and demolition of the concrete buildings and structures.

E. Excavation of trenches and foundations.

F. Underground excavation and removing boulders.

G. Marine excavation including underwater operations.

BENEFITS

Amazing Expansive Capability

Amazing expanding capabilities breaks reinforced concrete, rock, marble, granite, limestone or any material you are working with. Depending on the material you are working on.

Easy to use

No formal training required before use. Just mix with water and then fill into holes. Once mixed with clean water, SANCRACK can be poured into holes pre-drilled in the material you are working with It can be poured into the same holes that dangerous explosives are usually placed in.

Non-Explosive & Environmentally Friendly

Much safer than explosives, with NO Noise, NO Vibration, NO Flying Rocks and NO Toxic Gases.

Works Efficiently and Cost Effectively

No Special License, training or equipment needed.

HOLE DESIGN TABLE

Material to be cracked	Hole design		
	Hole diameter	Hole spacing	Hole depth
Soft stone	30-38mm	200-300mm	105% H
Hard stone	30-40mm	200-300mm	105% H
Rock cutting	30-38mm	200-400mm	100% H
Plain concrete	30-40mm	300-500mm	80% H
Reinforced concrete	35-40mm	150-300mm	90% H

REFERENCE CONSUMPTION

Hole diameter (mm)	30 32 34 36 38 40 42 44 46 48 50
Consumption (kg/m³)	1.2 1.3 1.5 1.7 1.9 2.1 2.3 2.5 2.8 3.0 3.2
Hole depth	One meter

TYPES

Depending on temperature, there are four types.

HSCA Types	Temperature (Celsius)	Temperature (Fahrenheit)
Type--1	25-40 ℃	77-104 °F
Type--2	10-25 ℃	50-77 °F
Type--3	-5-10 ℃	23-50 °F
Type--4	40-50 ℃	104-122 °F

LNSTRUCTIONS

Drilling

1. Drill holes using an air hammeHHr drill and appropriate drill bit specific to the rock type.

2. Holes should be drilled no further than 30-60cm (1ft-2ft) apart.

Note: In reinforced concrete recommended no more than 20cm (8") apart.

3. Recommended hole diameter 30mm – 50mm (1½" – 2.0"). Depth would be 70-90% of the way depending on the type of rock/material to be removed.

Mixing

1. For regular safety reasons and mixing small amounts by hand, it is recommended to use rubber gloves.

2. In a bucket, combine 1.5 Liters of water to one 5kgs bag of SANCRACK or pour water and SANCRACK as a rate of 1:3 units by weight.

3. Mix well, using a drill and paddle is recommended. If mixing with a stick or other method, make sure powder is completely dissolved into the water. Mix to a slurry.

Filling

1. Clean holes before filling using air hose remove excess dust from drilling.

2. SANCRACK slurry should be poured into holes within 10-15 min. after mixing. Do not fill to the top, only fill the holes about 15mm ($\frac{1}{2}$" to 1") from the top.

3. Mix well and pour into holes while agitating the hole to make sure no air gaps are in the hole. Example: Using a piece of rod or stick to poke holes.

4. For Horizontal holes, a grouting pump would be most reliable to poor.

Cracking Or Cutting Time

The cracks appear in 40-60 min. after filling, depending on the weather,rocks, and concrete type. The cracks become wider within time (maximun 48 hours expanding time).

The following objects are to be prepared:

a. Demolition agent;
b. Clean and cold water;
c. Plastic or metal bucket;
d. Beater or wooden rod for mixing;
e. Safety goggles;
f. Rubber gloves;
g. Dust-proof mask (Recommended);
h. Helmet (Recommended);
i. Thermometer (Recommended).

PACKING

1. First step: plastic bags of 5kg each.

2. Second step: 4 bags in one carton.

3. Third step: 50 cartons in wooden cases (1Mt/cases).

- **Keep in dry storage.**
- **Keep out of children.**
- **One year Shelf life.**

TIPS

1、Make sure you select the correct temperature specific to the weather.
2、In order to obtain best results, it's advisable to carry out experiment at first.
3、When using SANCRACK with highly absorbent materials like concrete, the holes should be dampened before the mortar is poured, making sure however, that there is no presence of water.
4、Large diameter holes positioned closer together accelerate breaking times.
5、Make sure the holes are clean and no water and residues left in the holes, or use high–pressure air hose to clean out.
6、Fresh mortar should be poured into holes within 5 minutes after mixing.
7、Do not mix more than 2 bags (10 kg) for each lot at a time.
8、The feeding depth should be 100% of the pre–drilled holes.
9、The workers need to take synchronized operation, especially to hard stone. The quantity of holes each worker responsible to fill has to be moderate. Taking synchronized steps when mixing, stirring and filling will lead to maximum expansive stress with all holes expand at the same time.
10、Never use glass or metal containers for mixing.
11、When mixing, if SANCRACK begins to steam in container, add some water to dilute and process properly.
12、Cover holes to avoid direct sunlight. Example a tarp to provide shade or wet hay.

SAFETY PRECAUTION

1、Make sure that everyone working with SANCRACK understands the possibility of blowouts, and has read the technical instructions thoroughly.

2、SANCRACK is a highly alkaline product, pH reaches 13 after contact with water and can cause severe irritation to mucous membranes, especially eyes. Skin and eye contacts with SANCRACK must be rinsed off with large amounts of cold water immediately without rubbing. Consult a doctor quickly.

3、Wear safety goggles and rubber gloves during SANCRACK handling, mixing and filling. Dust–proof mask is recommended in poorly ventilated areas such as tunnels or mines.

4、Plug the holes immediately after filling and cover the holes with straw mat. Keep your face away from the holes filled by mortar. Stay away from filled holes at least 3 hours after filling to avoid blow–out shot. Keep people away from job site after filling .

5、Warm or bubbling mortar is forbidden to fill into holes. Once filled holes start to smoke or steam, that is the sign they may be about to blow out. Clear the area of people immediately.

6、Keep people away from jobsite after filling holes. In case of people have to remain in the area, cover filled holes with a tarpaulin.

SGS

MSDS

Test Report **No. SH8015997/ CHEM** Date: Feb. 22, 2008 Page 1 of 1

Client's name 客户名称	XIAMEN SANSUNG IMP. & EXP. CO. LTD
Client's address 客户地址	NO.13, JINZHONG ROAD, HULI DISTRICT XIAMEN, CHINA
SGS Ref No.	MN2008/0201SH
Product Name 产品名称:	Expansive mortar
Product Code 产品编号:	38160000
End Uses 最终用途	Marble & granite quarrying, Concrete demolition and so on
Composition/Ingredient 成份/原料	Silicon Dioxide(5.96%), Aluminum Oxide(2.21%), Calcium Oxide(82.56%), Magnesium Oxide(3.09%), Sulfur Trioxide(0.37%), Ferric Oxide(1.11%), Sodium Carbonate(2.57%), Calcium Carbonate(2.13%).
Job Receiving Date 收到日期:	Feb.3, 2008
Preparation Period 准备时期:	Feb. 3– 19, 2008

Service Requested 所需服务
Material Safety Data Sheet for the Product 化学品安全技术说明书

SUMMARY 摘要
The contents and format of this MSDS/SDS are in accordance with REGULATION (EC) No 1907/2006, EU Commission Directive 1999/45/EC, 67/548/EEC. 本化学品安全技术说明书的内容和格式根据欧共体 REGULATION (EC) No 1907/2006, 1999/45/EC 及 67/548/EEC 编写而成。

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Signed for and on behalf of SGS-CSTC Chemical Laboratory	Signed for and on behalf of SGS-CSTC Chemical Laboratory
Ella Zhang, Section Manager	Sandy Hao, Lab Manager

SHCHEM 1756280

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