

高效无声破碎剂

EXPANSIVE MORTAR

FOR DEMOLISHING AND CUTTING ROCKS AND CONCRETES



Demolition of concrete and reinforced concrete
钢筋混凝土结构的拆除



Demolition of rock and natural stone
岩石的分裂与破碎



It's not Explosive

它不是炸药

- | | |
|--------------------------|--------|
| • Controlled Demolition | 破碎过程可控 |
| • Dust-Free | 无粉尘 |
| • Vibration Free | 无震动 |
| • No License Required | 无许可证限制 |
| • No Flying Debris | 无飞石 |
| • No Toxic Fumes | 无有害气体 |
| • Environmental Friendly | 环保 |
| • Silent Operation | 无噪音 |
| • Rapid Usability | 易操作 |
| • Economy | 经济 |
| • Safety for Vicinity | 安全 |



Block quarrying in the natural stone industry
石材开采

What is Splitstar® ?

Splitstar® is a highly expansive mortar to demolish and cut rocks and concretes. It swells when poured into a hole and develops a pressure higher than 80MP(800kg/cm²) on the hole walls after mixed with clean and cold water, thereby breaking them open. Splitstar® is environmentally friendly because it releases no toxic fumes or harmful substances of any kind. So it is called a Highly Soundless Cracking Agent(HSCA). It is non-explosive; therefore supervision of trained personnel is not essential.

Demolition and cutting are allowed to be used according to working scheme. Splitstar® can gain high yield for mining of granite, marble etc. it is very to crush or remain reinforced concrete structures on demand during demolition. Easy to operate at job site.

我工厂长期从事高效无声破碎剂研究和生产，目前拥有一条年产量20000吨高效无声破碎剂的旋窑生产线，工厂还设立最先进的实验室，具有最完备的分析，检测仪器。我们的高级工程师和教授们从八十年代初开始研究发明了高效无声破碎剂，经过不断地完善和改进产品的性能，产品质量已达到，甚至已优于国外同类产品（如：意大利的FRACK-AG，日本的BRISTAR等）。

随着国内包括国外许多国家对环境安全，污染的控制越来越严格，特别是传统爆破作业使用的炸药，由于没有安全保障，危险性大，并且使用时噪音，粉尘，飞石，震动等环境污染大，现在使用已越来越受限制，特别在城市，石化等场所已被禁止使用，所以高效无声破碎剂需求量日夜增加。成为一种非常理想的安全破碎用品。



TYPES AND PROPERTIES OF Splitstar®

A. Depending on usable temperature, there are four type of Splitstar® to be supplied. 我们开发了适应温度从零下十度到五十度高温的对应型号的产品

TYPES 型号	USABLE TEMPERATURE 适用温度
SCA-1 (summer)	25-40°C (77°F -104°F)
SCA-2 (spring & fall)	10-25°C (50°F -77°F)
SCA-3 (winter)	-5-10°C (25°F -50°F)

B. Splitstar® is a kind of inorganic materials consisted of calcium, silicon, iron and aluminum in the form of powder.

C. Splitstar® expansive mortar should be filled into the holes on rock or concrete. The expansive force can break the rocks or concrete within 2-8 hours.

D. Splitstar® are packed in moisture proof boxes and each box contains four plastic bags, each of which Loads 5 kg Splitstar® powder. That is 20 kg Splitstar® powder per box .The guarantee period is one year under dry storage.

包装：塑料内袋5公斤/1包，纸箱或编织袋装20公斤（4包）。请储存在干燥的地方。



CRACKING DESIGN OF Splitstar®

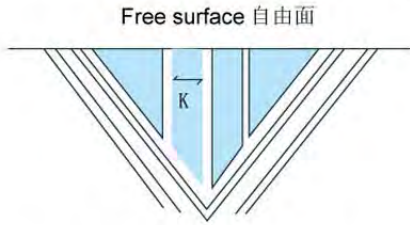
Hole diameter and hole space /distance, hole diameter 30-50mm hole space in accordance with the following formula, $A=KD$ Where , A-hole space (MM), D-Diameter(MM) K-Cracking coefficient

K value of rocks and concrete 岩石和混凝土K值参考数据

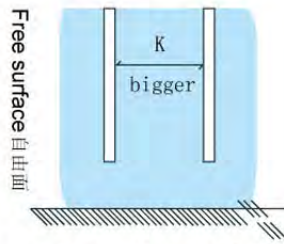
MATERIALS TO BE CRACKED 材料	K Value	STEEL CONTAIN (KG/M3) 钢筋含量
Soft Virgin rocks 软岩石	10 - 16	
Middle hard virgin rocks 中硬岩石	8 - 12	
Hard virgin rocks 坚硬岩石	5 - 10	
Plain concrete 素混凝土	10 - 16	0-30
Reinforced concrete 钢筋混凝土	8 - 10	30-60
	6 - 8	60-100



K value changes along with the geometry and shape of rock & concrete



The less free surface, the smaller K value.
自由面越少, K值越小



The more free surface, the bigger K value.
自由面越多, K值越大



Pre-drilled hole design table 钻孔设计参考数据

Materials & purpose 材料	Hole design 孔位设计		
	Diameter 孔径(mm)	Hole spacing 孔距	Depth 深度
Soft stone quarrying 软岩石	28-38	200-300mm	105% of Height
Hard stone quarrying 中硬岩石	30-40	200-300mm	105% of Height
Stone cutting 坚硬岩石	28-38	200-400mm	90% of Height
Plain concrete demolition 素混凝土	30-40	300-500mm	80% of Height
Reinforced concrete demolition 钢筋混凝土	35-40	150-300mm	90% of Height

Reference consumption of Splitstar® 消耗量参考数据

Hole diameter 孔径(mm)	30	32	34	36	38	40	42	44	46	48	50
Consumption 消耗量(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 钻孔深度(m)	1										

How do you use Splitstar® 高效无声破碎剂的使用方法如下

Splitstar® is a powder that must be thoroughly mixed with clean water before use, in a ratio of 30% of the overall weight. Put the required amount of water into a large container (1.5 litres for each 5 KG package), carefully add the powder to water and stirring it to make the mortar smooth and lump-free. Pour the mortar into the prepared holes within 5 to 10 minutes. It's easy to pour Splitstar® into slope horizontal holes. Make sure the holes are dry before pouring mortar. If the hole is not dry, the leak out might happen. Use a piece of soft sponge to cover the hole when the leaking out happens, but do not plug the hole. Cover the holes with a waterproof sheet when it rains.



Instruction for use at job site

- Drilling: Drill holes with the pneumatic rock drill according to the design of demolition.
- Preparation for mixing: 10-20 litres plastic or metal barrel, enough Splitstar®, rubber glove, protective glasses
- Mixing: pour about 1.5 liter clean water into a container and slowly add one bag of Splitstar® into the water. Keep stirring the mix until it becomes lump-free slurry.
- Filling: dry the holes before filling, fill the Splitstar® into the holes within 10 minutes after the mixing with water. For horizontal holes, you may re-pack Splitstar® into cartridges and fill them into the holes, or fill the holes with thick paste of Splitstar®, and you may also choose grouting pump.
- Cracking: the crack appears in 2-8 hours after filling. The speed of cracking depends on the temperature and the hardness of rocks and concretes.



- 准备好搅拌用的桶, 棍子, 凉水和破碎剂
- 带好安全防护用的眼镜, 橡胶手套, 口罩和安全帽。

开始操作:

- 在要破碎的物体上根据设计钻孔。
- 向桶内加入相当于高效无声破碎剂重量的30%的凉水。
- 向桶内倒入高效无声破碎剂粉, 最好一次一包, 最多2包。
- 迅速将桶内破碎剂搅拌成均匀流动性好的浆状, 在5分钟内将破碎剂浆灌入钻好的孔内。
- 物体将在3-8小时内静静的裂开, 就这么简单!





Safety Precaution 安全防护

SAFETY PREVENTION AGAINST BLOW-OUT SHOTS

- a) **SplitStar**® is a highly alkaline product, pH reaches 13 after contact with water and can cause severe irritation to mucous membranes, especially eyes.
- b) Wear safety goggles, rubber gloves and helmet during **SplitStar**® handling, mixing and filling.
- c) Wear a dustproof mask when using **SplitStar** in poorly ventilated areas such as tunnels or mines.
- d) Do not get your face close to or stand near filled holes for at least 3 hours after filling completion.
- e) Keep people away from job site after filling.
- f) Shelter the holes from job site after filling.
- g) Skin contact with **SplitStar**® must be rinsed off with large amounts of cold water immediately.
- h) Eye contact with **SplitStar**® must be rinsed off with large amounts of cold water immediately without rubbing. Consult a doctor quickly.



高效无声破碎剂的主要成分是CaO，其与水搅拌后发生化学反应生成CaOH，在这个反应过程中，温度升高放出大量热量，并最终形成强碱性（PH=13）的浆体。温度升高同时放出大量热量，将有可能引起破碎剂的浆喷出孔外，并同时会喷出温度很高的热气。如果没有按规定的温度里使用了正确的型号，或孔径过大，或搅拌用的水的温度高，在这些情况下，都有可能出现喷孔或喷气现象。一旦出现一次喷孔，将连续出现3-4次，其它孔都有可能会喷孔。

怎样预防喷孔和针对喷孔必须做好的防护措施请使用前阅读包装袋上的安全说明。

我们的产品从八十年代开始，就已经广泛应用于国内的各种大理石，花岗岩石材矿山开采，从九十年代开始城市旧建筑拆除工程，地基开挖，地铁，隧道，道路，气，石化等各方面的基础建设中遇到的破碎工程都普遍用到高效无声破碎剂。同时，我们已从九十年代开始出口，现我们的高效无声破碎剂已远销到北美，南美，欧洲，中东，印度，东南亚等四十多个国家。

高效无声破碎剂不是炸药，它实际上就是石灰CaO(90%)加少量添加剂，因此是非常安全，环保的产品。