



## **Rock Splitting Expansive Mortar**



### **Mixing:**

**RockFrac®** NEDA is a powder that must be thoroughly mixed in a ratio of 30% of the overall weight with clean **ice cold** water before use.

Pour 1.5 US qts (48 oz) (1.45 L) of clean **ice cold** water into a container, then gradually add one bag (5kg) of **RockFrac®** NEDA powder into the water and stir until obtaining smooth, lump-free slurry.

### **Loading:**

**DON'T USE IF TEMPERATURE OF  
ROCK / CONCRETE IS ABOVE 70F**

For vertical holes, pour **RockFrac®** NEDA mixed with water into hole directly. For horizontal and slant holes, insert a slightly smaller plastic pipe into the hole, and then fill the expansive mortar into the pipe slowly, withdrawing the pipe from the hole simultaneously. Quickly block the hole with a cap after feeding.



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### **C a u t i o n s :**

- a) Make sure that there is plenty of clean and cold water and towels on the job.
- b) Make sure the temperature of the holes meet the requirement before loading.(70F OR BELOW)**
- c) Make sure the holes are clean and no water and residues are left in the holes, use high-pressure air to clean out so the loading depth is 100% of the pre-drilled holes.
- d) There should be a sufficient number of workers on the job to take synchronized steps when mixing, stirring and filling so that the expansive mortar will be poured into the holes within 10 minutes after mixing is completed, this will guarantee that the maximum expansive stress of all holes occurs at the same time.
- e) If the mortar start to get warm and bubble before finish loading, don't fill it in the holes, it must be discarded, it is forbidden to fill into the holes and it could cause the mortar to blow out of the holes.



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## **Safety Precautions:**

The following warning has to be observed closely when dealing with **RockFrac® NEDA**.

- a) Safety goggles and rubber gloves and **MUST** be worn at all times while preparing, mixing and loading **RockFrac® NEDA**.
- b) Keep your face away from the loaded holes. Cover the holes with a tarp after loading. Stay away from loaded holes at least 3 hours after loading.
- c) In case of contact with the products in your eyes or on exposed skin, either in dry or wet form, wash the area immediately with large amounts of cold and clean water without rubbing.  
Consult doctor quickly.



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### **About the Product:**

**RockFrac® NEDA** is environmental friendly *Non-Explosive Demolition Agent*, which is popular in the international quarrying and demolition market. When mixed with clean, cold water turns to mortar and poured into pre-drilling holes in rock and concrete, it swells and exerts expansive capabilities on the hole-wall at a unit value of more than 50 Mpa (500kg/cm<sup>2</sup> or 7,251.885 pounds/ square inch.) which is strong enough to cut and crack concrete, marble and granite after a certain period with no noise, no vibration, no ash, no toxic gas and no flying rocks. It is safe, environmental friendly, non-explosive, no need to train professional personnel, easy to use and controllable.

The universal type, **RockFrac® NEDA** with its unique composition is the latest technical innovation and development, which greatly improves the production efficiency, simplifies the operation at the job site, applies to all-weather condition, and yields stronger expansive strength and faster reaction with water. It is no need for customers to purchase and store various specifications for different temperatures. After repeated trial tests, the quality properties of **RockFrac® NEDA**, like performance ratio, consumption ratio, cracking efficiency and so on, prove to be remarkably good and some are even better than those of traditional products from top international suppliers. It is an excellent alternative to the traditional non-explosive demolition cement.



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## **Application Scope:**

**RockFrac® NEDA can be applied in various situations:**

- 1. Granite, marble, sandstone, limestone, quartzite quarrying and cutting**
- 2. Rocks pre-splitting, fracture, cutting, demolishing and removal**
- 3. Concrete structures demolition and rocks removal when explosion not allowed**
- 4. Fracture and demolition of the concrete buildings and structures**
- 5. Rocks cutting for road construction**
- 6. Excavation of trenches and foundations**
- 7. Underground excavations and removing boulders**





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### **Advantages:**

- 1. Cutting blocks of Marble and Granite more economically and cost effectively than traditional wire-sawing way.**
- 2. Easily split and fracture mass rock to isolated small blocks that can be more easily demolished or crushed.**
- 3. It can be used to process blocks from Marble and Granite, the shape of blocks in a quarry can be controlled.**
- 4. It can achieve maximum production time, output and efficiency in quarrying and mining in safe conditions.**
- 5. Labours can be more productive and cost-effective.**
- 6. Its application to concrete demolition does not cause any damage to the environment of cities.**



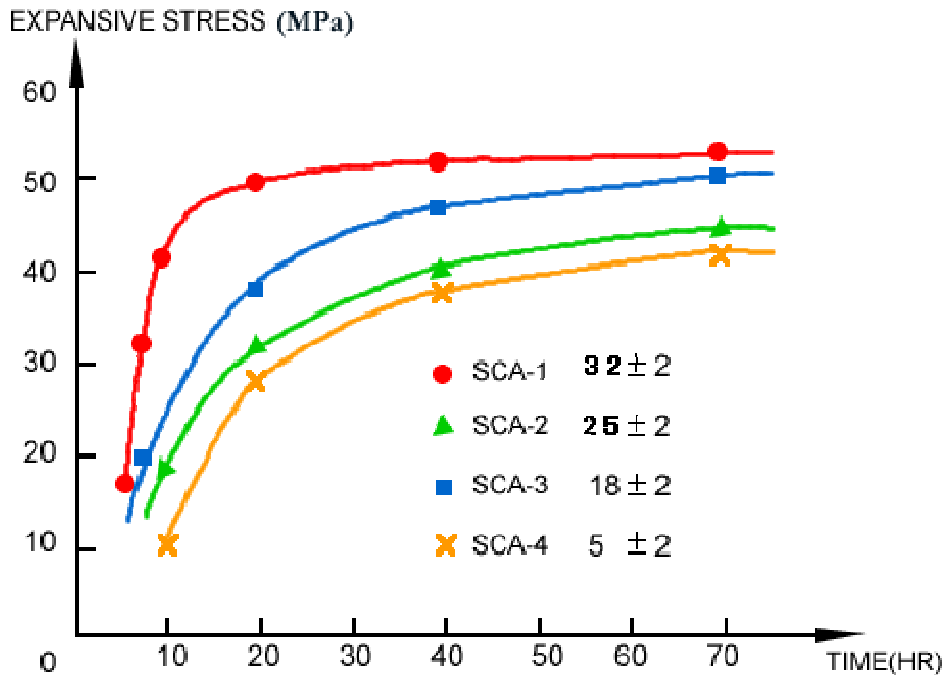
# Rock Splitting Expansive Mortar

## Properties:

**RockFrac® NEDA** appears like a greyish white powder and is composed of multi-structured inorganic particles. There is no content of any harmful composition.

### Factors affecting the expansive pressure of RockFrac® NEDA

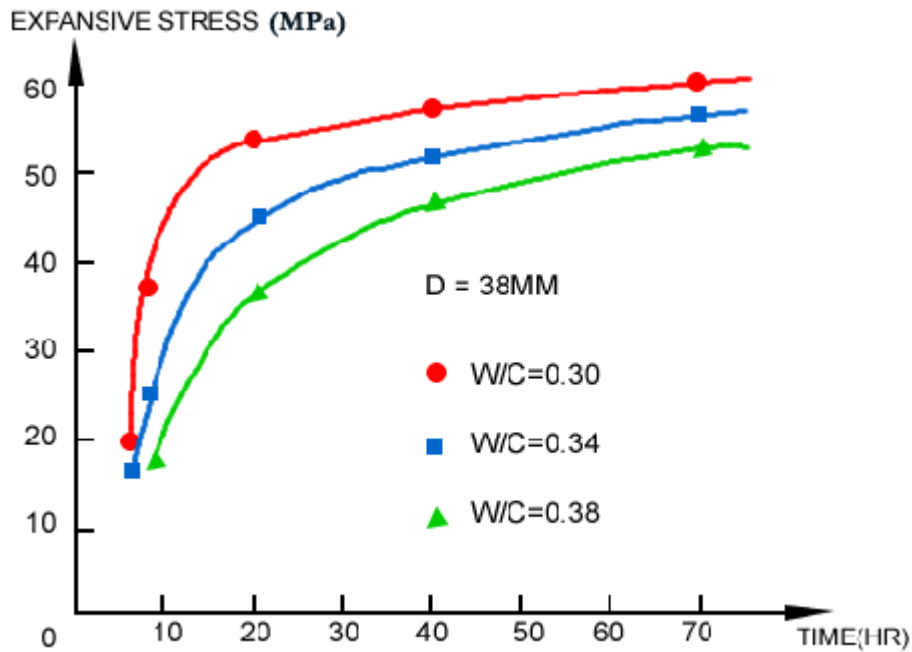
1. The expansive stress of RockFrac® NEDA reaches maximum value in about 24 hours of reaction.





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2. The expansive stress of RockFrac® NEDA decreases if water ratio increases.

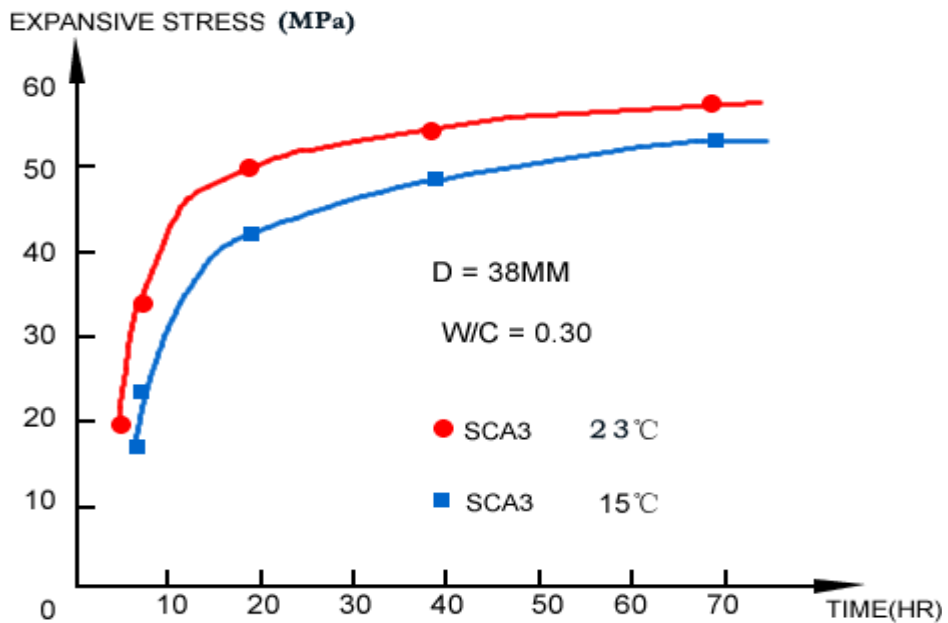






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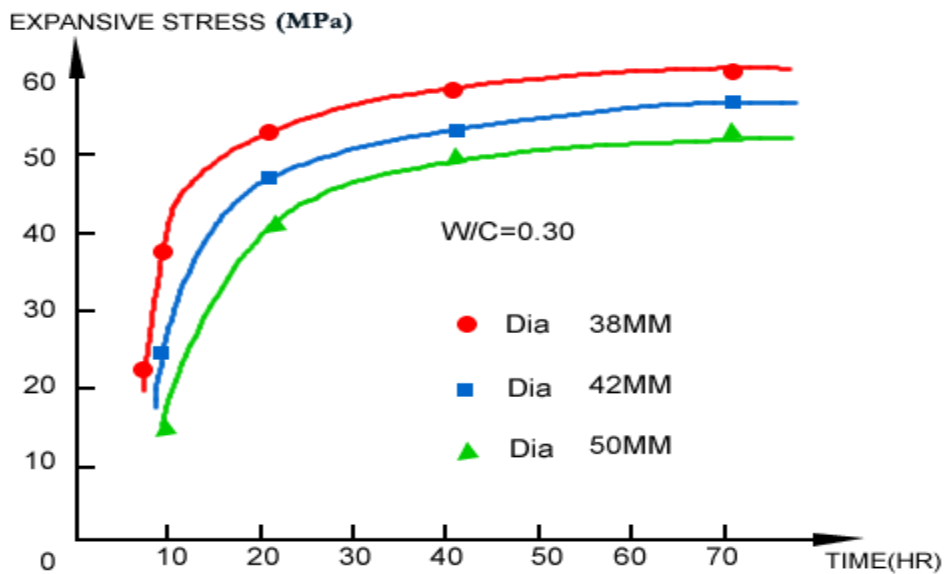
3. The expansive stress of RockFrac® NEDA would increase with rising temperature.





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4. The expansive stress of RockFrac® NEDA would be higher if the diameter of pre-drilled hole is bigger





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## **Fracture Mechanism**

The crack time of traditional types take 6-8 hours after the completion of loading. The crack time of the universal type of **RockFrac®** NEDA can be controlled from 30 minutes to 24 hours by the dose of inhibitor added into water. The speed of splitting is determined by the reaction speed, which is up to the temperature of the job site. The higher temperature, the shorter the reaction time.



The rock tensile strength is 4-10 MPA and concrete tensile strength 2-4 MPA. Mixed with appropriate water and poured into pre-drilled holes in stone or concrete, NEDA® starts hydration reaction. The solid expansion produced after coagulation and rigidification exerts pressure in the hole-walls exceeding 50 MPA (500 kg / cm<sup>2</sup>), which is far stronger than the tensile strength of the stone and concrete. Therefore the stone or concrete is cut or demolished easily.



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## **Packing and Storage**

**RockFrac® NEDA** is packed in a moisture-proof carton box with 4 plastic bags of 5 kg (11lb) in each (powder or cartridge). The net weight is 20 kg (44lb). The shelf life of **RockFrac®** is two years if stored in dry place, under constant temperature and without any damage to package.





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## **How To Use**

### **Preparation:**

Firstly, please measure the temperature and make sure that the job-site, demolition agent, rock, container and temperature are in compliance with requirements. If traditional type is to be used, please select correct specification. If **RockFrac®** NEDA to be used, please add inhibitor as instructed.

- a. Cracking agent
- b. Clean and cold-water
- c. Plastic bucket
- d. wooden rod
- e. Safety goggles
- f. Rubber glove
- g. Cap (wooden or iron wedge)





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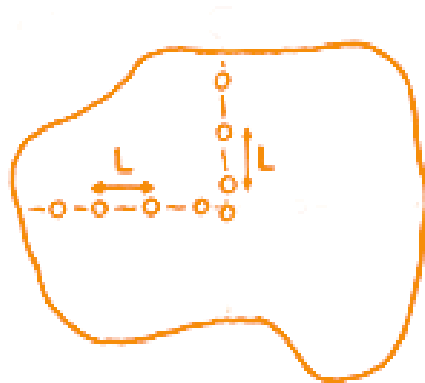
### **Demolition Design:**

For VERTICAL and downward situations, it is necessary to identify that there is at least one free face there. The diameter of holes is crucial to the cracking results. Too small holes are not in favour of good performance of the agent, while too big holes may cause blow out. Holes 30-40mm diameter is recommended. If the cracked objects are isolated, the depth of drilled holes is equal to 80-90% of the objects thickness. If used in Marble and Granite quarrying and mining, the depth of drilled holes should be equal to 110% of the objects thickness. To very long holes, tamp the mortar section by section. It is not necessary to put on any restrictive cap, Just leave as it is and wait until crack initiates. For horizontal and slant holes, insert a slightly smaller plastic pipe into the hole, and then fill the mortar into the pipe slowly, withdrawing the pipe from hole simultaneously. Quickly block the hole with a cap after feeding. All operation including mixing and pouring should be finished as soon as possible, ***it must be completed within 20 minutes.***



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Materials to be cracked	Hole design			Agent consumption Kg/m <sup>2</sup>
	Diameter(mm)	length(Cm)	depth	
Soft stone	35-50	40-60	H+5%H	8--10
Hard stone	35-65	40-60	H+5%H	10--15
Rock cutting	30-40	20-40	H	5--15
Plain concrete	35-50	40-60	80%H	8--15
Reinforced concrete	35-50	15-30	90%H	15--25



Soft Rock	diamete	35-50mm
	length	40-60cm
	depth	105%
Middle Hard Rock	diamete	35-65mm
	length	40-60cm
	depth	105%

(1) Soft Rock (Tensile Strength: < 60kg/cm<sup>2</sup> : 85psi) Such as : Soft granite 、 Marble 、 Sandstone 、 Limestone

(2) Middle Hard Rock (Tensile Strength: 60-100kg/cm<sup>2</sup> : 80-140psi) Such as: Granite、 Quartzite