

TIGER®

EXPANSIVE MORTAR FOR THE FRACTURING OF ROCK AND CONCRETE

TIGER® is a highly expansive mortar used for the demolition work of rock and reinforced/non reinforced concrete. It is highly used at the quarries of marble and granite, lime stone, etc extraction cutting and squaring. When **TIGER®** is mixed with water, is poured into a hole, it swells and obtain pressure on the walls at a unitary value in excess of 8000t / m², thereby breaking it apart.

TIGER® is environmentally friendly since it releases no toxic fumes or harmful substances of any nature. It is non-explosive and therefore avoids the often onerous need for trained personnel with blasting certificates and specialized transportation. Storage of **TIGER®** requires no special precautions provided the containers are not tampered with and kept in a dry place. The product is not sensitive to electrical discharges or currents.

WHO CAN USE TIGER®?

Anyone can use it, in any situation, since **TIGER®** is perfectly safe, silent and non-hazardous. It does not create debris or dust, nor form gas or cause any vibrations. Unlike explosives, no form of permission is required to use **TIGER®**. Unskilled labor can be easily trained to use **TIGER®** in a short period of time. The demolition or cutting operation using **TIGER®** can be interrupted at any time, simply remove the product from the hole by boring another hole into the existing one.

WHAT IS TIGER® USED FOR?

TIGER® can be used in a variety of applications and particularly to fracture, cut or demolish rock and concrete (non reinforced as well as reinforced) in circumstances where explosives cannot be used for safety reasons. It is ideal for use in situations where surrounding buildings or other structures would be damaged by flying debris or severe vibration. It maximizes production time and product-output in quarrying or mining situations, where ore beneficiation is extremely advantageous with no ore loss through scatter or wastage. There is no need for shaft or pit evacuation during blasting.

PREPARATION

1. The holes must be **DRY**. If there is leaking, slits or cracks which prevent the hole from being filled, then we advise that a PVC sheath be placed in the hole and then filled with the mortar.
2. The distance between the holes varies, depending on the diameter of the holes and the type of material to be fractured or cut.
3. Holes should be drilled **NOT LESS THAN 600mm DEEP**.
4. Always ensure that the **CORRECT** color code for surrounding temperature is



used (see chart, page 2).

5. In case of horizontal cut, the holes must be drilled at a slightly downward inclination angle to allow easy pouring of the mortar. If the mortar starts to leak out, block it with newspaper or a piece of sponge. **DO NOT PLUG** the holes. Alternatively use **TIGER®** cartridges. In the event of rain cover the hole with waterproof material.
6. For concrete and porous rock dampen the holes and blow out any excess water with an air hose prior to filling with **TIGER®**.

APPLICATION INSTRUCTIONS: POWDER

TIGER® in its powder form must be mixed with clean **COLD** water in a ratio of 30% of the overall weight. Before using **TIGER®** please ensure that you have read the safety instructions and wear goggles, dust mask and rubber gloves at all times. Follow the following instructions per 5kg bag of powder.

1. Pour exactly 1.5 litres of clean **COLD** water into a large plastic bucket. **DO NOT** use a narrow mouthed bucket or glass container, as the product starts expanding immediately after mixing.
2. Gradually pour the complete contents of the 5kg bag into the bucket of water, whilst mixing vigorously into a smooth paste.
3. Ensure that there are no lumps and that the fluid mortar is easy to pour. If the mortar starts to set too quickly, splash small amounts of **COLD** water into the bucket and stir until fluid.
4. Pour the mortar into the pre-drilled holes within 2 to 3 minutes after mixing, until it reaches 5cm from the top of the hole. The mortar will start to set immediately.
5. Keep away from the holes and **DO NOT** look directly into them from above for 2 to 3 hours after filling, as a blow-out may occur.

Each box contains 4x 5kg bags of **TIGER®**, which will fill approximately 14 to 16 linear meters of 32mm diameter pre-drilled holes.

TIGER® HAS A SHELF LIFE OF 2 YEARS AT AMBIENT TEMPERATURES.

APPLICATION INSTRUCTIONS: CARTRIDGES

TIGER®“C” Cartridges were designed to solve some of the problems encountered using expansive mortar in the powder/mixable form. The product is conveniently supplied in cartridge form using an absorbent outer material. There are no limitations on its use in any working environment. Advantages include the following: Mixing is not necessary, thus eliminating the possibility of using the wrong amount of water. The cartridge automatically absorbs the correct amount of water. Cartridges can be used in any position, vertical or horizontal. Reaction time is more rapid, therefore it fractures or cuts faster, and finally cartridges can be used under water.

1. Pre-Drill each hole using a 32mm drill bit to a minimum depth of not less than 400mm.
2. **USING THE REQUIRED SAFETY EQUIPMENT**, fill a large bucket halfway with clean **COLD** water.
3. Place the required number of cartridges into the bucket of **COLD** water and leave them for 2 to 3 minutes. The release of air bubbles should have ceased by now. Do not squeeze in order to facilitate additional water absorption.
4. Using a tamping rod (broomstick or drill rod) place a wet cartridge into the pre-drilled hole and tamp vigorously. Repeat this process with each cartridge until the hole is full. Move on to the next hole and continue until they are all filled.
5. Make sure that there are no air gaps between the cartridges and the walls of the drilled hole.
6. If you only require half a cartridge to fill a hole, break it in half and use the other half in another hole.



Each box contains 100 cartridges, each 25mm in diameter x 200mm long, containing 200g of **TIGER®**. Each box will fill approximately 14 to 16 linear meters of pre-drilled holds. Longer cartridge lengths can be made to order.

The distance between the centers of the holes drilled, in rock or non-reinforced concrete should be 40 to 80cm, depending on the diameter of the hole. With reinforced concrete, the distance should be 20 to 30 cm. The smaller the diameter of the hole, the closer each hole should be from another (for example: $\varnothing 32 = 30$ cm, $\varnothing 35 = 40$ cm, $\varnothing 40 = 50$ cm, $\varnothing 45 = 60$ cm, $\varnothing 50 = 70$ cm). For best use and to obtain the best results, we advise you to carry out tests with **TIGER®** before starting work. Larger diameter holes positioned closer together accelerate breaking times.

TYPES OF TIGER ®
RED – Temperature below 5°C
GREEN – Temperature from 5° to 20°C
YELLOW – Temperature from 20° to 35°C
GOLD – Temperature from 35° to 50°C
BLUE – Temperature from 50° to 60°C
SILVER – Temperature from 60° to 70°C

SAFETY PRECAUTIONS

TO BE OBSERVED AT ALL TIMES WHEN DEALING WITH TIGER®

1. Safety goggles, Dust Mask, and Rubber Gloves **MUST** be worn whilst preparing **TIGER®** for use.
2. Keep your face away from the holes for 2 to 3 hours after filling them, as there is a possibility (though remote) that the **TIGER®** may eject from the hole violently (blow-out) if the instructions have not been followed correctly. Do not plug the holes with hard substances, only paper or sponge, if required.
3. In the event of accidental contact with the product in its dry state, (prior to mixing) brush the powder off the areas of skin contact immediately, and wash with plenty of clean **COLD** running water for several minutes.
4. In the event of contact with the product in its mixed (wet) state, wash affected area immediately with clean **COLD** running water for several minutes as severe irritation may occur due to the high alkalinity of the product. (PH value = approximately 13). If skin irritation occurs in any of the previous situations (precautions 3 or 4) report to the nearest medical station and / or consult a doctor **AS SOON AS POSSIBLE**.
5. If you should get **TIGER®** in your eyes - either dry or wet form - **WASH THEM IMMEDIATELY** with plenty of clean **COLD** running water for several minutes and consult a doctor **AS SOON AS POSSIBLE**.
6. DO NOT use narrow mouthed containers or receptacles made of glass (such as bottles or flasks) as the product is expansive.
7. NEVER USE HOT WATER with this product, as this will accelerate the reaction time and may cause a blow-out to occur in the hole. **ALWAYS USE COLD WATER**.
8. Do not work with this product unless all precautionary measures have been taken or you have been properly trained in the use of the product.
9. The product is safe if used specifically as directed.

CHIMICA EDILE MIDDLE EAST FOR CHEMICALS PRODUCTION DOES NOT ACCEPT ANY LIABILITY OF ANY NATURE WHATSOEVER FOR ANY DAMAGE OR INJURY WHICH MAY OCCUR DUE TO THE INCORRECT USE OF THE PRODUCT.

MATERIAL SAFETY DATA SHEET

1. Product and supplier identification

1.1 Production identification

Trade name: **TIGER®**

1.2 Supplier identification

Chimica Edile Middle East for Chemicals

5C Misr El Gedida Buildings,

Sq. 1185, Sheraton Heliopolis, Cairo, Egypt

Tel: +202 2268 8691

Fax: +202 2268 8692

1.3 After Hours numbers

Cell: +201005243999 / +201110117979

2. Product composition, ingredient information

Chemical name: Calcium oxide
(overburnt)

Chemical formula: CaO.

Form: Powder.

Colour: Grey / brown.

Odour: Odorless.

3. Hazard statement

3.1 Reacts with water to form calcium hydroxide with low exothermal effect, water absorption changes its apparent volume until breaking.

3.2 It does not have particular toxicological effects.

3.3 Prolonged or repeated short time overexposure may be an irritant by inhalation or by contact with wet skin and eyes.

4. Anti fire measures

4.1 **Flash point:** Non flammable product, will not burn. Use appropriate extinguishing media to extinguish combustible material stored near-by.

4.2 **Autoignition:** Not applicable.

4.3 **LEL:** Not applicable.

4.4 **UEL:** Not applicable.

4.5 **Unusual fire and explosion hazards:** The product is not a fire or explosion hazard.

5. Steps to be taken for accidental releasing or spilling of the product

5.1 Use mask, safety glasses and gloves.

5.2 Contain spillage and scoop up the product.

5.3 Do not use cleaning methods that will generate air dusting pollution.

5.4 Wash out residuals with water.

6. Precautions in handling and storage

6.1 Handle the product avoiding air dust pollution.

6.2 The product should be stored in a covered and dry area to avoid contact with water.

7. Exposition control and individual protection

7.1 TLV/WA: 5 mg/m³.

7.2 Avoid breathing dust by using a dust mask.

7.3 Avoid contact with eyes by using safety glasses.

7.4 Avoid contact with skin by using gloves.

8. Physical and chemical properties

8.1 Form: powder.

8.2 Colour: yellowish white.

8.3 Odour: odourless.

8.4 pH value: 12-13 (2g/l solution).

8.4 Melting point: 2572_C.

8.5 Explosion property: none.

8.6 Boiling point: not applicable.

8.7 Flash point: non flammable.

8.8 Autoignition: not applicable.

8.9 Combustive property: none.

8.10 Water solubility: At 20_C about 2 g/l as Ca(OH)₂.

8.11 Stability: yes (in dry condition).

8.12 Specific gravity: 3.4 g/cm³.

8.13 Calcium oxide: when reacting in the drilled hole can reach up to 120_C.

9. Stability and reactivity

9.1 Stable in dry condition.

9.2 High hygroscopic.

9.3 Hydrates in wet condition to form Ca(OH)₂.

9.4 Reacts with high exothermal effect with acids.

9.5 Reacts with low exothermal effect with cold water.

9.6 Soluble in glycerin and in aqueous sugar solution.

10. Toxicological information

10.1 Eye contact may cause mechanical irritation and exposure to large amounts may cause ulceration.

10.2 Skin contact in wet condition may cause irritation.

10.3 Inhalation may cause irritation of the upper respiratory tract for repeated and prolonged exposure to large amount of dust.

11. Ecological information

11.1 Ecologically indifferent product.

12. Waste disposal consideration

12.1 Normal waste material - local disposal laws or regulations will determine the proper waste disposal procedure.

13. Transport information

13.1 No particular transport hazard, the product does not contain toxic chemicals.

14. Information on regulation: Symbols

14.1 Xi: Irritant.

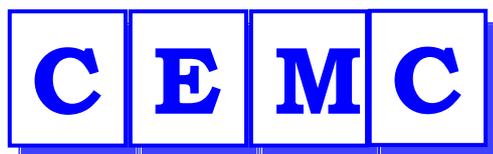
14.2 R:36: Irritant for eye.

14.3 S:36: In case of the eye contact do not rub but flush eyes with plenty of cold water immediately.

14.4 S:39: Use safety glasses.

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