

**ANBO CONSTRUCTION MATERIALS CO. LIMITED  
A PROPOSAL CONSTRUCTION MATERIALS  
AND OYH CR-P100  
P.O.BOX 105353**

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## 1.0 EXECUTIVE SUMMARY

### 1.1 About ANBO Construction Materials Company Limited,

ANBO Construction Materials Company Limited is local private limited liability company incorporated on 16 October 2023 with certificate of Incorporation No. 169357226 issued by BRELA and also issued with the TRA Certificate as Tax Payer Identification Number 169-357-226. The core business activities are Manufacture of basic, Wholesale of construction materials, hardware, plumbing and heating equipment and supplies, Non specialized wholesale trade and other retail sale in non- specialized stores.

The company is operating a pulverizer machine located plot no. 35 at Gerezani industrial area. The plant is made up of a mixer and conveyor belt. The conveyor belt carries raw materials (sand, cement, aggregate and admixtures such as Polycarboxylate Superplasticizer)

polycarboxylate is used in concrete as. Inclusion of PCE allows in controlling the concrete workability better at lower water to cement ratios. The characteristics of PCE in concrete rely on its amount, where elevated amount may cause in false setting without any hydration incidence in the concrete.

polycarboxylates (PCE) nanomaterials has been utilized in concrete [169]. PCE is a polymer based compound that is obtained from methoxy-polyethylene glycol co-polymer. It functions in the secondary or side reactions which are reinforced to methacrylic acid co-polymer as the major element. Usually, the carboxylate group is comprised of water molecule, rendering a negative charge alongside the backbone of PCE. The polyethylene oxide group provides a non-uniform electron cloud distribution and chemical polarities to the secondary or side reactions. The number and the length of secondary or side groups are can easily be changed. In case the secondary or side reactions possess numerous electrons it lowers the large molar mass and alters the polymer density, resulting in reduced performance of cement suspensions [32,170]. For both chains to combine and paired simultaneously, longer side groups and strong charge density from one to other reaction end must form. Usually, polycarboxylate is used in concrete as high range water reducer (HRWR). Inclusion of PCE allows in controlling the concrete workability better at lower water to cement ratios.

addition of PCE at required level can create Self Compacting Concrete (SCC) which enhances the workability of concrete. It also creates a flow concrete with enormous effects at small and elevated intensity region. Other benefit of PCE inclusion in UHPC or concrete is related to its capacity to be applied in marine atmosphere. Pores or voids in UHPC can remarkably be reduced to get more compact structure in the presence of PCE because it can eliminate air bubble and improves the concrete density. Furthermore, refinement of UHPC microstructure can avoid or reduce the permeability rate under marine condition, lowering the attack from sea-water containing sulphate and chloride ions. On top, the usage of polycarboxylate is regarded as relatively green strategy than the use of silica fume and other stabilizers in the UHPC microstructures refinement.

It is sufficed to say that the establishment of ANBO CONSTRUCTION MATERIALS CO. LIMITED in Tanzania has been inspired by the latest government's construction industrial drive and philosophy of making this country an industrial success. The newly found company is set to be located at Temeke, Dar es salaam region of Tanzania and with its raw material sourcing located in the following regions: Pwani region and in Dar es salaam. We are therefore going to open up new market opportunities for the local suppliers of materials in these regions to sell to directly to us so that we can feed our processing and manufacturing facilities.

In this way, we are promising to create many jobs both directly and indirectly as we have already met with some of the suppliers in these regions who have agreed to supply their materials to make our facilities. The final products from our business activities will be 100% exported to areas of construction in and outside of Dar es salaam and to other areas. For this reason, the capital of the company is Tanzanian Shillings 500,000,000/= divided into 10,000 share of shillings 50,000/= each.

The Company shall have powers to increase its capital and to divide the shares in its capital for the time being into several classes of stock or shares and to attach thereto respectively such preferential, deferred or special rights, privileges, of conditions as may be determined by or in accordance with the articles of association of the company.

## 1.2 The Promoters for ANBO Construction Materials Company Ltd

The capital of the Company is Tanzania Shillings 500,000,000/= divided into 10,000 share of shillings 50,000/= each. The company shall have powers to increase its capital and to divide the shares in its capital for the time being into several classes of stock or shares and to attach thereto respectively such preferential, deferred or special rights, privileges, of conditions as may be determined by or in accordance with the articles of association of the company.

The project is being promoted by **ANBO Construction Materials Company Limited** whose currently shareholders are shown below:

NAMES		SHARES
1	XU JINLONG	3500
2	HUANG WENFENG	1500

## 1.3 Location of Business/Projects

The proposed project is to be located at Gerezani industry area, which is along Kilwa road, Temeke municipal; Dar es salaam region. The area is well served by the entire necessary infrastructure, including water supply, electricity supply and road infrastructure and environmental requirements and hence well suited to the nature of the project. The company occupies 3 Acres of land which is sufficient for constructing facilities for processing and manufacturing a comprehensive range of construction materials, Basic chemicals for construction, hardware, plumbing and heating equipment and supplies

## 1.4 Industrial infrastructure

We are set to have an excellent infrastructure set-up comprising of several sections and departments. These divisions will facilitate an organized, effective and timely processing of entire business orders. Our proposed infrastructure is set to make us capable in accomplishing the entire production schedule within the stipulated time frame. The various units/divisions to be integrated in our infrastructure are:

- ❖ Production control department
- ❖ Product fabrication unit
- ❖ Quality testing section
- ❖ Storage unit 4

- ❖ Packaging section
- ❖ Administration department

### 1.5 Industries to serve

The final goods from our facilities serve diverse industries who are interested in nothing less than quality products. Dedicated to achieve 100% customer satisfaction, we are prepared to take special efforts to give our clients a pleasant experience of doing business with us. Some of the industries we will serve are:

**THE FOLLOWING ARE PRODUCTS FROM ANBO INTERNATIONAL COMPANY LTD**

No	NAMES
1	AGGREGATE FLOUR
2	CONCRETE ADDMIXTURE (POLYCARBOXYLATE SUPERPLASTICIZER)
3	PULVERIZER MACHINE

### 1.6 Products

Our project is set to be developed in two phases to make it fully operational and products range/varieties will include items, Concrete, Concrete admixture, Leasing Machine.

- ❖ AGGREGATE FLOUR

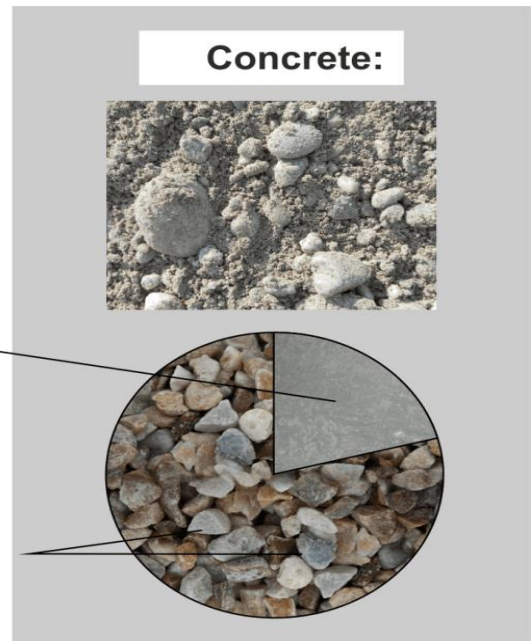
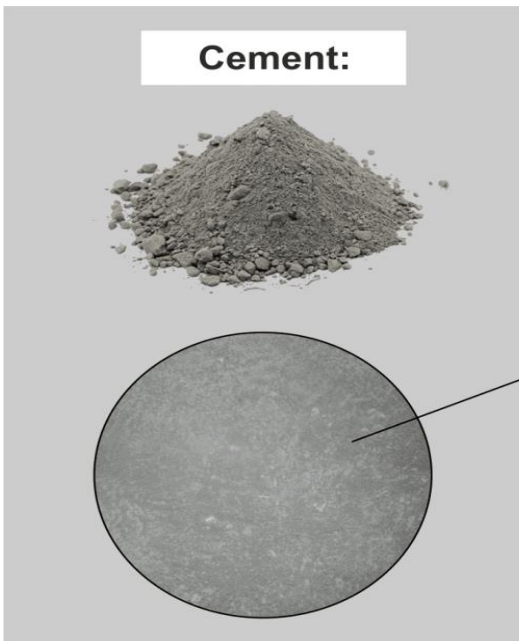
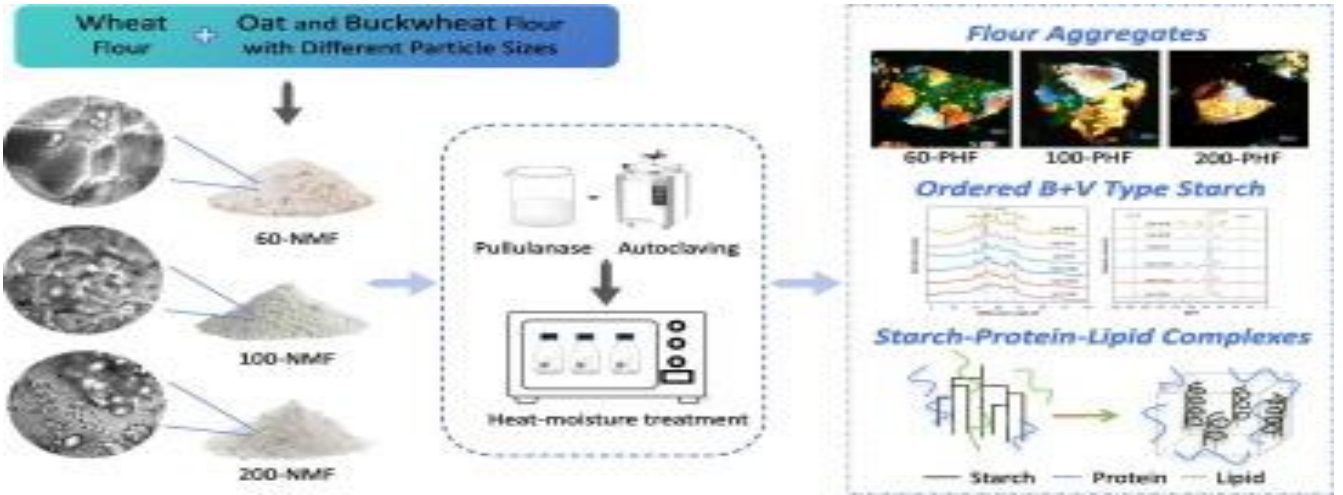
Aggregates are granular materials that are used with a cementing medium to form concrete or hydraulic mortar. They are key ingredients in the manufacture of concrete, mortar, and other construction materials, and are used in the construction and maintenance of structures such as highways, walkways, parking lots, airport runways and railways.

**Note that:** Concrete aggregates are composed of geological materials such as gravel, sand and crushed rock. The size of the particles determines whether it is a coarse aggregate (e.g. gravel) or a fine aggregate (e.g. sand). The resulting concrete can be used in its natural state or crushed, according to its use and application.

Aggregate materials help to make concrete mixes more compact. They also decrease the consumption of cement and water and contribute to the

mechanical strength of the concrete, making them an indispensable ingredient in the construction and maintenance of rigid structures.





## **THE IMPORTANCE OF AGGREGATE MATERIALS FOR CONCRETE**

Our Anbo Construction Aggregate plants have both the technology as well as the operational and technical capacity to develop products that meet the requirements and specifications of our clients.

- ✓ Many types of construction materials, including concrete, asphalt and mortar, utilize aggregates as key ingredients. Using aggregate materials for concrete reduces production costs and increases the resistance of concrete mixes. Crushed aggregates make up for around 60% to 75% of the volume of concrete. These crushed aggregates significantly affect the properties of freshly-mixed and hardened concrete – making it more compact, decreasing its permeability (which makes it more water-resistant), and modifying its heat retention values. To be able to cater for the variety of different uses of aggregate materials, Cemex offers a wide range of aggregates to accommodate our clients' needs.
- ✓ These characteristics make aggregate materials an indispensable ingredient when it comes to building and maintaining roads, sidewalks, parking lots, airport runways, railway tracks, and a range of buildings and roadways. In fact, the design phase of most construction projects generally requires a careful analysis of the source of the aggregates, including their type and size, as well as the material properties of the aggregates needed at various stages of the construction process. In addition to construction projects, aggregates can also be used in drainage, water filtration and erosion control. They can also be used as a fill material in site preparation and embankment projects.
- ✓ We at Anbo Construction Materials Co Ltd continuously seek new ways to use aggregates to improve drainage, heat absorption, and other forces that impact the environment. For example, with an adequate mix of cement and aggregates such as sand and gravel, a material can be created that enables the absorption of water and, at the same time, reduces the absorption of heat, mitigating the "urban heat island" effect, which significantly increases the temperature of paved areas.

## **TYPES OF CONCRETE AGGREGATES**

ANBO CONSTRUCTION MATERIALS CO LTD, we offer a wide variety of concrete aggregate materials to be able to cater to the individual needs and preferences of each of our clients.

Aggregates can be classified according to their size, origin, mode of fragmentation and composition for example agricultural, landscaping, and sports aggregates. It is important to understand the different types of concrete aggregates and their uses to be able to successfully harness their maximum potential at the time of construction. Crushed stone aggregates, for example, are fundamental when it comes to building sand traps on golf courses, as well as in the construction of buildings and roads. On the other hand, gravel offers excellent control over erosion and in the filtration and drainage of water. Used by themselves, aggregates are also useful as fill materials when preparing a site or in embankments. Aggregates such as sand can also be used when creating or restoring beaches, sports surfaces, race tracks, and other recreational facilities.

NOTE THAT: Aggregate materials are obtained from natural mines of sand or sand and gravel, quarries, deposits, and underground sediments. Examples of aggregate materials include:

- Crushed rock - These products are obtained by extracting rocks and crushing them to the desired size and texture. Rock sources can be igneous, sedimentary or metamorphic.
- Sand - Sand is found in nature. It is a fine composition of stone material and mineral particles and its composition is variable, depending on the source. It can be used for the construction of roads or for the manufacture of concrete. Different types of sand include: sand 4 block; sand 4 dosable; sand 5; sand 4; and sand 5 washed.
- Gravel - Gravel deposits are produced by a natural process of moisture and erosion. There are different types of gravel -  $\frac{3}{4}$  " and 1  $\frac{1}{2}$  ", seal, hydraulic base, and subbase, for example - which can be used for constructing roads, producing concrete, or for decorative and aesthetic purposes.
- Recycled concrete - Recycled concrete is obtained by breaking, grinding or cutting existing concrete to a desired size. It is usually used as a base on which other construction materials are placed thanks to its compact nature. This creates a firm surface which can be easily built upon.

❖ **CONCRETE ADMIXTURE**

May refer to a material (chemicals) other than water, aggregates, cementations materials and fiber reinforcement, used as an ingredient of cementations mixture to modify its freshly mixed, setting, or hardened properties and that is added to the batch before or during its mixing.

**Note that:** Admixtures are materials in the form of powder or fluids that are added to the concrete to give it certain characteristics not obtainable with plain concrete mixes. Admixtures are defined as additions "made as the concrete mix is being prepared". The most common admixtures are retarders and accelerators. In normal use, admixture dosages are less than 5% by mass of cement and are added to the concrete at the time of batching/mixing. The common types of admixtures in the concrete characteristics:-

**i. Accelerators speed up the hydration (hardening) of the concrete.**

Typical materials used are calcium chloride, calcium nitrate and sodium nitrate. However, use of chlorides may cause corrosion in steel reinforcing and is prohibited in some countries, so that nitrates may be favored, even though they are less effective than the chloride salt. Accelerating admixtures are especially useful for modifying the properties of concrete in cold weather.

**ii. Are substances that increase the rate of a natural or artificial chemical process**

They play a major role in chemistry, as most chemical reactions can be hastened with an accelerant. Understanding accelerants is crucial in forensic science, engineering, and other fields where controlled chemical reactions are essential. Accelerants function by either altering a chemical bond, speeding up a chemical process, or changing the reaction conditions. Unlike catalysts, accelerants may be consumed during the process.

**iii.** They are commonly used in contexts such as fire investigation where they can indicate arson, in construction to speed the curing of building materials, and in sulfur vulcanization to produce rubber products such as tires. In fire investigation, accelerants are often detected through laboratory analysis of fire debris. Various

types of accelerants exist, including liquids, solids, and gases, each with specific properties and applications.

- iv. Air entraining agents** add and entrain tiny air bubbles in the concrete, which reduces damage during freeze-thaw cycles, increasing durability. However, entrained air entails a tradeoff with strength, as each 1% of air may decrease compressive strength by 5%. If too much air becomes trapped in the concrete as a result of the mixing process, defoamers can be used to encourage the air bubble to agglomerate, rise to the surface of the wet concrete and then disperse.
- v. Air entrainment** in concrete is the intentional creation of tiny air bubbles in a batch by adding an air entraining agent during mixing. A form of surfactant (a surface-active substance that in the instance reduces the surface tension between water and solids) it allows bubbles of a desired size to form. These are created during concrete mixing (while the slurry is in its liquid state), with most surviving to remain part of it when hardened.
- vi.** Air entrainment makes concrete more workable during placement, and increases its durability when hardened, particularly in climates subject to freeze-thaw cycles. It also improves the workability of concrete.
- vii.** In contrast to the foam concrete, that is made by introducing stable air bubbles through the use of a foam agent, which is lightweight (has lower density), and is commonly used for insulation or filling voids, air entrained concrete, has evenly distributed tiny air voids introduced through admixtures to enhance durability, workability, and resistance to freeze-thaw cycles without significantly reducing its overall density, and without negative impact on its mechanical properties, allowing to use it in objects such as bridges or roads built using roller compacted concrete. Another difference is manufacturing process: foam concrete involves the creation of a foam mixture separately, which is then mixed with cement, sand, and water to form the final product, while air entrained concrete is produced by adding specialized admixtures or additives directly into the concrete mix during mixing to create small air bubbles throughout the mixture.
- viii.** Tiny air bubbles in air entrained concrete act as internal cushioning, absorbing energy during impact and increasing resistance to physical forces such as shock or

vibration. This improved impact resistance helps minimize surface damage and prevent the propagation of cracks or breaks, thereby increasing overall durability. Additionally, the air voids, acting as pressure relief zones, allow water or moisture expansion during freeze-thaw cycles without causing internal stresses and subsequent cracking.

**ix.** Pigments can be used to change the color of concrete, for aesthetics.

**Pigments:**

Is referring as a powder used to add color or change visual appearance. Pigments are completely or nearly insoluble and chemically unreactive in water or another medium; in contrast, dyes are colored substances which are soluble or go into solution at some stage in their use. Dyes are often organic compounds whereas pigments are often inorganic. Pigments of prehistoric and historic value include ochre, charcoal, and lapis lazuli.

Example of Pigments which used can help to change color in construction activity and which can make good look of CONCRETE without affecting quality of CONCRETE.



## **POLYCARXYLATE SUPERPLASTICIZER**

Polycarboxylate Superplasticizer is an advanced admixture allows the reduction of the water to cement ratio without affecting the workability of the mixture. It also enables the production of high strength and high-performance concrete.

Product Name: Polycarboxylate Ether Superplasticizer

Type: PC-P / PC-F / PC-E / P-R / PC-808 /PC-608 /PC-708

Package: 25kg/bag, 1100 kg / IBC Tank ,230kg/drum.

**Polycarboxylate Superplasticizer** is a new generation superplasticizer based on modified polycarboxylate particularly recommended for ready mixed concrete and civil engineering construction. Its particular configuration allows its delayed adsorption onto the cement particles and disperses them efficiently.

### **STANDARD COMPLIANCE**

**Polycarboxylate Superplasticizer** complies with the requirements of the following standards: ASTM C 494, Type F,G and E. BS EN 934-2.

Items	Specification						
	PC-P Powder	PC-F (50%) liquid (High water Reduction)	PC-E (50%) Liquid (Ultra Early Strength)	PC-R (50%) Liquid  (Special Set Retarder)	PC- 808Flake  High Water Reduction	PC- 708Flake  (High Slump Retention)	PC- 608Flake  (Special Set Retarder)
Visual Appearance	Light yellow powder	Light yellow liquid	Light yellow liquid	Light yellow liquid	White solid Flake		
Solid Content (%)	98.0±1.0	50±2.0	50±2.0	50.0±2.0	96%		
Density (23°C) (Kg/m <sup>3</sup> )	600±30	≥1.05	≥1.05	≥1.05	-		
Chloride Content (%)	≤0	≤0	≤0	≤0	≤0		
Solubility	Completely Soluble	Completely soluble	Completely soluble	Complete soluble	Complete soluble		

## USES OF POLYCARBOXYLATE CONCRETE ADMIXTURE:

- To obtain a high-quality concrete mix with accelerated strength development and extended workability without delayed setting characteristics.
- To provide a concrete mix with exceptional placing characteristics and accelerated cement hydration for early strength development and high-quality concrete.
- To provide improved durability by increasing ultimate strengths and reducing concrete permeability.

## TYPICAL APPLICATIONS & ADVANTAGES OF POLYCARBOXYLATE CONCRETE ADMIXTURE:

- Provides high-quality durable concrete.
- Powerful plasticizing action with an improved initial workability, easier placing and faster strength development.
- Reduces water/cement ratio to the maximum that allows for the production of high strength concrete.
- Capability of delivering high performance concrete at any time to a job site.
- **Polycarboxylate Concrete Admixture** can be either used alone or compounded with other additives to make special concrete such as pumping concrete, ready mixed concrete etc.

## INSTRUCTION FOR USE

Polycarboxylate Superplasticizer must preferably be added to the mixing water and in case of ready mixed concrete where the product can be added on fresh concrete and in a mixing truck. It is necessary to mix at a high speed for about 6 – 8 minutes.

## DOSAGE

The optimum dosage of **Polycarboxylate Superplasticizer** to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use.

Dosages outside the normal range quoted above can be adopted to meet particular mix requirements.

Contact ANBO for advice in these cases.

## SETTING

Polycarboxylate Ether Superplasticizer affords excellent control over initial and final setting times. Setting times of concrete mixes are related to cement type, mix design, and ambient temperature.

## COMPATIBILITY

Polycarboxylate Superplasticizer should not be used in conjunction with any other admixture unless prior approval is obtained from ANBO CONSTRUCTION MATERIALS COMPANY LIMITED.

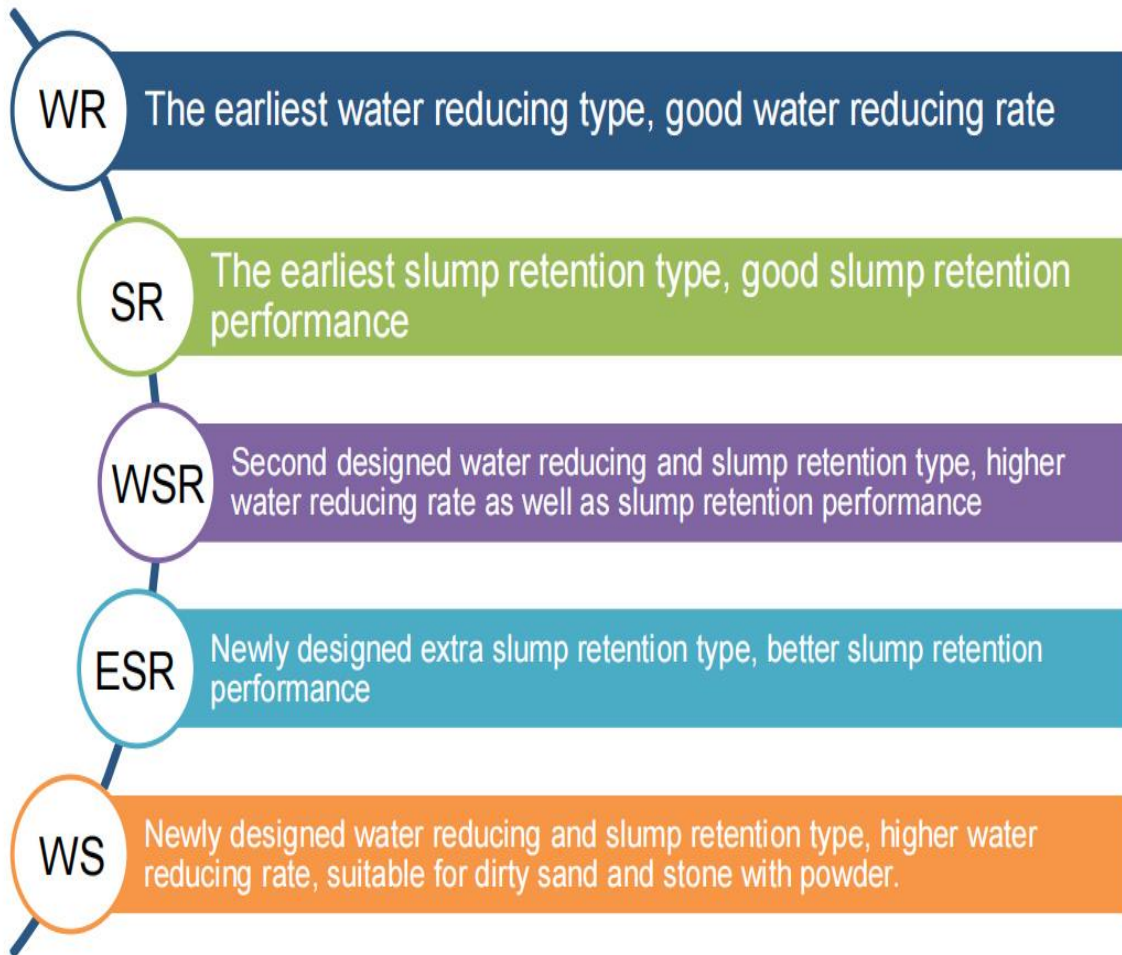
## PACKAGING & STORAGE

- Polycarboxylate Superplasticizer (PC-P) is packed in 25kg / bag.
- Polycarboxylate Superplasticizer (PC-F/R/E) is available in 1100 kg / IBC tank, 230 kg / drum or flex tank. For site installations, deliveries will be made in bulk to site storage tanks.
- Polycarboxylate Superplasticizer has a shelf life of 12 months provided it is stored under cover and out of direct sunlight.





## R&D history of Polycarboxylate superplasticizer liquid



## HEALTH & SAFETY PRECAUTIONS

**Polycarboxylate Ether Superplasticizer** does not fall into the hazardous classification of current regulations. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. If swallowed, seek medical attention immediately and do not induce vomiting.

For further information, refer the Material Safety Data Sheet available for this product.

### IMPORTANT NOTE

ANBO CONSTRUCTIONS MATERIALS CO. LTD endeavors to ensure that the technical information contained herein is true, accurate and represents our best knowledge and experience. No warranty is given or implied, as ANBO CONSTRUCTIONS MATERIALS CO. LTD has no control over the conditions of use and competence of any labor involved in the application.

As all ANBO CONSTRUCTIONS MATERIALS CO. LTD technical data sheets are updated on a regular basis, it is the customer's responsibility to check that the product is suitable for the intended application, and that the actual conditions of use are in accordance with those recommended.

#### A. PC-F (HIGH WATER REDUCER)

Polycarboxylate Superplasticizer (PC-F) is a liquid that uses to improve the superb water-reducing performance in the application of ready mixed and precast concrete industries.

#### **Polycarboxylate Superplasticizer Ether of High-Water Reduction**

#### **PC-F High Water Reducing Rate (Concrete Additives for Strength)**

PC-F is a ready-to-use liquid superplasticizer that immensely improves the overall water-reducing performance when compared with superplasticizers based on existing polycarboxylic systems.

PC-F Polycarboxylate Superplasticizer for high water reduction has been primarily developed for applications in the ready-mixed and precast concrete industries where the highest durability and performance are required.

## Standards Compliance

PC-F Polycarboxylate Superplasticizer for high water reducing complies with all requirements of the following standards: ASTM C 494, Type E & F. BS EN 934-2.

### Typical Properties

Items	Specification
<b>Visual appearance</b>	<b>Light yellow liquid</b>
Solid Content (%)	50.0±2.0
Density (23°C) (kg/m <sup>3</sup> )	1.13±0.02
Chloride Content (%)	≤0
Na <sub>2</sub> SO <sub>4</sub> Content (%)	≤4.0
Na <sub>2</sub> O+0.658K <sub>2</sub> O (%)	≤5.0
Solubility	Completely soluble

## Usage

1) PC-F for high water reducing is suitable for long-distance transported pumping concrete, high fluidity concrete, self-leveling concrete, plain concrete, free vibration self-compacting concrete, and high strength concrete, etc.

2) PC-F for high water reducing can be widely used in hydraulic projects,

## Advantages

1) PC-F water reduction is up to 35% and its concrete slump is not lost in one hour.

2) PC-F has good storage stability, no precipitation or lamination at low temperature.

3) PC-F could be blended into 10% solution with water, which can be directly used as pumping aid agent.

4) Production clean degree is high: Due to formaldehyde, industrial naphthalene, acetone or other flammable, and toxic chemicals being not used in production process, it meets cleaning production standard. This new production technology is a fully automated process without heat production.

5) Safety: This product is non-toxic, non-radioactive or non-flammable. There is no harmful material for steel and aggregate. There is no formaldehyde or other harmful aromatic residues. It meets the requirements of indoor and outdoor environment.

electric power, ports, railways, bridges, roads, and other various projects.

### Dosage

■ The optimum dosage of PC-F to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use.

Dosage range:  $C \times 0.3\% \text{ -- } 1.0\%$

**Recommended dosage:  $C \times 0.5\%$  (calculated according to PC-F). Before using or when replacing cement, determine the optimal dosage through concrete testing.**

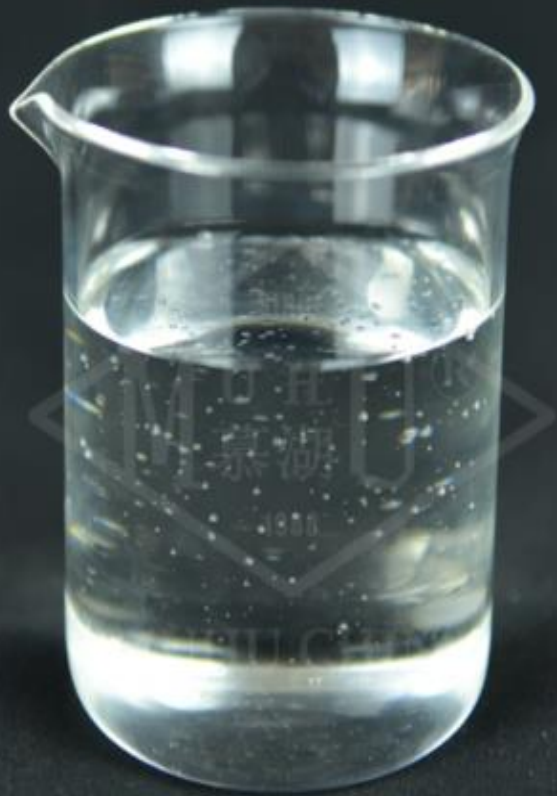
### Packaging, Storage and Transport

■ This product is a liquid packaged with plastic drum, 230 kg/drum, or 1000 Liter / IBC tank. Available in bulk according to customer's requirements.

■ This product is non-toxic or non-flammable. Keep in dry place and away from direct sunlight.

■ PC-F polycarboxylate superplasticizer has a minimum shelf life of 12 months provided it is stored or under cover.

# Polycarboxylate Superplasticizer (PC-F)



PC-F (High Water Reducer)

### **B:PC- R (SPECIAL SET RETARDERS)**

This product is suitable for improving the performance of polyether superplasticizer, including improving the adaptability of polyether superplasticizer to cement in concrete, improving the stability of water reducing agents, reducing concrete bleeding, reducing high grade concrete viscosity, and improve concrete pumping. This product can also reduce the amount of water-reducing agent.

#### **Characteristics**

1. improve the adaptability of cement;
2. reduce the slump loss; incorporation of pumping agent, can reduce the loss of slump;
3. reduce bleeding;
4. reduce the viscosity of concrete; the preparation of high-grade concrete, can reduce the viscosity of concrete, improve pumping;
5. reduce the amount of ether superplasticizer: the addition to this product, the ether superplasticizer in the concrete content can be reduced;
6. green products: the production and use of the product does not produce pollution of the natural environment, in line with ISO14000 environmental protection and management of international standards.

## Typical Properties

Items	Specification
Visual appearance	Light yellow viscous liquid
Chloride ion content (by solid content), %	≤0
Na <sub>2</sub> O+0.658K <sub>2</sub> O (by solid content) , %	≤5.0
Solid content, %	50.0±2
Density (g/cm <sup>3</sup> )	1.12±0.02g/cm <sup>3</sup>
pH value	8.0±0.5

### Instructions

1. the product cannot be used alone, PC-F and PC-R can be mixed with certain percentages. Laboratory data shows that PC-F: PC-R = 2.5: 1 or 1:1, PC-G: PC-R = 2: 1.
2. this product is suitable for the formulation of high-performance polyether superplasticizer to improve its high-performance concrete, high strength concrete, large flow of concrete in the application performance.
3. the product should be used in the blending polyether superplasticizer, should be tested before use, qualified products and formulations can be used for concrete production.

### Safety Precautions

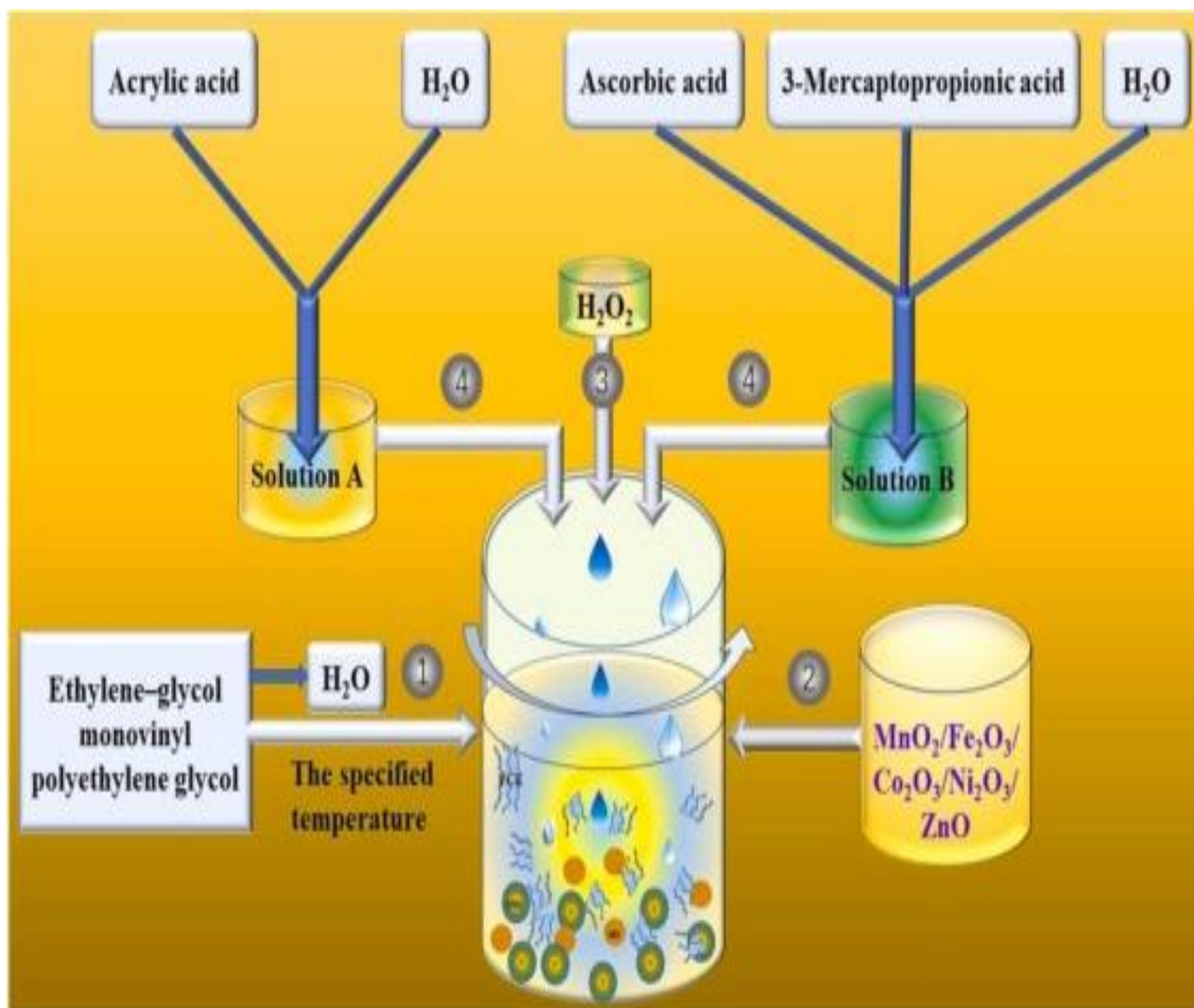
1. this product is a weak alkaline liquid, non-toxic, non-corrosive, environmentally friendly product. It is not edible and when exposed to the human body and eyes, should be washed with water as soon as possible, causing allergic to some of the human body should seek timely medical treatment.
2. this product should be stored in a covered container to avoid exposure to moisture/water and debris, mixed with or evaporation of water dry

# Polycarboxylate Superplasticizer (PC-R)



**PC-R (SPECIAL SET RETARDER)**

**POLYCARBOXYLATE SUPERPLASTIZER ETHER SYNTHETIC PRODUCTION LINE**



## 2.0 PULVERIZER MACHINE

A **pulverizer** or **grinder** is a mechanical device for the grinding of many different types of materials. For example, a pulverizer mill is used to pulverize coal for combustion in the steam-generating furnaces of coal power plants.

In the sample preparation process, Jaw crusher or hammer crusher is used to roughly crush the sample. Then, the sample smaller than 25mm is finely size reduction with a pulverizing disk machine. The grinding time is generally 1-3 minutes. The particle size of the pulverized material can generally reach 120-200 mesh to meet the testing requirements of the laboratory.

The working principle of the pulverize: The motor drives the rotating shaft to rotate with high speed, which generates exciting vibration. Due to centrifugal force, the bowl puck and ring hits, squeezes, and grinds the sample to achieve the purpose of crushing.

### ADVANTAGES

**More Power & Lifetime:** The vibratory head is driven by a universal shaft. It is powered by vee-belts from a standard, stationary (nonvibrating) 1.5kW electric motor. This drive arrangement delivers more power to the grinding bowls and optimizes motor life. Because it is not exposed to direct vibration as traditional integral vibratory motor-driven.

**Various Capacity & Excellent Efficiency:** Our multiple grinding bowls pulverizer series also differs from traditional grinding mills. Because it can install one to four grinding bowls with different capacities. And it can reach maximum totally 1600 grams of samples.

Meanwhile, the multiple grinding bowls design enables testing to proceed a maximum of four different material at the same time. It provides excellent efficiency at any time. You can choose the quantity of grinding bowls from one to four according to your actual need

**Wide Use & Perfect Grinding Effect:** Our sample pulverizer is used for ores, minerals, ferroalloys, ceramics, soils, aggregates, chemicals. Typically, samples can be ground to 95% minus 75-50 microns within 3 minutes depending upon their mass and physical characteristics.

**High Output & Low Maintenance:** Our pulverizer machine is well suitable to high volume mineral laboratories. They regularly preparing large samples. And it is also suitable for those remote laboratories. These laboratories do not often do special maintenance services for the integral vibratory motor-driven.

**Trouble-free Bowl Clamping Design:** The manual mechanical bow clamping adopts unique quick, easy and no-loose design. It offers trouble-free operation to operator during sample preparation process. No matter where the laboratory is. Whether the laboratory equipped a pneumatic system.

## **STANDARD FEATURES**

- 1.5kw stationary electric motor drive gives sufficient power to any demand of sample preparation. • Good looking and robust metal cabinet with sound reducing foam lining offers the operator a durable and friendly operation process.
- Our pulverizer mill is operated easily, convenient, efficient and trouble-free. The external control box equipped start & stop push button, motor overload protection, electronic run cycle timer.
- Lid safety switch stops mill when cabinet lid is opened during operation ensure absolute protection to the operator at any time.
- The Integrated Emergency Stop button ensures the laboratory disk pulverizer can be stopped immediately at any emergency.
- Low noise which is less than 60dB gives a friendly operation environment and necessary body protection to the operators.

## **VARIOUS OPTIONS**

Wide choice of bowls meets various demands and need to sample quantity and types.

Customized power supply connections.

Separate floor-mounted stand for the control box.

Disintegration (= mechanical pulverization) is one of the processes of dispersion. An external mechanical force is applied to agglomerated particles to loosen them almost without the formation of new particle surfaces and to reduce the size of agglomerated particles

Wet pulverization is capable of grinding to submicron level (ultrafine pulverization), which is difficult with dry pulverization. In addition to the pulverization of primary particles, wet pulverization also includes disintegration (= mechanical pulverization) and dispersion. In recent years, miniaturization of materials is often required, and not only pulverization but also disintegration and dispersion operations have become more and more important.

Dry pulverization is used in a wide range of fields because of its features. The size of pulverized products is generally reduced to micron level. In some cases, pulverization to submicron level is possible, but there are problems, such as aggregation and difficulty of collection.

## Types of pulverizes

The particle size that can be reduced by a single machine differs depending on the pulverizer. For this reason, several pulverizes are often used in series.

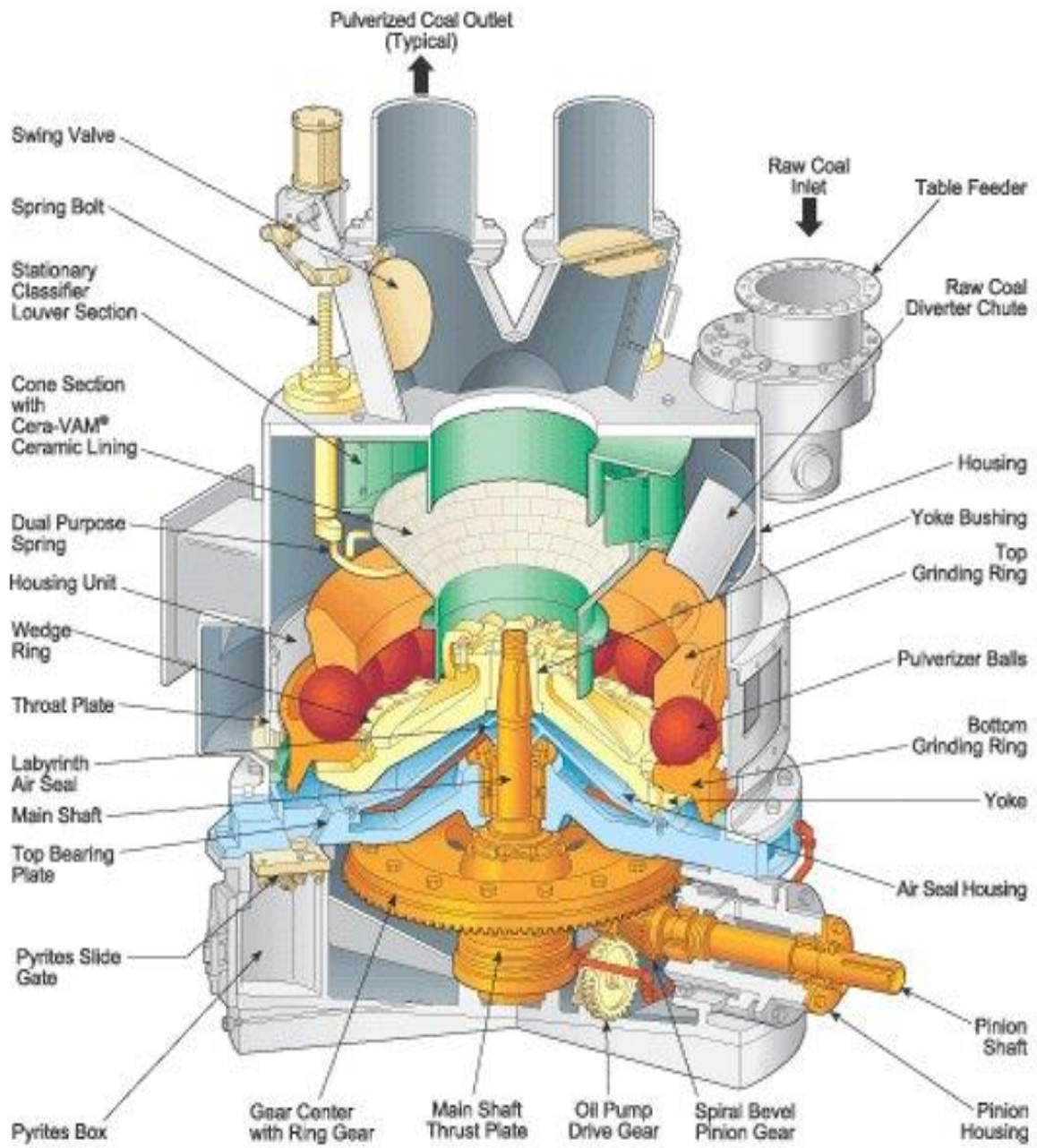
There are also a wide variety of pulverization methods, such as continuous pulverization versus batch pulverization (batch type) and dry pulverization (dry milling or grinding) versus wet pulverization (wet milling or grinding). It is important to select a pulverizer suitable for the purpose, taking into account the type and size of material to be pulverized (object to be pulverized), the target particle size, the conditions, etc.

### Representative pulverizes

Classification of pulverization operation	Size of pulverized material (ground particle size)	Main pulverization mechanism	Examples of pulverizer
<b>Crushing</b>	Meter order ⇒10cm or less	Compression	Jaw crusher Gyratory crusher
<b>Medium crushing</b>	10cm ⇒10mm or less	Compression Impact and shear Compression and shear	Crushing roll Hammer mill Roller mill
<b>Pulverization / (fine)grinding / milling</b>	1mm ⇒10 $\mu$ m or less	Impact Impact and friction Shear and friction Friction, impact, and compression	Jet mill Ball mill Vibratory ball mill Planet mill
<b>Ultrafine grinding</b>	10 $\mu$ m ⇒1 $\mu$ m or less	Impact, shear, and friction Friction, impact, and compression	Wet medium agitation type grinder (bead mill, attritor, etc.) Planetary mill (depending on conditions)

There are various classifications of pulverization operation. Pulverization may be classified into rough, medium, small crushing, coarse, fine, and ultrafine grinding.







## **BRIEF INTRODUCTION OF STONE POWDER MAKING MACHINE**

Stone powder making machine is an industrial grinding mill that can grind solid materials into ultrafine powder. It is usually used in metallurgy, building materials, chemical, and mine industries.

It is suitable for the superfine grinding of all kinds of crisp materials whose Moh's hardness is below 7, such as calcium carbonate, barite, dolomite, calcite, limestone, kaolin, bentonite, marble, gypsum, quartz, feldspar, clay, talc, fluorite, white mud, mica, refractory material, glass, total about 1000 kinds of materials.

Finished production fineness: 250meshes-2500meshes, 5-74 micron.

The capacity (ton/hour) ranges from 0.4T/H to 45T/H.

Max feeding size: 20 mm.



## FEATURES OF STONE POWDER MAKING MACHINE

- **High efficiency**

Under the same finished final size and the same motor power, the capacity of the zeolite grinding machine is twice as much as jet mill, mixing grinder, and ball mill.

- **Long lifecycle of spare parts**

- **High safety and reliability**

As no rolling bearings or screws in the grinding cavity, there are no problems caused by bolts shedding or rapid wear of bearings and seal components.

- **High fineness and flexible adjustment**

- **Environment-friendly**

The application of pulse dedusted and muffler greatly alleviates dust pollution and noise.

After being crushed by hammer crusher, the big materials become small ones and are sent to storage hopper by elevator and further sent to the middle of the first dial evenly by the electromagnetic vibrating feeder and feeding pipe.

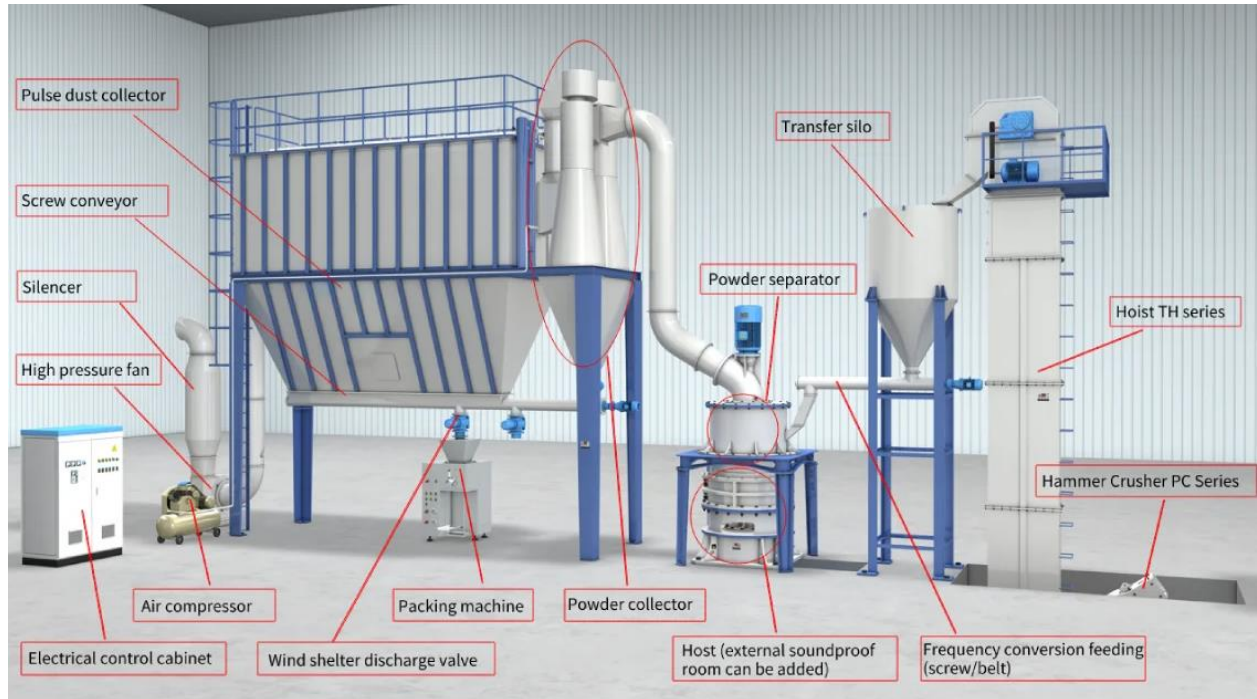
The materials will be driven to the edge of the dial by centrifugal force and fall down into the ring, crushed and ground by roller, and become powder after production of three rings.

The high-pressure centrifugal blower will inhale air from outside and blow the crushed materials to the classifier.

The rotating turbo in the powder concentrator will make the coarse powder return to the mill and reground, while the fineness will mix with the air and go into the cyclone and be discharged in the discharge bin, which is at the bottom of it.

The air, which mixed with very little fineness, will be purified by impulse duster and discharged by blower and muffler.

## ADVANTAGES OF HGM RING ROLLER MILL PRODUCTION LINE



### ① Integrated design, less comprehensive investment

The machine integrates crushing, grinding, powder selection, conveying, and packaging. The system is simple, and the layout is compact. The floor area is about 50% of the ball mill system, and it can be arranged in the open air, greatly reducing investment costs. The system design is simple and reasonable, saving unnecessary equipment investment and reducing the total equipment investment.

### ② 24-hour continuous production without stopping

The grinding roller bearings and reducer of the main machine are all lubricated with thin oil, which can be used for 24-hour continuous production without stopping. The lubrication system is stable and reliable, and the maintenance is simple.

### ③ **Intelligent control, simple and safe**

Adopting PLC/DCS automatic control of grinding roller pressure control mode, basically no manual operation is required. The independent grinding roller lubrication station can not only fully lubricate but also prevent excessive oil leakage.

### ④ **Using multi-head powder separator**

Using the principle of multi-wheel powder selection, all rotors can be adjusted by frequency control, and the fineness of finished products can be realized within the selected range. The quality of multi-variety production is stable, and the reproducibility is high.

### ⑤ **Environmentally friendly**

The equipment is sealed as a whole, the system works under negative pressure, and the finished product is directly sent to the large finished product warehouse by the gas conveying equipment, without dust spillage, the production environment is clean and meets the environmental protection requirements.

### ⑥ **Adapt measures to local conditions, plan optimization**

The production line construction plan is designed by the professional team of SBM micro-powder technology according to the data of the field examination room and combined with the production needs of customers, and the production and operation process is smooth.

## PARAMETER OF STONE POWDER MAKING MACHINE

Parameters of HGM series ultrafine mill							
Model	HGM80	HGM80A	HGM90L	HGM100L-II	HGM100P	HGM125L	HGM1680L
Ring Diameter(mm)	800	800	900	1000	1000	1250	1680
Ring Number (PCS)	3	3	4	4	4	4	4
Input Size (mm)	≤10	≤10	≤10	≤15	≤15	≤20	≤20
Adjustable range of finished product (mesh)	150-3000	150-3000	150-3000	150-3000	150-3000	150-3000	150-3000
Capacity (t/h)	0.5-5.5	0.5-5.5	0.8-6.5	1.2-10	1.2-11	2.5-20	5-45
Outlet Size L*W*H (mm)	8605*4139*6050	10454*3393*6626	11735*3952*7525	14507*3633*7562	14362*4200*7562	19261*4406*8591	25067*5414*9007
Main motor power (kw)	75	75	55*2	132/75*2	132/75*2	185	315



# MTW Grinding Mill



Max. Feed Size **50**mm

Productivity **3-45**t/h

Final Size **1.6-0.045**mm

# 30TPH GRINDING PLANT



MTW GRINDING MILL



## **FINANCIAL PROFILE OF THE PROJECT**

ANBO CONSTRUCTION MATERIALS COMPANY LIMITED, Aim to invest in Tanzania with total investment of 500,000USD. financial information is anything related to the financial activities and performance of a business. This information is often collected through financial statements or reports covering a specific aspect of a business's finances, such as cash flow and profitability.

Financial analysis is the process of evaluating businesses, projects, budgets, and other finance-related transactions to determine their performance and suitability. Typically, financial analysis is used to analyze whether an entity is stable, solvent, liquid, or profitable enough to warrant a monetary investment. Also, the project will create 150 new direct jobs at our processing.

### **INVESTMENT BREAKDOWN IN USD**

<b>Land/Building</b>	<b>80,000</b>
<b>Plant</b>	<b>90,000</b>
<b>Vehicles</b>	<b>65,000</b>
<b>Furniture &amp; Fitting</b>	<b>45,000</b>
<b>Pre-expenses</b>	<b>55,000</b>
<b>Others</b>	<b>75,000</b>
<b>Working Capital</b>	<b>90,000</b>
<b>TOTAL</b>	<b>500,000</b>

### **FINANCIAL PROJECTION OF THE COMPANY**

**Financial projection**, are documents that financial manager create to forecast the future income and expenses of a company. Companies often use these as the basis for making decisions about how to invest or manage their budgets and operating plans. Companies also use financial projections to forecast the potential success of new products. Financial projections are useful because they allow you to compare the potential of your idea with

the current revenue of the company. This enables you to forecast whether your idea can create additional sales activity.

## ➤ INCOME STATEMENTS

This page of the financial projection template shows income statements for the business for 5 years in USD.

Income statement	Assumptions	2024	2025	2026	2027	2028
Revenue		4,000	7,500	1,00,0	2,000	3,000
Gross margin%		5.0%	5.0%	5.0%	5.0%	9.0%
Cost of sales		1,800	3,835	4,097	9,000	14,000
Gross margin		2,200	4,128	5,500	6,300	16,000
Research and development		5,000	6,000	8,000	17,000	25,000
Sales and Marketing		6,000	7,000	8,000	16,000	24,000
General and administrative		5,000	6,000	9,000	17,000	26,000
Operating expenses	20.0%	1,600	1,900	2,500	5,000	7,500
Depreciation		5,000	14,000	11,600	9,680	11,744
Operating income	4.0%	1,000	8,250	18,400	50,320	78,256
Finance costs		600	2,248	1,615	956	487
Income before tax	20.0%	400	6,002	16,785	49,364	77,769
Income tax expense		80	1,200	3,357	9,873	15,554
Net Income		320	4,802	13,428	39,491	62,215

## ➤ BALANCE SHEETS.

This page of the financial projection template shows the opening balance sheet and the balance sheets for 5 years in USD.

	Assumptions	Opening	2024	2025	2026	2027	2028
Assets		-	-	-	-	-	-
Cash		5,000	1,846	1,156	4,951	29,451	60,164
Accounts receivable	31	6,000	4,932	9,247	12,329	24,658	36,986
Inventory	45	5,000	4,438	8,322	11,096	22,192	33,288
Current assets		16,000	11,216	18,725	28,376	76,300	130,438
Long-term assets		20,000	20,000	56,000	46,400	38,720	46,976
Total assets		36,000	31,216	74,725	74,776	115,020	177,414
Equity							
Capital		230,000	230,000	350,000	380,000	400,000	450,000
Retained earnings		10,000	10,000	21,000	23,000	35,000	165,000
Total equity		240,000	240,000	371,000	403,000	435,000	615,000

## ➤ CASH FLOW STATEMENTS,

This page provides the cash flow statements for 5 years in USD.

	Assumptions	2024	2025	2026	2027	2028
Net income		11,352	125,643	142,423	235,423	623,124
Add back depreciation		5,000	12,000	16,332	14,024	13,034
Accounts receivable		10,068	40,315	30,082	12,329	14,329
Inventory		562	3,884	2,774	11,096	13,842
Accounts payable		-541	2,589	1,849	7,397	9,432
Other liabilities	0	0	0	0	0	0
Cash flow from operating activities		6,651	14,140	22,258	38,216	62,898
Amount paid for long term asset		-5,000	-50,000	-2,000	-2,000	-20,000
Cash flows from investing activities		-5,000	-50,000	-2,000	-2,000	-20,000
Cash flows from financing activities		-4,805	35,170	-16,463	-11,716	-12,185
Cash flow		-30,154	-30,590	30,795	34,500	41,715
Beginning cash balance		50,000	52,084	55,087	65,086	66,284
Ending cash balance		19,846	21,494		99,586	107,999

## **2.7 Conclusion**

ANBO INTERNATIONAL COMPAMY LIMITED is well oriented company which seeks to establish its business practice, increase foreign exchange earnings in Tanzania and play part in overall supply of manufactured concrete products in the global market. We personally thank you for reviewing this plan for our investment in Tanzania.