



ISO 9001-2000 COMPANY



Ashirwad
MINECHEM



ASHIRWAD MINECHEM

Opportunity to get Kutch-Bentonite A mark of Quality.

District Kutch of the Gujarat State (India) is famous for good quality clay minerals like Bentonite China clay, Bauxite etc. Low Quality coal Lignite is also found in the area. The District Kutch, an independent terrain of land, having muddy desert on North-East called Rann of Kutch and Arabian Sea on South-West and is the second largest district of the country situated at extreme west end.

Both Quality of Bentonite, swelling and non-swelling grade, are found in the nearly entire district has deposits of various quality of Bentonite but extensive mining of good quality bentonite is carried out in Mandvi Taluka. More specifically, village Vandh, Serdi and Hamala are famous for swelling quality and village, Pundi, Goniasar and Asambia are famous for Non-swelling grade.

Due to porous crystal structure, bentonite, possesses' excellent property of absorption. It absorbs not only water but gases also. It expands several times of its weight volumetrically. It has very high viscosity and forms gel with water. All these properties are of sodium or swelling grade of Bentonite. The non swelling grade requires some chemical treatments to acquire property of adsorption and is used in the manufacture of bleaching earth.

THE COMPANY

Consistent Quality through out...

The entrepreneur of M/s. Ashirwad Minechem are engaged in the field of export-import and have their own mines in the taluka Mandvi of the District Kutch. The processing and grinding units are situated in the G.I.D.C. area of the taluka Mandvi, near Village Durgapur.

The Company has its own Laboratory to test samples at the various stage of operation, to satisfy valued Clients and can supply material of consistent quality through out. Location of the processing unit is selected considering the smooth access to the mines and responsible disposal of the finished product to the various parts of country and exports through Gujarat Adani Port & Kandla Port. Both are at the distance of 50 kms. and 120 kms. respectively.

Company is operating in 65 Hectar with enough manpower with high end Mining Equipments like R.C.C. Silo, Bucket Elevator, Service Silos, Pulversers, Dust Collector, Pockland-Hitachi, Spraying Equipments, Tractors etc.



MINING AND PROCESSING

Quality from layer to layer...

Mining of Bentonite is of open cast type. Since the clay minerals are formed due to Geothermal activities it varies in quality from layer to layer even in a same mine. The colour and other properties are depended upon the interference of the other metal ions present in soil. Therefore, mining of bentonite requires special attention. Regular sampling is done and various grades of materials are stored separately at the mine for the best suitable quality requirement.

After checking parameters of the digged out clay is spread on open plot for sun drying to reduce moisture upto desired level. After sun drying again material is checked and transported to our factory site for further processing.

Due to the interference of other mineral and metallic salts, the excavated bentonite need activation to improve its quality. At our factory site we have sufficient land to carry out activation process under strict supervision of our skilled personnel. After achieving desired level of activation and moisture the material is subjected to size reduction. We have four pulverizers to grind material to desired mesh size and packed according to buyers requirement.

We have fully equipped laboratory to test all required parameters laid by buyers. Right from the mines to the finished product all tests are carried out in our lab. The periodical testing while processing and grinding gives uniform quality product. Various tests give an idea of absorption capacity, gelling capacity and extent of active clay in the minerals. For example swelling capacity gives an idea of absorption, gel formation time and gel index gives an idea of absorption as well as viscosity. M.B. value gives the amount of active clay present in the mineral bentonite. Due to high gel formation capacity and viscosity bentonite is extensively used in foundry industries as well as in oil well drilling.



FOUNDRY GRADE

AM-SUPRA

It is a specially process bentonite having high swelling, high gelling index and maximum active clay part. It is suitable for high pressure foundries and for specific casting where surface finish is the important factor.

TYPICAL PHYSICAL PROPERTIES

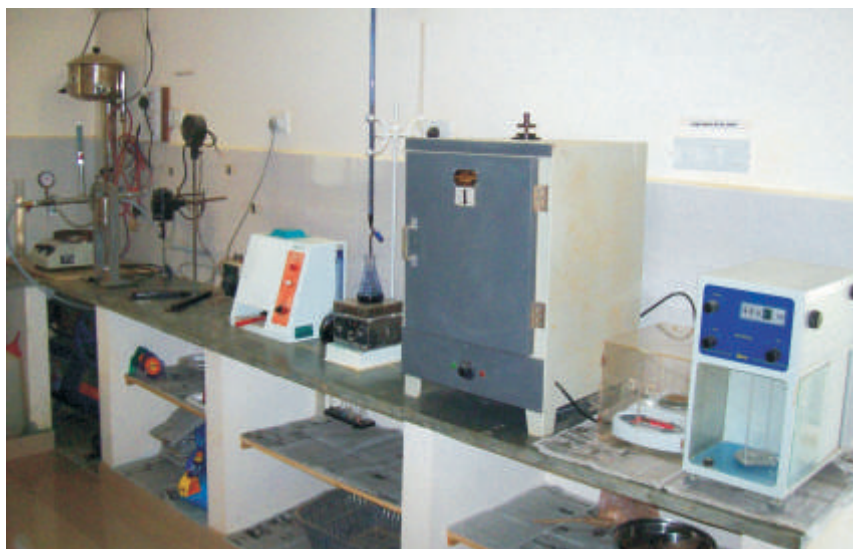
Form	Finally Divided Powder
Free-swelling	32-35ml
PH	9.5-10.5
Moisture	12% Max.
Gelling Time	Instant
Gelling Index	85-90%
M.B. Value	400-450
Fineness	90% through 200mesh B.S.

It has excellent W.T.S. and G.C.S. and very high bonding capacity.

Instant gelling time and excellent suspension property (85-90%) reduces the time of mold drying.

Retains 50% of its properties even after the heating to 500°C

Characteristic	Test Results
Wet compression durability (Strength durability)	2050-2080
Wet Shearing Strength (Tensile durability)	420-440
Gas transmission rate	198
Methylene Blue test	45-47 ml.



FOUNDRY GRADE

AM-INSTA

This grade has widely accepted by all normal foundries all over and successfully captured sizable market.

TYPICAL PHYSICAL PROPERTIES

Form	Finally Divided Powder
Free-swelling	30-32ml
PH	9.0 to 10.0
Moisture	12% max.
Gelling Time	Instant
Gelling Index	75 to 80%
M.B. Value	390-400
Fineness	85% through 200 B.S. sieve

AM-MAXI

This is a most economic grade of bentonite and is second largest selling part out of three grades formulated.

TYPICAL PHYSICAL PROPERTIES

Form	Finally Divided Powder
Free-swelling	28-30ml.
PH	9.0-9.5
Moisture	12% max.
Gelling Time	-
Gelling Index	60-75%
M.B. Value	350-390
Fineness	85% through 200 B.S. sieve

BENTONE - I.O.P. GRADE

After ore dressing and concentration, steel industries require bentonite for the formation of granules from iron ore powder for smooth safe handling for further process. A specially formulated bentonite forms good quality granules or pellets with minimum breakage. Bentonite is added to the iron ore powdered concentrate where it acts as a binder to form good quality of pellets. The quality of bentonite for I.O.P. measured by its capacity to absorb water and its stability at high temperature.

TYPICAL PHYSICAL PROPERTIES

GRADE	TYPICAL CHARACTERISTICS				
	Free Swelling	Gelling Index	Water Plat Absorption	PH	M.B. Value
AM-IOP-1	28-30ml	60-70%	550-650	9.0-9.5	350-375
AM-IOP-2	30-32ml	70-80%	650-750	9.0-10.0	375-390
AM-IOP-3	32-35ml	80-90%	750-850	9.5-10.5	390-450



PENCIL GRADE

It is a very special grade of bentonite used by the pencil industries as a lead binder. Very selective bentonite having good binding properties even after grinding to fineness of 400 B.S. mesh is used to prepare this grade.

TYPICAL PHYSICAL PROPERTIES

Form	Finally Divided Powder
Free-swelling	23 to 25 ml.
PH	8.5 to 9.5
Moisture	12% max.
Fineness	99.95% through 500 B.S. Sieve
Bulk Density $\frac{20}{25}$	0.800



ENVIRONMENTAL GRADE

This is a granular form of high absorptive sodium grade of bentonite for the treatment of waste water.

TYPICAL PHYSICAL PROPERTIES

Form	Granular
Size	1mm to 5mm
Colour	Brown to greenish gray
Free Swelling	26ml to 28ml (powdered to 200B.S.)
PH	8.5 to 9.5



DRILLING GRADE

Bentonite having good thixotropic suspension properties and very low filtrate volume is selectively prepared as additive to the drilling fluid. It is widely used in petroleum drilling and drill for the pilling work eg. civil construction grade.

Petroleum industries through out the world follows the standards laid by American Petroleum Institute (API) and Oil Companies Materials Association (O.C.M.A.)

SPECIFICATIONS FOR API GRADE

REQUIREMENT	STANDARD
Suspension Properties ::	
Viscometer dial Reading at 600 r/min.	Minimum - 30
Yield Point/Plastic Viscosity Ratio	Maximum - 3
Filtrate Volume	Maximum - 15.0 cm ³
Residue of diameter grater than 75 micron.	Maximum mass fraction - 4.0%

SPECIFICATIONS FOR O.C.M.A. GRADE

REQUIREMENT	STANDARD
Suspension Properties ::	
Viscometer dial Reading at 600 r/min.	Minimum - 30
Yield Point/Plastic Viscosity Ratio	Maximum - 6
Filtrate Volume	Maximum - 16.0 cm ³
Residue of diameter grater than 75 micron.	Maximum mass fraction - 2.5%

SPECIFICATIONS FOR CONSTRUCTION GRADE

REQUIREMENT	STANDARD
Suspension Properties ::	
Viscometer dial Reading at 600 r/min.	Minimum - 30
Yield Point/Plastic Viscosity Ratio	Maximum - 8
Filtrate Volume	Maximum - 16-18 cm ³
Liquid limit	400-600
Particle size/Fineness	85% through 200 B.S.

VALUE ADDITION PRODUCTS

AQUA GEL

A light coloured specially formulated bentonite for excellent gelling / suspension properties in Aquous system is water based paint and coating.

TYPICAL PHYSICAL PROPERTIES

Form	Highly Purified Bentonite
Colour	Creamy / Offwhite
Swelling Index	30-35 ml. 2g in 100ml distilled water
Gelling Time	Instant
Gelling Index	90-95ml
PH	9.5-10.5
M.B. Capacity	80 to 90 ml./gram of clay
Fineness	90% through 200 B.S. sieve



B-TONE 50

A light coloured organically modified bentonite for excellent suspension/thixotropic and gelling agent in solvent based system eg. paints and coatings.

TYPICAL PHYSICAL PROPERTIES

Form	Finally Divided Powder
Colour	Creamy White
Mineness	90% through B.S. sieve no. 200
Odour	Slight to None
Moisture	3 to 4%
Specific Gravity	1.7



VALUE ADDITION PRODUCTS

CAT LITTER

TYPICAL PHYSICAL PROPERTIES

Form	Sodium - Bentonite
Grain Size	1.5mm - 5mm
Clumping	High instant clumping
M.B. absorption	50-90ml/gram
Color	Creamy to Offwhite
Dust	1 to 1.5%



CLEAR TONE

A product derived from calcium based bentonite having high absorption but low viscosity. It can be used as a filter aid in various products to remove suspended impurities.

TYPICAL PHYSICAL PROPERTIES

Form	Thermally expanded bentonite
Colour	Offwhite to Brown
M.B. Capacity	70-90ml/gram



OTHER PRODUCTS

ATTAPULGITE CLAY

TYPICAL PHYSICAL PROPERTIES

Form	Finely Divided Powder
Colour	Greenish to Gray White
PH	8-10
Moisture	15% Max.
Fineness	85 to 90% through 200 B.S. sieve
Bulk Density	0.6



BAUXITE

TYPICAL PHYSICAL PROPERTIES

Form	Fine Powder and Lumps
Al ₂ O ₃	+47%
SiO ₂	8% Max.
Fe ₂ O ₃	10-11%
Ca ⁺⁺	2%
Ti	5%
L.O.I.	28%
T.H.A.	40-48%



OTHER PRODUCTS

OIL DRILLING GRADE BARYTES (API)

TYPICAL PHYSICAL PROPERTIES

Specific Gravity g/cm ³	4.20 g/ccm minimum
Water soluble alkaline earth metal (escalcium)	250 ppm maximum
Mercury (Hg)	1 ppm maximum
Cadmium (Cd)	3 ppm maximum
Extractable Carbonate-Wet measurement	3000mg/l maximum
Moisture	1% maximum
Residue on 240 Mesh	1% maximum
Residue on 325 Mesh	5% maximum
Colour	Dark to Light grey



APPLICATION PROFILE : BENTONITE

FOUNDRY

Bentonite is used as a bonding material in the preparation of moulding sand for the production in casting industries. The range of product are developed at our processing unit to meet the requirements of normal foundries to high pressure systems. Selective bentonite mined from our various mines are processed to enhance its natural swelling/gelling properties to improve/shorten swell/gel times and to improve bond capability of conventional bentonite.

The concept of use of processed Bentonite despite higher cost is that less addition of additives in a green sand system, improves sand flowability, allows the sand to "breathe" better by improving permeability, compact ability and thermal stability for the production of high quality casting with minimum casting defects.

PELLETIZING

Iron ore fines are generated while mining, ore dressing and concentration. These fines are converted into spherical pellets in pelletizing plant to convert fines into suitable feed material into furnace. Highly formulated bentonite forms good quality pellets with minimum breakage. The quality of bentonite is mainly established by measuring plate water absorption.

DRILLING

Bentonite having good thixotropic/suspension properties and low filtrate loss is preferred for deep well drilling in the preparation of drilling fluid. Its major roles are to seal the boreholes, maintain bore walls, to remove drill cuttings and to lubricate the cutting head.

CONSTRUCTION AND CIVIL ENGINEERING

Bentonite in this field is used to maintain bore holes for piling, support and lubricant in diaphragm wall and foundation, in tunneling, horizontal drilling, diversification of water stream etc.

ENVIRONMENTAL MARKETS

Swelling, gelling, adsorption / absorption properties of bentonite are very useful in construction and rehabilitation of landfills to ensure the protection of ground water from the pollutants. It forms impervious layer to prevent percolation. Thermally treated bentonite is very useful to treat waste water.

AGRICULTURE

It is used to form animal feed pellets and as a feed supplement. It gives flowability to unconsolidated feed ingredients such as soya meal. The thermally treated, can be used as a porous ceramic carrier for various herbicides and pesticides.

PENCIL LEAD BINDER

Fine graphite and bentonite having very high fineness of 400 mesh sieve is used as a lead binder. The major criteria of the bentonite are the super fineness and minimum grit.

APPLICATION PROFILE : VALUE ADDITION PRODUCTS

AQUA GEL

A creamy white bentonite having high gelling properties and excellent suspension characteristics. It is used as a gelling and suspending agent in aqueous systems e.g. water based paints and coating, coloured pencil binder, foundry coatings, cosmetics (cream, lotion and dusting power) etc.

B-TONE 50

A organically modified high purity bentonite having high gelling and suspending properties in solvent based systems e.g. oil paints, epoxy paints, synthetic primers, inks, foundry coating etc.

CAT-LITTER

Granulated bentonite having greenish/creamy white appreciable colour. Due to its advantage of absorbing refuse by forming easily removable clumps leaving the remaining product intact for further use. It has additional advantage of absorbing bad smell.

CLEAR TONE

Specially modified granulated bentonite having grain size of 1.5mm to 5mm for removal of fibrous materials from liquors and beer (as a clarifier) to make clear liquid. It has low viscosity but high absorption power.

R&D PRODUCT

Our R&D work is going on to formulate and process a high efficiency colour remover for organic solvents like M.T.O., Nitrobenzene etc. and other product for fixed oils for the similar purpose.



APPLICATION PROFILE : OTHER PRODUCTS

ATTPULGITE

Due to its high adsorption capacity, light weight, high temperature endurance and salt and alkali resistance makes it suitable for skimming out of impurities and slog removal. It has an advantage over time of having comparatively high absorption capacity. Some light coloured or white varieties are used in coating and paints due to having certain plastic and adhesive characters. Its chemical composition is $Mg_5-Si_8-O_{20}(OH)_2(OH_2)_4-H_2O$

BAUXITE

It is a basic raw material of alumina, alumina and synthetic geolite. The calcined variety is used in foundry coating to impart finished surface coating inside the mould. It has an excellent temperature resistivity. The bauxite is an imported raw material for cement industries to adjust setting time.

BARYTES

It is a high density barium sulphate and is used in drilling mud formulation for petroleum and deep borewell drilling. The micronized powder is used in the paint and coatings for better hiding properties.





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