MINING MAGAZINES.COM
E - Market Report

Turning a "Gray Gold" Nepheline Syenite "New Style Investment" Into a Needed Retail $aleable Product

Synthesized By Barry Murray, "the" Prospector

[A Red Herring Full Disclosure:

This is MiningMagazines.com supply side mining / marketing plan, presents a way off Wall Street securities offering answer to a mining investment monopoly.

Accept that you cannot compete with flash trading from misleading advertising, and financial side subscription for already presents for press release and newsletters. Listen instead for fully free of sponsorship from Public Broadcasting System financial advisors as Suze Orman and Rich Dad Kiyosaki on really taking an active role managing your own retirement portfolio based upon real wealth.

Unfortunately, a valid explanation of what is truly happening in a sector requiring understanding some very basic rules, as hard rock mining in the West, is difficult to find. This is why we at MiningMagazines.com, are switching to a locked, copyright protected Adobe PDF is present the downloadable volume of the information needed to make valid business decisions in this often abused Information Age breaking the free market laws dealing with supply and demand,

An example: Did you know that The Mining Law of 1872 concerning a legal mining claims system is supposed in conflict with manipulated securities regulations out of the 1930's that have unfairly excluded small mining investors through Reg. D, and Blue Sky "widows and orphans" exclusions to the point where in a mineral rich California, one has to qualify as an potential investor by already being millionaire?

So this PDF is an experiment in not having to spend millions for an un-needed IPO advertising, or "expert advice" by simply offering for sale a piece of rock, from very secure underground vault to be mined and milled into as a product]

Index

MININGMAGAZINES
An Online Reported from the Field Printable White Paper,

2015/1 — Best Use Proposal for Oregon's Table Mountain Nepheline Syenite for ECO aware, and affordable off-grid, energy star insulating wall and smart roofing housing systems.

The bargain retail end use of Oregon's Nepheline Syenite has been subject to a global "top down" marketplace control of supposedly propriety products based upon secret research, or European only patent.

For many years this unique nepheline syenite deposit was not able to compete in the traditional world-wide feldspathic use in clear glass, bathroom china, and protective coating manufacturing, for a "handicap" of too much (Fe_2O_3) iron.

This accident of nature providing "just in time" answers, may have been turned into a real advantage with the publishing of some university level research on nepheline syenite as a "clean air" flux to help the steel industry meet global standards.

Another ECO advantage this "Swiss Army Knife" of mineral deposits has when dealing with the causes of climate change would be in the manufacture of rock wool insulation that has twice the R-value of a similar spun pink fiberglass.

This use is actually US Forest Service clear listed, and was featured in the Ore Bin, a publication by the Oregon Department of Geology & Mineral Industries, with a questioning why wasn't this natural resource "gift" that also published *Economics of Coast Range Igneous Rocks* in Lincoln County that helped establish, along with U.S. Bureau of Mines research at Albany, Oregon, and the US Geological Professional Paper 840, that helped establish the intrusive uniform plug/sill deposit at 500,000,000 tons.

A difficult figure to deal with in worth calculations where 500 Million a hard cash metallic penny per ton rock wool buyout use would only be $5 million. Even more difficult to comprehend when compared to the “free trade, no tariff protection” scarcity pricing our housing developers are paying.

Apparently the cost of developing a USA manufacturing source of a superior nepheline syenite fly ash to compete with a very large European source with a nepheline syenite “briquettes” patent, has been the only answer?

Or at least it was until the Chinese took a look at Europe’s propriety wall systems, delivered ready for place by crane building construction. Now, in theory Oregon rock feedstock could be sent to China, and returned as rigid nepheline mineral wool as rigid weight supporting metal roofing batts with a high thermal insulation R-factor.

This market research was the clue that led to the “reverse engineering” by the Chinese to copy European ideas in nepheline processing, that for me, as the claims holding prospector, was a real breakthrough in the permitting process.

Namely that the US Forest Service, that manages the surface of the unpatented claims requires a Code of Federal Regulation, Section 16, “Plan of Action” designating a valid end-use value far above that of “common variety” gravel. This really got me into a two year long study on how far advanced Asia was over US in cost cutting concrete. In particular, how was it that AliBaba.com was selling the same chemical mix as Table Mountain for $250 per ton FOB dock side, China? That is real “added value”!

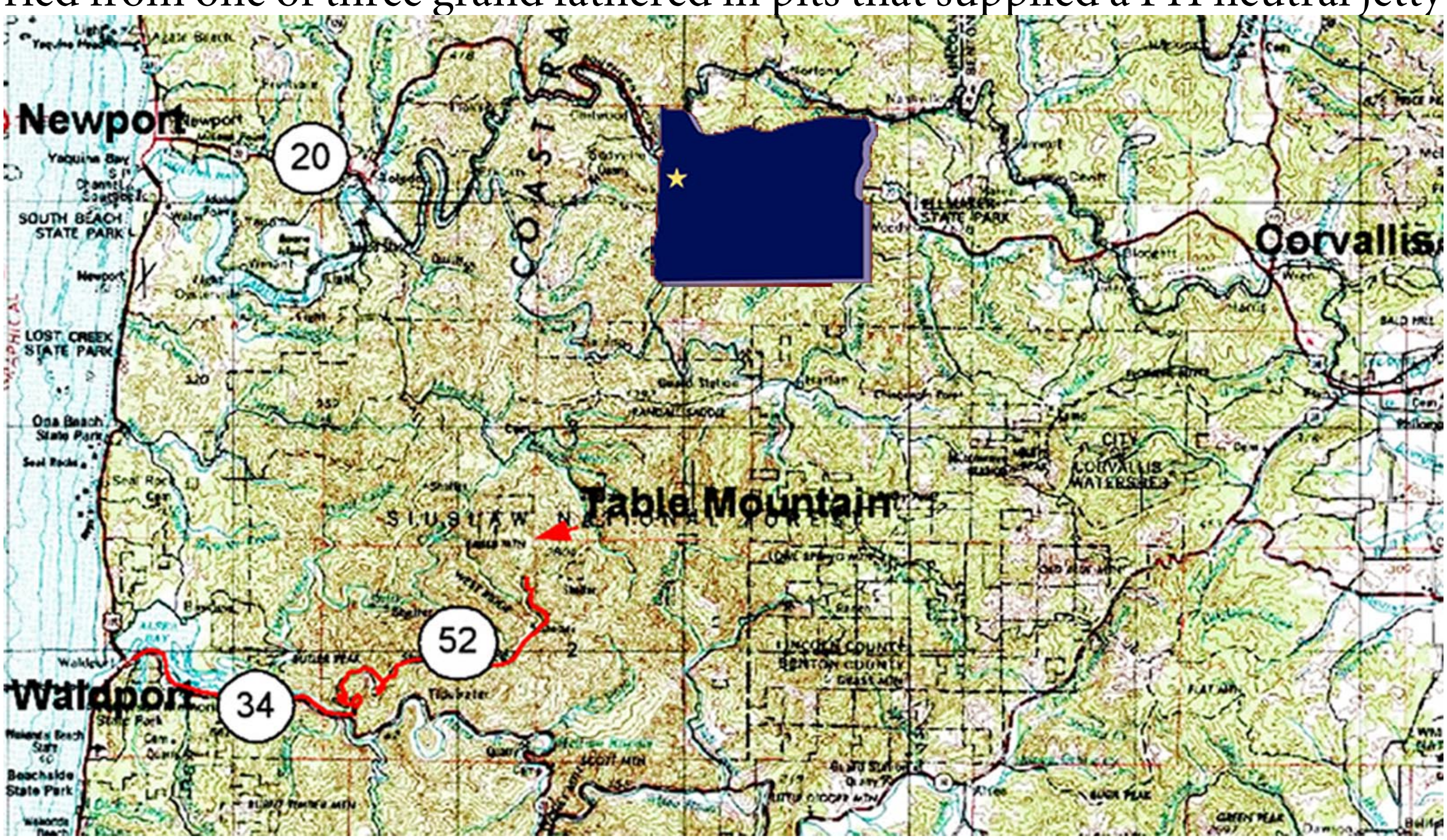
What follows from un-copyright protected papers, and as I have a background in old-fashioned journalism of asking the right questions, for the right answers, at the right time, from the right person — turned out to be FoamKrete [tm] which will be the first into production out of the three “grand fathered” quarries that produced a PH neutral jetty stone safe enough for protection of the industry of harvesting a salmon healthy natural cycle.

And the gift from Creator here is that Oregon’s Nepheline is a roundup of chemicals in natural mixture of $(Na, K)AlSiO_4$, Sodium Potassium Aluminum Silicate is the only readily soluble natural raw material source of Alumina and Silica" that happen to be the 'magic' in foaming light concrete four to ***five times the volume of dense concrete for affordable housing use.***

The Mountain

The deposit detailed in this report, and other sources listed in the bibliography listed on the virtual tour at www.property-prospect-showcase.com is located at Table Mountain, in the Sisuala National Forest in Lincoln County, Oregon. On a highway map the claims may be found 15 miles (direct) SE from Newport / Toledo, or 12 miles NW (direct) from Waldport, on the scenic Oregon Coast. Aptly named, Table Mountain is a plateau of 2,700 feet in altitude, in the Siuislaw National Forest.

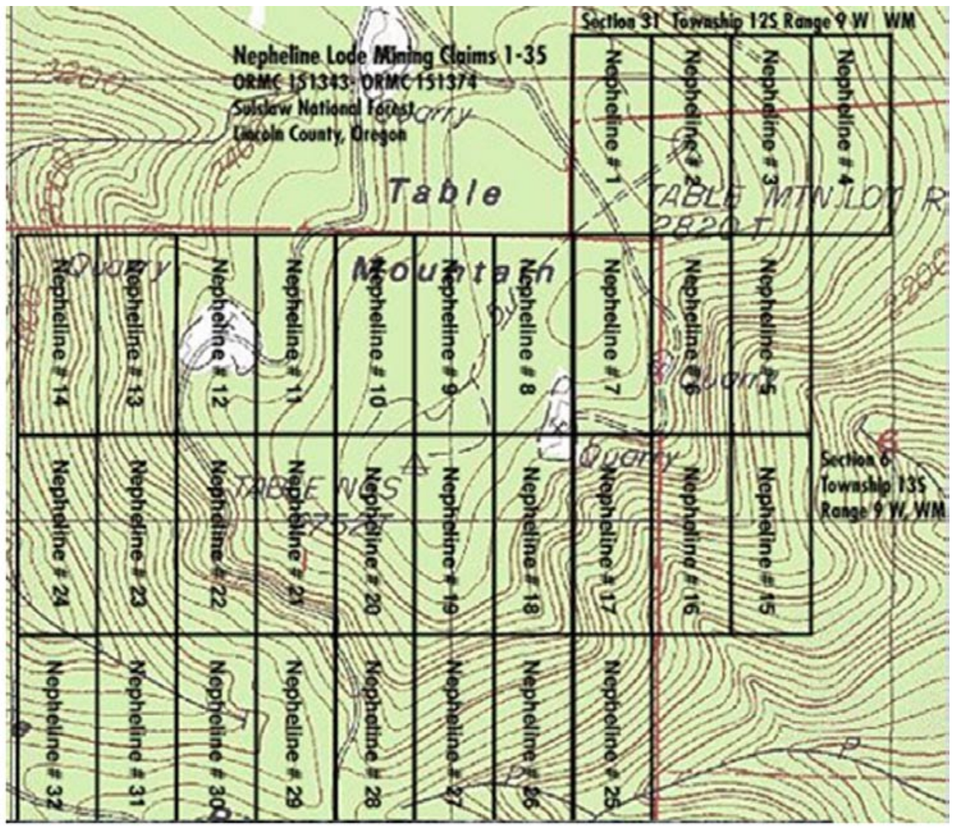
A good stand of Douglas fir and the presence of two natural springs provide a picturesque setting. On a clear day the ocean, 12 miles away, is visible. By road the distances are 25 miles from either point, with the best all weather route being a paved highway from Waldport for 20 miles, and U.S. Forest Service road , with the last three miles being nepheline syenite gravel quarried from one of three grand fathered in pits that supplied a PH neutral jetty



stone for the salmon run sensitive Yakquina River bar.

There is a railhead and sea-going barge loading facility at Toledo, only 15 miles away, which could be accessed via USFS logging and Lincoln County roads.

The deposit is covered both by 32 lode claims, for a total area of 640 acres, which is considered one square mile.



The only known, besides Table Mountain, deposits in North America, are located at Blue Mountain, Ontario, Canada, and 3M's Magnet Cove in Arkansas along with a newer deposit located in New Mexico, also owned by 3M that recently began shipping pre-cast AAC concrete panels.

Figured very conservatively the Table Mountain claims cover a deposit that contains 26 million tons of visible measured reserves of recoverable nepheline syenite, out of a total volume indicated to be 700 million tons.

Evaluations of this deposit were made following the guidelines published by the U.S. Geological Survey (Circular 831) defining:

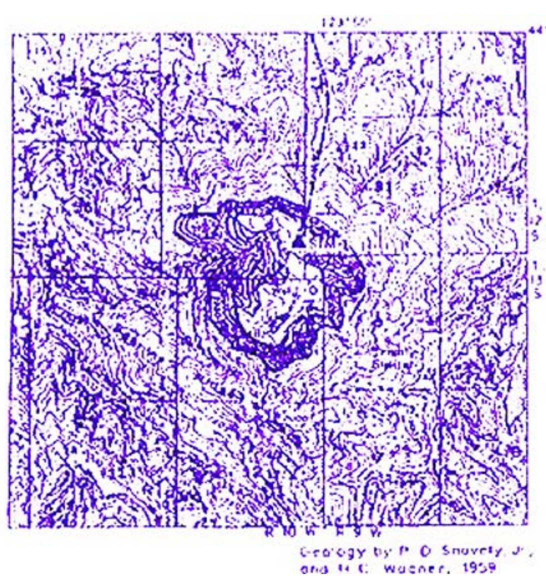
Measured Resources — Where grade, quality, is known, and the quantity is computed from specific geologic evidence and dimensions revealed in outcrops, trenches, workings, or drill holes.

Indicated Resources — Where quantity is computed from grade and quality information similar to that used for measured resources, with an assumed continuity between points of observation. This is where the depth measurements were made of the uniform sill by the difference in elevation from the top of the table, to visible proof down the sides of an exposed slope, of a formation that with drilling to depth may prove to be deeper than reported.

According to Bulletin 81 (1973) Environmental Geology of Lincoln County, Oregon, by the Oregon Department of Geology & Mineral Industries, and Henry Harris (1962) Economics of Coast Range Igneous Rocks in Oregon, U.S. Bureau of Mines unpublished report, the deposit is 300 feet thick, and covers one square mile.

The Oregon Department of Geology & Mineral Industries Bulletin assumes, from the vertical relief of the deposit (i.e.: the elevation difference from outcrops on the top of the mountain, to the bottom of the exposure, adjusted for the angle of the slope), an indicated total of 700 million tons of recoverable syenite.

There are numerous natural exposures, and man made exposures in excess of 15 feet downslope that show the material nepheline syenite in place.



An adjustment in the total was made to compensate for the fact that a portion of the deposit is on a section (36) set aside as State of Oregon School Lands, also dating from the 1870's, and as such is not open to mineral entry. As the "apex" lode mining claims uphill prevail under much of the private logging land, the total underground reserves are really a mute point.

The Table Mountain claims cover approximately 85% of the mineral deposit, which is the figure used to compute the total of 26 million tons of measured recoverable nepheline syenite, and 525,000,000 + indicated of recoverable nepheline syenite.

The U. S. Geological Survey Professional Paper 840, which features the Table Mountain nepheline chemistry as a new standard, suggests the deposit may be 400 feet thick. Using this higher number the indicated quantity would be in the 700 million ton range, even before any drilling is done.

The Mineral

Nepheline Syenite is a rare igneous rock that, although resembling medium-grained granite in texture, consists principally of nepheline and alkali feldspars. The name sounds ominous but the mineral is not related to cyanide, nor is it poisonous. In fact, Nepheline Syenite is a very beneficial element. It is a "Swiss Army Knife" mineral whose usefulness keeps expanding.

The uniqueness of this has lead to speculation that the ore really is a Rare Earth, or at least on the border of a mineral classification that already has 16 identifiable uses that China has benefited from through their control of not exporting their strategic minerals for the benefit of US auto makers of hybrid electric vehicles.

Ironically the U.S. Bureau of Mines facility in Albany, Oregon, just over the Coast Range, that did some of the rare earths analysis on our nepheline, was the facility Congress closed down in a cost saving measure. Or maybe it was over the embarrassment that America's rare earths industry did not pay much attention to what was happening next door at Teledyne Wah Chang Titanium, Albany, USA.

In 1957 there were eleven separate commercial uses identified as the manufacture of glass, ceramics, roofing granules, rock wool insulation. Today, it is a challenge keeping up with all the new uses for this material. Since the mineral is 75 to 80% pure feldspar, there are a number of companies working towards developing proprietary space-age epoxy and resin systems utilizing the unique qualities of Nepheline Syenite.

One such project under way is working on replacing steel railroad coal cars with a molded feldspar body 1/3 the weight. The same company will soon be offering a bullet-proof "Kelvar" type material out of feldspar that can be seamlessly formed into a boat hull far superior to that of fiberglass.

The Table Mountain nepheline has a Mohs Scale hardness of 6, a specific gravity of 2.57, and an average weight of 160 pounds per cubic foot. U. S. Geological Survey Professional Paper 840, and the State of Oregon Department of Geology & Mineral Industries Bulletin 8, show that the unprocessed material from Table Mountain consists of:

SiO2	(Silica)	59.62%
AL2O3	(Alumina)	18.60%
Fe2O2	(Ferric Oxide)	02.86%

The composition of imported Grade A Glass Nepheline use is:

SiO2	(Silica)	60.04%
AL2O3	(Alumina)	23.06%
Fe2O2	(Ferric Oxide)	00.08%

Obviously the limiting factor in utilizing the Table Mountain material, as is, in the production of clear glass and ceramic items has been a high iron content. The discoloration caused by the iron is not a factor in beer and wine bottles. Recent mill tests show the removal of iron not to be a problem at all. And a higher iron content has been shown to be desirable in colorized roofing granules in that the "impurity" filters fading by UV rays.

The main competitor in North America, the Blue Mountain, Ontario operates on raw material that contains 2% ferric oxide that after processing, this "waste" is sold as 56% Fe.

Other than iron, the factors limiting utilization of the Table Mountain material such as rock wool, and alumina, and extenders only seem to be location, and the initial cost of developing production.

The material, due to the size of blocks and hardness of the rock, made a good jetty stone before the Corps of Engineers density requirements. The light to medium gray (with a blue tint) granite-like rock takes a good polish, displaying a soft cloud-like effect. The Audubon Society Field Guide to North American Rocks and Minerals states that the nepheline syenite is "an excellent building stone," but again location, and hard to tell apart manufactured counter tops, with an ever wider range of colors, precludes this suggestion.

Fortunately, the absolutely best use to concentrate on today is the magic of FoamKrete, as it so important a tool in answering what some politicians are still denying — that changes in climate are a result of fossil fuel unhealthy smog clouds being el nino jet streamed into an overall global warming.

The Synergistic Chemistry

Perhaps the most difficult uncontrolled circumstance and situation that some big board room business "engineers" need to understand is that sometimes smaller start-ups are the only ones that have listened to Albert Einstein's suggestion that, "everything should be made as simple as possible, but not simpler".

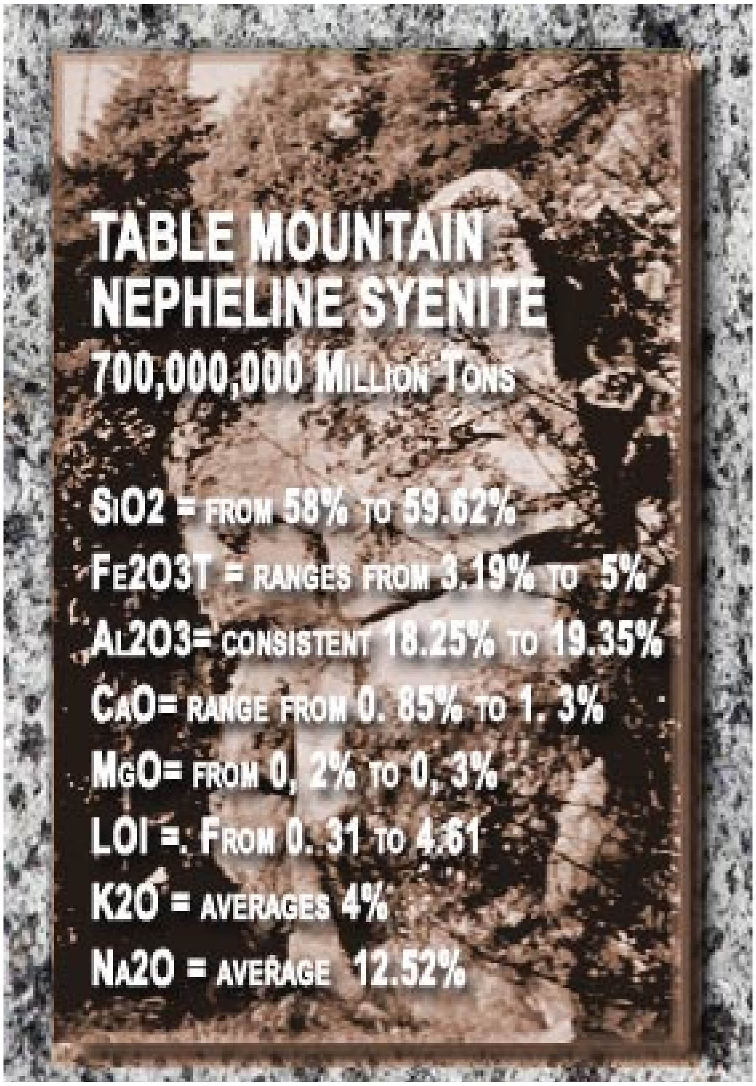
Case in point could be Xerox, who rose to fame out of a photo paper manufacturing business by developing the plain paper office copier. And then through distraction (?) totally missed the transition to electronic paper, by ignoring, or doubting, documentation that they actually already owned OOPs software that worked by simply locating the X and Y on a computer screen

Something the start-up kids Steve Jobs, and Billy Gates, learned by a visit to the Xerox research facility in the now famous Silicon Valley, being shut down by the disgruntled inventor, nameless today, of the mouse was let go by management for not being jelly bean cost conscious.

Consider also how AAC concrete leaders today have gotten so into the engineering of those copper steam heated automatic autoclave concrete curing factory units, that they overlooked the fact that what Third World Asia was doing with Chinese computer 3D house printing of the same mixture delivered by hose to a building site. And that in Pakistan, India, and Vietnam, simple duct taped cardboard forms were used for a natural raising of the foam to cure. It is known as cellular light-weight concrete, or CLC. The only real difference from AAC is fluidity.

What has also been shown in Asia that has a limited supply of nepheline syenite for admixture use is that the 'proprietary formula" of a naturally occuring ore can be reverse engineered back to designated natural chemicals that cannot be patent protected anymore than basic lime and sand, in this new inventive concrete use.

This is particularly true when it comes to the natural cement additive formula that sue fly ash, or other "expanders" that generates what has been coming out of third World countries as CLC concrete.



Either way, or the designation, what China has been selling as nepheline syenite for $250 per ton, as shown next page, can be valued in USDs.

1> The USD price of precipitated **Silicon Dioxide (SiO2)** is online searchable at $600-800 / per ton.

As a "soluble nepheline silicon" used at 59 percent of the necessary AAC secret formula volume, makes the Table Mountain deposit being worth is no less than $354 per -325 metric ton.

Please use this rock hard fact to counter "concrete industry financial experts" discounting the science of AAC concrete building materials relying on (SiO2) —natural or manufactured— with absolutely no documentable published papers in their rebuttal.

2> Market price of the totally scientifically recognized AAC secret of soluble **Alumna Oxide of (Al2O3),** or Alumina out of Australian bauxite that has been ranging from $322 + per metric ton, for 400,000 tons a month delivered to China.

As the acceptable AAC percentage formula of 5% – 8% Alumina by volume, out of an ore that assays a higher 19.35% than the Chinese bulk FOB price, calculates out to be worth $64.40 per metric ton. A $64 per ton figure, alone, is well under the projected Oregon Table Mountain project production costs of drilling, blasting, and crushing, delivered to a nearby railhead and barge dock as a $100 per ton product.

This happenstance itself may have serious consequences on what global building industry cartels might have to say about stifling competition. In a free market society, let the multinationals find another U.S. source of a

Chinese Nepheline Syenite In Bulk	Oregon Nepheline Syenite In Bulk
SiO2 = from 60% to 64%	SiO2 = from 58% to 59.62%
Al2O3 = from 17.4% to 19. 3%	Al2O3 = from 18.25% to 19.35%
CaO = from 0. 9% to 1. 3%	CaO = from 0. 85% to 1. 3%
MgO = from 0. 2% to 0. 4%	MgO = from 0. 2% to 0. 3%
LOI =. from 0. 5 to 0. 6	LOI =. from 0. 31 to 4.61
K2O = from 5. 4% to 7%	K2O = from 4%
Na2O = from 6. 1% to 7%	Na2O = from 12.52%

readily soluble natural raw material source of alumina and silica!

Also, the established world wide market price of $250 per ton for all natural -325 nepheline AAC powder, does not reflect what value, and purpose, the other Table Mountain nepheline chemicals may have in the very new developing science of CLC 3D concrete printing, or thin film solar "smart" rooftop use that also harvests clean rainwater.

3> Calcium Oxide (CaO) US $210-250 / Ton @ 1% assay value = $2.10 per ton. CaO (s) + H2O (l) Ca(OH)2 (aq) (Hr = 63.7 kJ/mol of CaO) as it hydrates, an exothermic reaction results and the solid puffs up. One liter of water combines with approximately 3.1 kilograms (6.8 lb.) of quicklime to give calcium hydroxide plus 3.54 MJ of heat energy. This process can be used to provide a convenient portable source of autoclaving curing a pump able foamed cement. According to Wikipedia, "the free encyclopedia," calcium oxide has for a long time been is a key ingredient for the process of making cement as a natural pozzolana for setting underwater concrete in dams.

4 > Magnesium Oxide (MgO) US $160-260 / @ .02% = $3.20 Again, according to Wikipedia, MgO is one of the raw materials for making Portland cement in dry process plants. If too much MgO is added, the cement may become expansive.

6 > Potassium Oxide K2O US $850-950 / Metric Ton @ 4% = $34 Here Wikipedia refers to "some materials of commerce, such as fertilizers and cements, are assayed assuming the percent composition that would be equivalent to K2O."

7 > Sodium Aluminium Oxide (Na2O) US $1417-1584 @ 12% = $170

Again, going to the Internet the Digital Fire ceramics materials database explains that the generic name of all of the above bundle of chemicals associated with Na2O happens to be Nepheline Syenite.

Add up all the AAC chemical mix and you come up with a figure of $595.30 per ton, which sort of explains the outrageous price online out of China selling a “gas extruding aluminum paste and powder for aerated autoclave concrete / AAC that sells for US $2.6 - 3.5 /Kilogram, with a minimum order of 1 ton.” Use any online kilogram to pound converter and $2.6 USD per kilogram works out to be an amazing $2,600 per metric ton. (?).

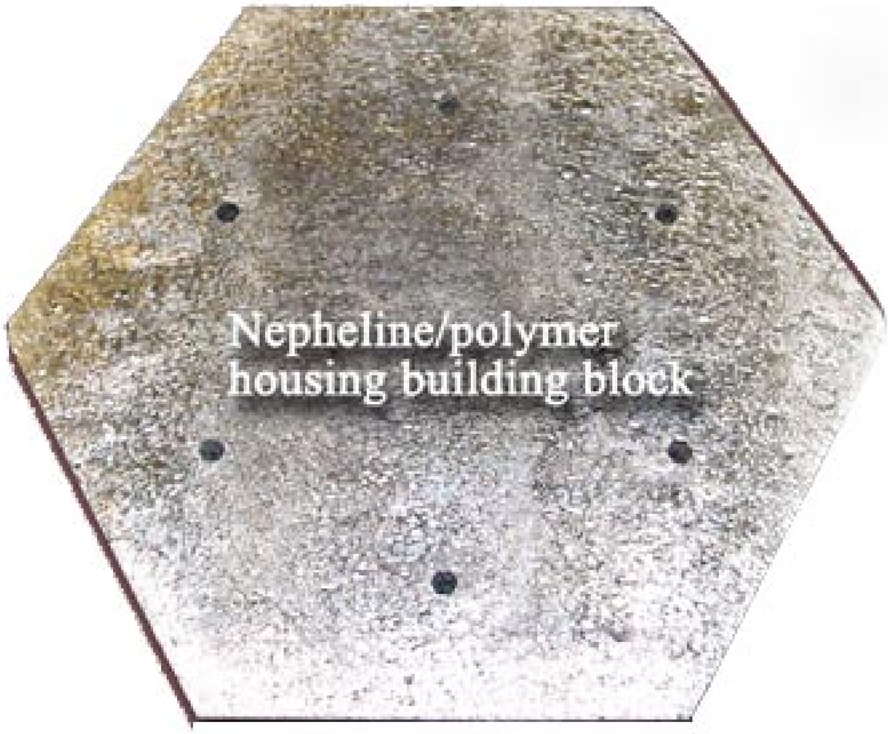
On YouTube search for AAC success stories of building houses of “Autoclaved Aerated Concrete” broaden to include CLC Concrete with a natural pozzolana volcaniclastic fly ash chemistry instead of the by-product of burning coal in tall stacks that do not scrub the hydrocarbons being emitted into clean air.

If it bothers you just a bit just how far behind America is in “green living” then use these Internet search phrases to find a Spanish “fully-customized, modular solar house is 3D printed prefab,” or “Dutch architects to build world’s first 3D printed house,” to find where to order CLC mixers and pumps in Vietnam, India, and of course, a China that copied what was manufactured in Europe, that really let a lot of “trade secrets”

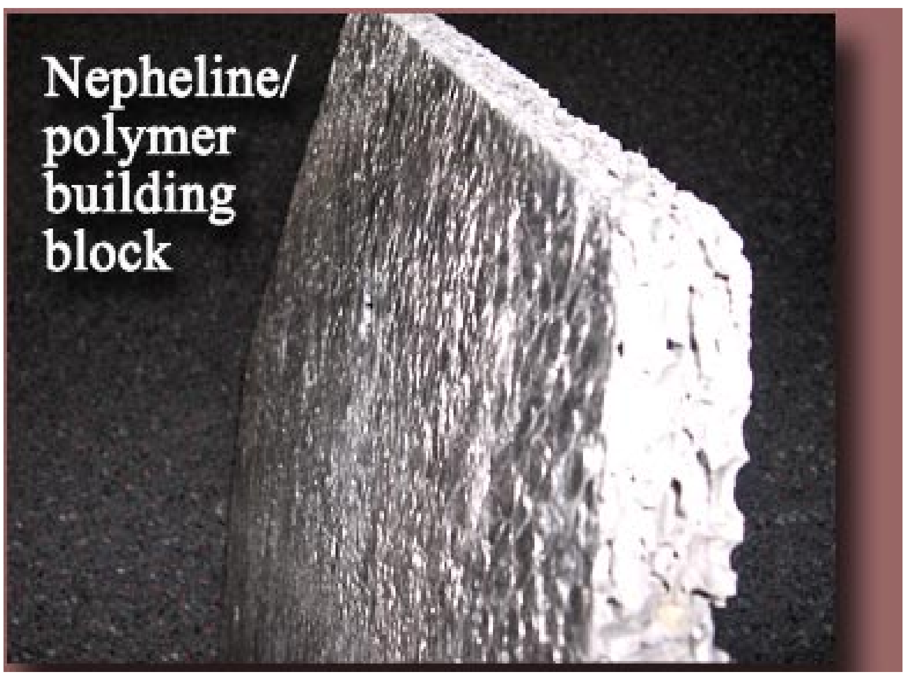
What makes the Shanghai WinSun Decoration Design Engineering “ten houses in one day, at $5000 each” project really interesting to those concerned about the environment is that the Chinese recycled old concrete, into new, by chipping up what would have been landfill, or burned. At the last moment of mixing a standard cement they added a minus 325 super fine (soluble) Alumina powder at a rate of 08% by volume, and a (soluble) 60% silica content as an aggregate.

China has been importing alumina powder extracted from bauxite in Australia at the cost of $300 per ton. The Russians used their nepheline syenite alumina powder to build airplanes during WW II ; they also are the most advanced in nepheline research for things a catalytic convertors, and clean air steel fluxing.

The problem in coming up with those figures for an American deposit is that the "magic stuff" used as an expansion agent has almost been considered a "top secret" by foreign corporations and countries.



They apparently were not very happy when NephelineSyenite.com, and www.Nepheline.com, ran a picture of the Table Mountain, Oregon, material that had been polymer foamed —testing Russian technology— into poly snap together building blocks.



There also has been a patent filing in Europe — and only covering Europe— that demands protection of the composition of autoclaved aerated concrete, which curiously includes basalt mineral wool for a binder as part of the formula?

And speaking of rock wool, there is a Danish patent for a "nepheline briquet" used in the process of melting rock at a temperature of 1600 ÅãC, through which a stream of air or steam is blown. More advanced production techniques are based on spinning the molten material on high speed spinning wheels somewhat like the process used to prepare cotton candy. The only American made product is pink spun fiberglass that is only half as efficient as nepheline wool thermal insulation.

Who Says This Stuff Is True?

Some of the simple to understand research open to American investors interested in green technology that "proves" today's nepheline's use in AAC foam concrete comes from the already linked as downloadable — ***Applied Research Paper: Autoclaved Aerated Concrete as a Green Building Material, Stefan Schnitzler, October 2006 , University of California, Davis Extension.***

~ ~

"Autoclaved aerated concrete is a precast product manufactured by combining silica (either in the form of sand, or recycled fly ash), cement, lime, water, and an expansion agent — aluminum powder, and pouring it into a mold. Once added to the concrete, the aluminum powder reacts with the silica, resulting in the formation of millions of microscopic hydrogen bubbles. The hydrogen bubbles cause the concrete to expand to roughly five times its original volume. The hydrogen subsequently evaporates, leaving a highly closed-cell aerated concrete.

Autoclaved aerated concrete is further considered a sustainable building product because of its excellent insulating qualities resulting in increased energy efficiency. AAC's thermal efficiency stems from three factors. First, AAC structures result in solid wall construction with integrated insulation. Entire wall coverage prevents the thermal bridging associated with conventional stud framed walls, which leaves cold gaps around every stud and header.

Second, the solid wall construction of AAC structures creates an airtight building envelope, minimizing uncontrolled air changes while helping maintain desired indoor temperatures and maximizing the efficiency of HVAC equipment.

Third, AAC structures benefit from the added value of thermal mass and low thermal conductivity of a .... "effective" or "mass-enhanced" R-value of about 21.8. AAC is inorganic, noncombustible, and virtually fireproof. It receives a 4 hour UL fire rating and has a melting point of over 2900 degrees Fahrenheit.

AAC buildings can be engineered for earthquake and hurricane prone areas, and such buildings have performed well to date. For example, the vast major-

ity of AAC homes in the 1995 Kobe, Japan earthquake survived substantially undamaged. They also were immune from fires started during the earthquake and even acted as firebreaks. The ability of AAC structures to withstand fires and natural disasters minimizes waste, contamination to the surrounding environment, and the need for repair materials, while also lowering insurance costs."

~ ~

An Introduction To Autoclaved Aerated Concrete Including Design Requirements Using Strength Design

By Eric Ray Domingo. B.S. Kansas State University, 2008

"This report details the history, physical properties, manufacturing process, and structural design of AAC. This report includes an explanation of the 2005 Masonry Standards Joint Committee (MSJC) Code for the design of AAC members subjected to axial compressive loads, bending, combined axial and bending, and shear. An example building design using AAC structural components is provided. This report concludes that AAC has important advantages as a structural building material that deserves further consideration for use in the United States.

Currently, in the United States, there are two producers of autoclaved aerated concrete. Xella Aircrete North America Inc. (Hebel) has plants located in Texas, Georgia, and Mexico as well, and AERCON is located in Florida (www.aacpa.org). The annual production of AAC in the United States is not currently available, however, the annual production capacity of the largest North American producer of AAC (Hebel's Georgia Facility) can produce approximately 2.7 billion cubic feet (250,000 cubic meters) per year (www.xella-usa.com)

Step 1: Assembling and mixing of the raw materials

The production of AAC starts with the raw materials of silica, cement, lime, and water. The silica, which is used for the aggregate, is made from finely ground quartz. Fine sand can be used in place of silica. Also, fly ash, slag, or mine tailings which are the ground up remains from mining *operations, can be used as aggregate in combination with the silica. These materials are the fine aggregate of the concrete mix. The aggregate needs to be a fine gradation, not course or large material because a larger aggregate interferes with the internal structure created by the microscopic bubbles produced in step 2. Portland cement is used, just as it is used in normal concrete mixes. Portland cement is the binding agent which holds the aggregate together. It reacts with water in a process called hydration and then hardens, bonding all the aggregates together to form a solid material. All these mixed together with water form the base AAC mixture. The raw components are then mixed together with water in a large container.*

Step 2: Adding of the expansion agent

In making a loaf of bread, yeast is added to the dough mixture to make the bread rise. In a similar way, an expansion agent is added to the concrete mix to increase its volume. Yeast produces carbon dioxide which causes the dough to expand. In autoclaved aerated concrete, the expansion agent that is used is aluminum powder or paste. The aluminum reacts with the calcium hydroxide and water in the mixture creating millions of tiny hydrogen bubbles. This process can be shown by Pytlik & Saxena 1992 for Aluminum Powder + Hydrated Lime +Tricalcium Hydrate + Hydrogen.

The hydrogen that is formed in this process bubbles up out of the mixture and is replaced by air (www.gmchomesfl.com). The hydrogen, which is a lighter gas, rises and is replaced by air which is a denser gas that gets into the mix as the hydrogen foams up out of the material. The aluminum expansion agent is thoroughly mixed into the batch so that it is evenly distributed during the mixing process. The creation of hydrogen bubbles causes the mix to expand, increasing the volume of the mixture approximately two to five times its normal volume. The volume increase is dependent upon the amount of aluminum powder / paste that is introduced to react with the calcium hydroxide in the mixture.

... In addition to its thermal insulation properties, is AAC's 4 hour fire rating (Pytlik & Saxena, 1992). Both 6 inch load bearing walls and 4 inch non load bearing walls of AAC have 4 hour fire ratings. This also includes 6 inch roof and floor panels. (Aercon) In comparison, a wall of CMU has a required

thickness of 8 inches or more to obtain a 4 hour fire rating (NCMA TEK 7-1A). Concrete is a noncombustible material that is commonly used for fire separation walls as solid normal weight and light weight concrete, CMU and AAC.

...AAC is good as a sound absorber and has been used frequently as sound walls along side roadways. A material that is a good sound absorber has the capacity to reduce reflected sound by absorbing some of the sound without all of it being reflected back.

... Because AAC is a non-organic building material, autoclaved aerated concrete is naturally mold resistant. It is also unaffected by termites and does not decompose. This makes AAC more of a low maintenance material than wood."

~ ~

Other fair-use copyright protected sources quoted especially as the pumpable CLC really super cement formula absolutely requires AL2O3 powder (Alumina) reacting with an alakaline SiO2 (silica sand aggregate) to foam better than alkaline fly ash collected from tall smoke stacks burning coal for "a recyclable source" that soon will not meet global clean air standards.

As such, their is very little research available from commercial sources, including the temptation to cut and paste from copyright protected web sites when a future competitor shows some really bright ideas on how to use AAC concrete in up-scale housing construction.

The other observation is where these papers have come from. As Lithuania (through an Estonian library after the USSR fragmented) and Switzerland, Russia, Egypt / Iran, and India.

The explanation of why other countries are so involved is simply that Russia is the absolute leader in nepheline syenite because that have the largest deposit. Iranian / Egyptian nepheline syenite has the same chemistry as Oregon's Table Mountain, and a rapidly expanding AAC machine manufacturing businesses that with lifting of sanctions may have a dramatic shift in Europe, at least in the Southern Mediterranean Sea, over that of the North Sea distribution control.

As for India / Pakistan nepheline deposits the confliction in control seems to be between how many scientific engineering explanations are needed, to explain away how a secret ingredient "flash powder" or "foaming agents" used to simply build ordinary "disadvantaged world housing", in a modern way to solve expanded affordable housing needs is actually, proven in the field.

This simple high tech answer is what Portland, Oregon needs to help recover from the sub-prime 2008 housing bubble which is still causing a equity-based derivative effect of displacing families from housing they no longer can afford— which has caused a catalyzed reaction of many working poor family units to trickle down to living in tents in illegal homeless camps.

~ ~

Scientific Institute of Thermal Insulation, Department of Building Materials, Vilnius Gediminas Technical University, Vilnius, Lithuania — ***Investigations of Forming Mixture Parameters of Autoclaved Aerated Concrete with Nanoadditives***

"Amorphous SiO2 (AS) is a very effective pozzolanic material. As an aggregate, AS powder is in particular suitable for modern building industry. It was used atconstruction since 1994 in New Zealand and with each year its usage grew. AS is a by-product of ferrosilicon and silicon metal production and can be used in shape of very fine powder [1].

...In production of concrete with AS, the pozzolanic reaction is ... decreases conductivity of water and water vapor and increases strength and life of concrete [3].

...The production of AAC is rather complicated and the properties of its outcome are subject not only to AAC composition, but also to parameters of forming mixture.

The spreadability of AAC forming mixture is preconditioned by the water/solids ratio (W/S), which in most cases decides the properties of forming mixture and product [10].

Other very important properties of AAC forming mixture are the heating of mixture and the expansion height, which are subject not only to W/S ratio, water temperature, ambient temperature, composition of binding material, but also to additives used [11]. On such things as expansion of AAC forming mixture, the future AAC macrostructure and porosity depend. Therefore, the purpose of this work was to estimate the impact of nanoadditives AS and CF on parameters of AAC forming mixture."

Advances in Autoclaved Aerated Concrete
Edited by Folker Witmann,
Swiss Federal Institute of Technology.\ Zurich

"The major users of fly ash as the primary siliceous component in AAC are located in the U.K. and the U.S.S.R. Thermalite, Ltd. in the U.K., substitutes sand with 30 to 100 percent fly ash in it's manufacturing operation. Thermalite uses 600,000 metric tons of fly ash annually to produce 1.5 million cubic meters of AAC block.

... The chemical properties of fly ash for use in concrete are defined by ASTM Standards C 618-84 Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture.

... Class F: Fly ash with pozzolanic properties produced by burning anthracite or bituminous coal... Generally, Class F fly ash (ASTM C-618) is considered suitable for ACC. A material safety data sheet reporting the mineral composition of fly ash from a Dusquene Light power plant operating in Southwest Pennsylvania, indicated that its mineral content falls within the minimum mineral requirements for producing ACC. Fly ash from Monongahela Power

... Tests performed generally include specific gravity, fineness, loss on ignition and pozzolanic activity with lime and cement and a chemical analysis (Tennessee Valley Authority, 1979). Both YTONG and SILBET have published acceptable ranges for the mineral composition of fly ash that are suitable for use in ACC.

The fineness of fly ash panicles is another variable to be considered for use in ACC. Fineness affects the pozzolanic activity of the material. The recommended method for testing the fineness of fly ash is ASTM Method C430. Fly ash with a high volume of cenospheresis not suitable for use in concrete."

~ ~

Development of Industrial Ecology in Russia Russian Academy of Civil Service, Moscow, Russia
Carbonate and Cement production

"It is generally acknowledged among Russian specialists... that the best way to solve the problem of protection of the environment from pollution is development and organization of zero-waste technology, or pure production.

....

3. Carbonate and cement production from nepheline

One of the examples of almost zero-waste technology is the production of sodium carbonate, potassium carbonate, and cement from nepheline raw material concentrate...

... The process [needs... develops?] 4.3 tons of nepheline concentrate (0.78 tons in sodium carbonate) and 9 to 11 tons of portland cement."

~ ~

Ultrafine particles in concrete
Doctoral Thesis School of Architecture and the Built Environment Division of Concrete Structures, Royal Institute of Technology SE-100 44 Stockholm, Sweden

Concrete consists of a system of different sized particles, usually called aggregate. Fresh concrete is a particle slurry and hardened concrete consists of packed particles of different size. The aggregate is bound together by a binder, most often based on cementitious materials. The cementitious material reacts with water and forms hydration products which hold the aggregates together. Usually, the binder is the most expensive component of a concrete and has the largest environmental impact.

The k values are strongly dependent on the mode of cement replacement, fineness and type of the replacement material and curing time.

Drying shrinkage was found to continue over long periods of time, even after more than 4 years of testing the final shrinkage was not reached. The total water content of concrete was found to be the governing factor for the drying shrinkage. With the help of the modified Andreassen model, concrete compositions with low cement content and high content of ultrafines were optimised. With only 100 kg/m3 of cement, suitable inert ultrafine particles and an optimised particle size distribution, a compressive strength of more than 65 MPa can be achieved.

~ ~

Use of nano-silica in cement based materials
A review by Paratibha Aggarwal, Rahul Pratap Singh and Yogesh Aggarwal, India

2. Nano-material and cement composites

In the construction industry, extensive research is going on to improve the performance of various building materials and development of durable and sustainable concrete is one among them as is clear from Table 1. Among all the nano-materials, nano-silica is the most widely used material in the cement and concrete to improve the performance because of its pozzolanic reactivity besides the pore-filling effect.

2.2. Concrete with nano-silica

Nano-silica incorporation into cement concrete is the direct application approach of nanomaterials.

Researchers have worked on the mechanical and durability properties and microstructure analysis of concrete with nano-silica as discussed below.

2.2.1. Fresh properties

Reduced setting times were observed by various researchers on incorporation of nano-silica in concrete which is same as observed for pastes and mortar (Zhang & Islam, 2012; Zhang, Islam, & Peethamparan, 2012). Also, decrease in initial and final setting time was observed.

2.2.2. Mechanical properties

Concrete strength is influenced by lots of factors like concrete ingredients, age, ratio of water to cement materials, etc. Nano-silica incorporation into concrete resulted in higher compressive strength than that of normal concrete to a considerable level. Li et al. (2004) reported 3-day compressive strength increase by 81% and also at later stages, same trend was observed with 4% nano-silica in high volume fly ash concrete. Naji Givi, Abdul Rashid, Aziz, and Salleh (2010) also reported higher compressive strength at all ages, for nano-silica blended concretes.

2.2.3. Durability properties

Durability properties of concrete include aspects such as permeability, pore structure and particle size distribution, resistance to chloride penetration, etc. Investigations on nano-silica concrete for its permeability characteristics showed that the addition of nano-silica in concrete resulted in reduction in water absorption, capillary absorption, rate of water absorption, and coefficient of water absorption."

~ ~

High Strength Self Compacting Concrete With Nanosilica
International Journal of Emerging Trends
in Engineering and Development

"It shows that addition of nano silica in SCC about 4% increase the compressive strength by 18.8% as compared with conventional concrete.

nano silica which are having large surface area is to improve compressive, flexural and split tensile strength at early ages, improved hydration characteristics and reduced porosity and water absorption when compared with conventional cementitious materials. Nano silica can also pave the path to reduce the cement content in concrete than the conventional mixes while maintaining same strength characteristics, which will lead into the production of greener concrete."

~ ~

Development Of Light Weight Concrete

Posted in Concrete Engineering, Project Reports [available in full at http://www.engineeringcivil.com/development-of-light-weight-concrete.html]

ByDhawal Desai / IIT Bombay

ABSTRACT

This paper deals with the development of two types of lightweight concrete the one using lightweight aggregate (Pumice stone) [abundant in Central Oregon] and the other water floating type using Aluminium powder as an air entraining agent. This also shows the importance of water/cement ratio as in first type of concrete it relates to the smoothness of the surface and in second one it is a major factor which controls the expansion of concrete.

INTRODUCTION:

Lightweight concrete can be defined as a type of concrete which includes an expanding agent in it that increases the volume of the mixture while reducing the dead weight. It is lighter than the conventional concrete with a dry density of 300 kg/m3 up to 1840 kg/m3. The main specialties of lightweight concrete are its low density and low thermal conductivity.

2) By using Aluminium powder as an air entraining agent:

Water floating aerated concrete is made by introducing air or gas into slurry composed of Portland cement and sand, so that when the mix sets and hardens, uniform cellular structure is formed. Thus it is a mixture of water, cement and finely crushed sand. We mix fine powder of Aluminium to the slurry and it reacts with the calcium hydroxide present in it thus producing hydrogen gas. This hydrogen gas when contained in the slurry mix gives the cellular structure and thus makes the concrete lighter than the conventional concrete.

Foaming agents:

There are some foaming agents which when added to the cement slurry forms air voids throughout its structure. Also there are some agents who react with the chemicals present in the cement slurry and evolve gases which results in the expansion of the slurry and when it hardens, leaves air voids in the concrete thus making it lighter than the normal concrete.

The bulk density of fine lightweight aggregates is around 1200 kg/m3.

The bulk density of coarse lightweight aggregates is around 960 kg/m3.

GENERAL PROPERTIES:

Light Weight: Density range from 650 Kg/m3 to 1850 Kg/m3 as compared to 1800 Kg/m3 to 2400 Kg/m3 for conventional brick and concrete respectively. Despite millions of tiny air filled cells, it is strong and durable. There is Lightweight advantage for the structure design, leading to savings in supporting structures and foundation.

Compressive Strength: 2.0 to 7.0 N/mm2.

Excellent Acoustic Performance: It can be used as effective sound barrier and for acoustic solutions. Hence, highly suitable for partition walls, floor screens / roofing and panel material in auditoriums.

Earthquake Resistant: Since lighter than concrete & brick, the lightness of the material increases resistance against earthquake.

Insulation: Superior thermal insulation properties compared to that of conventional brick and concrete, so reduces the heating and cooling expenses. In buildings, light-weight concrete will produce a higher fire rated structure.

Workability: Products made from lightweight concrete are lightweight, making them easy to place using less skilled labour. The bricks can be sawed, drilled and shaped like wood using standard hand tools, regular screws and nails. It is simpler than brick or concrete.

Lifespan: Weather proof, termite resistant and fire proof.

Savings in Material: Reduces dead weight of filler walls in framed structures by more than 50% as compared to brickwork resulting in substantial savings. Due to the bigger and uniform shape of blocks, there is a saving in bed mortar and plaster thickness. In most cases the higher cost of the light-weight concrete *is offset by a reduction of structural elements, less reinforcing steel and reduced volume of concrete.*

Water Absorption: Closed cellular structures and hence have lower water absorption.

Skim Coating: Do not require plaster and water repellent paint suffices. Wallpapers and plasters can also be applied directly to the surface...

Note that lightweight concrete obtains its natural fluidity from the air bubble structure, not from excess water content.

Effect of adding Fly ash: Fly ash added to the cement does not adversely affect the basic hardened state of lightweight concrete. Infusing and supporting the lightweight concrete with the air cell system is a mechanical action and is not problematic with fly ash or other additives. Note that some fly ash mixes may take longer to set than pure Portland cement applications.

USES:

The primary use of lightweight concrete is to reduce the dead load of a concrete structure which then allows the structural designer to reduce the size of columns, footing and other load bearing elements. So the marginally higher cost of the lightweight concrete is offset by the size reduction of structural elements, less reinforcing steel and reduced volume of concrete, thus resulting in lower overall cost.

They can also be used for fire protection, where they can shield structural steel from fire. They are also used as an insulating block.

Lightweight concrete has been used to construct extremely large cantilevers, as the member can be narrower due to the decreased dead load. Using concrete of a lower density results in a lower dead load and can result in savings due to smaller member sizes. Occasionally this can allow construction on ground with a low load-bearing capacity.

The porosity of lightweight aggregate provides a source of water for internal curing of the concrete that provides continued enhancement of concrete strength and durability, but this does not prevent the need for external curing.

Structural light-weight concrete has been used for bridge decks, piers and beams, slabs and wall elements in concrete and steel buildings, parking struc-

tures, tilt-up walls, topping slabs and composite slabs on decking.

USE OF ALUMINIUM POWDER:

The reactants in aerated concrete are lime (which is present in cement) and aluminium powder. When the aluminium powder is added to slurry of lime, hydrogen is produced in the form of bubbles. Thick slurry is made with lime/ cement along with aggregates. Aluminium powder is added in the final stage of mixing. The mix is poured into moulds. The moulds are autoclaved which imparts strength. AAC is produced using no aggregate larger than sand.

Quartz sand, lime and/or cement and water are used as a binding agent. Aluminium powder is used at a rate of 0.05% – 0.08% by volume of cement.

The hydrogen gas foams and doubles the volume of the raw mix (creating gas bubbles up to 1/8 inch in diameter). At the end of the foaming process, the hydrogen escapes into the atmosphere and is replaced by air. Depending on its density, up to 80% of the volume of an AAC block is air. AAC's low density also accounts for its low structural compression strength. It can carry loads up to 1,200 Psi, approximately only about 10% of the compressive strength of regular concrete.

AAC material can be coated with a stucco compound or plaster against the elements. Siding materials such as brick or vinyl siding can also be used to cover the outside of AAC materials.

~ ~

As cut and pasting 'fair-use copyright sources' from competitive publications, especially advertising copy— is to professional journalists, and scientific researchers— for Information Highway style reporting, seems to be leading to a lawless "who do you believe" result, I have refrained from using some material on AAC concrete, and CLC concrete found by www searching text. Some of the best quotes are bound up in YouTube video "ads" anyhow, showing how simple CLC machinery works.

However I could not resist passing this along from a less foamy fly ash based product:

"Preformed foam is injected into the delivered mix in the pump hose. Not

the transit mixer. This method expands the volume of the delivered mix about 3.8 times (i.e., one seven cubic-yard slurry load produces 27-cubic yards of cellular concrete), eliminating up to 55% of the trucks (and the accompanying road-traffic congestion) that would be required if a granular fill were used."

~ ~

And for an excellent copyright protected industry review —even though the nepheline syenite (alumina AL2O3) connection with the even more rare (earths?) pure naturally soluble silica sand (silicon dioxide SiO2 as used in solar energy) is not explained by the substitution of affordable carbon generated fly ash.

I tried mentioning to www.foamconcretehousing.com/ after complementing their presentation that with FoamKrete ore a builder could pay for the alumina, and the accompanying alkaline aggregate more or less comes along free as a natural silica fume to match the delivered cost of a coal burning derived fly ash base activator.

~ ~

And this:

Coal Ash Is More Radioactive than Nuclear Waste
By Mara Hvistendahl [an investigative journalist in sync with star reporter Leslie Stahl of CBS's Sixty Minutes]

Over the past few decades, however, a series of studies has called these stereotypes into question. Among the surprising conclusions: the waste produced by coal plants is actually more radioactive than that generated by their nuclear counterparts. In fact, the fly ash emitted by a power plant—a by-product from burning coal for electricity—carries into the surrounding environment 100 times more radiation than a nuclear power plant producing the same amount of energy.

~ ~

Another copyright protected online PDF source worth reading is at www.concreteconstruction.net/Images/Cellular%20Concrete%20to%20the%20Rescue_tcm45-343483.pdf titled "**Cellular Concrete to the Rescue.**"

As Portland, Oregon is mentioned, along with my ECO friendly mining idea of underground, out of site, boring safely protected by FoamKrete sprayed "timbering" as:

"Cellular concrete also provides many benefits as an annular grout in tunnels. Two recently built, 15,000-foot transit tunnels in Portland, Ore., are good examples. Use of a low-density cellular grout saved $600,000 on this $186 million tunnel project, part of a new 18-mile rail extension. The cellular grout also helped stabilize portions of the tunnel by filling voids as large as 60 cubic yards that opened during boring."

~ ~

I also need to mention again that with a 500 million ton reserve the dedication of a mineral stockpile to affordable housing is just a first step towards development of the nepheline syenite for other innovative added value uses.

Such as sandwiching a float-able "marine" foamcete between a thin, heat formed stronger polymer nepheline syenite sheet hulls that could totally transform how fishing boats and "plastic fantastic" yachts were built. Again Asia seems to have left us behind in the wake of their international "concrete canoe" races. And think of the possibilities in building a self contained flat bottom house + boat for flood plain /tsunami survivability.

And, following some un-released university level research — funded by Asian interests— where nepheline syenite when used as a flux in the steel-making process would make a dramatic difference in meeting what are now global clean air standards, honoring the Inconvenient truth that un-breathable airborne carbon based pollution is distributed across politcal boundries without bias.

I also would like to know if Iran —that soon will be an active marketer for their same chemistry nepheline syenite in supplying much needed affordable shelter for the Middle East— has followed up the big company research at Hanford, Washington, concerning nepheline syenite use in self healing "glass logs" for transporting nuclear waste.

The Claim Holder's Market Plan For FoamKrete

The answer is — sell product instead of paper! The Jeopardy style question here, "As the Wall Street stock market mine funding monopoly has rezoned Main Street America back to Debtsville, and the crossroads of Default and Swap, how can a small, grass roots, green mineral company investment in Oregon take the idea of affordable housing forward once again"?

~ ~

1) Buy a piece of rock from Barry Murray, (BarryMurray.com) an individual, for $10 per ton in place — already secure in the "Bank" of Table Mountain!

This ownership is to be protected by a Land & Mineral Trust holding the underlying claims. The your mineral rights will not disappear through hypothecation, diveriation, or outfight sale of the claims without a lien from your "FoamKrete dealers" position, validated by your filing an "at risk" tax advantage Schedule C return.

The legality of the US Mining Law of 1872 prevailing on much later introduced SEC Regulations concerning undivided securities in an Association claim, is further explained in my "white paper" on www.ECO-Minerals-Stockpile.net.

The "founders" $10 per ton sales price on receipt, or by up-line family and friends "insider's" options, will be held by Barry Murray until a profit is made by FoamKrete distributorship network retail sales.

~ ~

2) Do a Jeaprody Daily Double for another $10 down payment to contract to have it mined and milled by FoamKrete LLC. When turning over your tonnage certificates for processing, you will be issued a "member" share certificate based upon the unique material tonnage brought to FoamKrete LLC, and as you as a "dealer /owner" have concerns how the production flow functions, you will have a meaningful checks and balances “dealer member” vote.

3) If you don’t take delivery at the barge / highway / railhead by paying the mine / mill costs plus 10% fee, then let your ton flow through to the FoamKrete stockpile supplying the distributors, for your own at least 10% prorated LLC return. Or go beyond that to “buy-in” to the founding of a CO-OP ECO housing development, that needs the FoamKrete LLC admixture to cut building material costs.

My individual in-place suggestion for FoamKrete is just one way for me to retire from the mining business, by selling off control of a $10 per ton of a raw material, that sells for $250 per - minus 325 ton, FOB China to other corporations

By setting up a turn-key retail business where my role will only be a consultant to make sure the all-important link to US Forest Service surface management is compliante.

If management falls apart I / you do have the clout of not “dedicating” any more Plan of Action nephaline syenite added value sales through laziness of making even more “CEO” money , by selling less, or even planning on a golden parachute bankruptcy.

Since I have actual 50+ years experience in surviving the latest HFT-IPO -OMG- ETF-ETC Stock Market shell pump and dump games, I really would like to know the integrity of those building out my dream,

I’m Sold on FoamKrete. Now what?

If you have the PayPal conformation letter for downloading this PDF, use the secure e-mail to answer.

Or just call me, Barry Murray, at 503-753-5868, or 541-992-6313, or answer with this answer a fresh e-mail address hidden away, for now, from anonymous“disinformation hacker specialists, 3rd class” hired by the “follow the money” special spammer interests. A unfair free trade / free market scam that the Fair Trade FTC seems to be having has trouble with censoring phishing and spoofing sites from China and Russia from their merry pranks links costing genuine P/L U.S. businesses bullions?

If e-mail dosen't work for you then lets go back to old fashioned U.S. Post Office mail, noted for once having a trusted wire and mail fraud examinier.

This safer, slower step of flagging down Oregon's "the postman" actually would benifit developing a mutual trust needed to weed out spamster / banksters hard at work detouring individual intrests traveling the Information Highway, to a mythical city of Spam, capitol of a lawless LaLaLand.gov.

I hope to meet up with you at an R&D off-grid FoamKrete sustainable forty acre farm, for a barn raising and barbacue. I might even dig out my old fiddle. At almost 77-years, why not have some fun building for a secure future in the business of retirement ?

Barry Murray