

February 6, 1942

MICROPORITE (CALSILITE)

I refer to yesterday's conference in which I suggested that you take immediate steps to file a patent application covering the product Calsilite (Microporite). You will find in your files many letters addressed to you as well as copies of my letters to others in reference to this product.

1. In order that your data may be complete, I am enclosing herewith my file copies of the following letters:

S. E. Avery to Herbert Abraham	December 6, 1940
H. E. Lloyd to Herbert Abraham	January 30, 1941
(enclosing copy of results of the Electrical Testing Laboratories)	
Herbert Abraham to H. E. Lloyd	January 31, 1941
H. E. Lloyd to Herbert Abraham	February 7, 1941
H. E. Lloyd to Herbert Abraham	February 14, 1941
(enclosing copy of laboratory report dated Feb. 11, 1941 (7-225-1993))	
Herbert Abraham to H. E. Lloyd	February 18, 1941
H. E. Lloyd to Herbert Abraham	February 19, 1941
H. E. Lloyd to L. C. Hagen	February 25, 1941
(enclosing copy of laboratory report February 21, 1941 (7-231-2003))	

all of which I would appreciate your returning for my files after they have served your purpose.

2. The formula, showing the percentages by weight, which resulted in the formation of the most successful finished products, was incorporated in my letter to you dated January 10, 1941, as follows:

	<u>Slurry</u>	<u>Dry Product</u>
Water	85.0%	-
Calcium oxide	4.0%	26-2/3%
Silica (140 mesh)	6.5%	43-1/3%
Bentonite	2.25%	15 %
Asbestos fibre	2.25%	15 %
Total	100%	100%

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3. I am enclosing herewith a revised list of various references which I have dug out of the literature and patents previously included in our correspondence, particularly the following:

My letter to Mr. L. C. Rugen dated January 20, 1941
My letter to Mr. L. C. Rugen dated February 3, 1941
(see references attached)

I am also enclosing herewith my file copies of the Canadian patent claims reported in the Official Canadian Gazette in connection with the Canadian patents listed, which please return after noting.

4. As a possible guide in enabling you to draw up the patent claims, wish to call your attention to the following salient features of Calsillite:

- (a) Composition of the product is calcium silicate containing, in addition, bentonite and asbestos fibres, the latter being present in about 1% by weight.
 - (b) It has a much lower density than any type of calcium silicate than has heretofore been produced, namely, in the neighborhood of 12 lbs. per cubic foot (on the dry basis).
 - (c) It has a correspondingly low thermal conductivity, averaging in the neighborhood of 0.48 B.T.U.s per hour, per degree Fahrenheit, temperature difference for a specimen 1" thick when tested at a hot-plate temperature of 222° F.
 - (d) It remains efficient over a high temperature range, the upper limit exceeding 1000° F. Tests show that when heated to 1250° F. for one hour, volume shrinkage amounts to 1.8% and the product still retains its coherence and considerable strength. It shows less than 1% shrinkage when heated to 550° F.
 - (e) The product also has a high tensile strength. Tests show that the modulus of rupture ranges between 50 and 60 lbs. per square inch. Also has a high compressibility. Tests show that a 2" block, when subjected to a pressure of 75 to 80 lbs. per square inch, will be compressed in the neighborhood of 1/8".
 - (f) When immersed in water, the product will not disintegrate, as is the case with other types of insulation such as magnesia, and after drying it will regain its original characteristics.
5. Should you desire to include some indication as to how the material is produced, you will find the data in the enclosed correspondence. I might add in this connection that the following features are of interest:
- (a) The slurry can be processed preferably by running into molds.
 - (b) The molds are then subjected to heat alone or a combination of heat and steam, as in an autoclave, during which treatment the lime combines with the silica and forms calcium silicate.

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Mr. L. F. Dittenbefer

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(c) The particular composition exhibits a comparatively small amount of shrinkage during the setting (i.e. chemical reaction).

We will presently erect a pilot plant for producing Calsilite and as soon as we obtain precise details of the various steps of the process, same will be communicated to you, since it is possible that we may later on wish to apply for a process patent to supplement the aforesaid product application.

Very truly yours,

President

HA:G.
Encl.

cc: Mr. L. C. Ruten
Mr. H. E. Lloyd

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THESE CLAIMS ARE NOT TO BE CONSIDERED AS A LIMITATION OF THE SCOPE OF THE INVENTION

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... mixture of comminuted argillaceous material in such an amount to form a loose, lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

Claims allowed, 7.

1. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

2. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

3. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

4. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

5. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

6. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

7. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

8. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

9. A process for producing a lightweight, substantially non-cohesive mass, dry-pressing said mass, and firing the same, said foam comprising water, soap bark, karaya gum, and bentonite.

Canadian Patent No. 402,600. Light Weight Ceramic Product.

Joseph R. Parsons, Chicago, Illinois, U.S.A., 3rd February, 1942. Filed 18th September, 1939. Serial No. 467,261. Filed in the United States 6th October, 1938.

Claim. - 1. The process of producing a hardened light-weight composition which comprises incorporating a tenacious stable foam with a stiff plastic mass of potentially hardenable material, said mass being incapable of plastic flow under its own weight, moulding the resulting mixture under pressure, and hardening the shaped article thus produced.

2. The process of producing a lightweight ceramic product which comprises incorporating a tenacious stable foam directly with a stiff plastic mass of argillaceous material, said mass being incapable of plastic flow under its own weight, shaping the resulting mixture, and drying and firing the shaped article thus produced.

3. The process of producing a hardened lightweight composition which comprises incorporating a tenacious stable foam with a stiff plastic mass of cementitious material, said mass being incapable of plastic flow under its own weight, moulding the resulting mixture under pressure, and effecting the setting and hardening of said cementitious material.

11. The process of producing a lightweight ceramic product which comprises incorporating a tenacious stable foam directly with a plastic mass of argillaceous material, said mass being incapable of plastic flow under its own weight, moulding the resulting mixture under pressure, and hardening the same.

Claims allowed, 11.

Canadian Patent No. 402,601. Insulation Material.

Joseph R. Parsons, Chicago, Illinois, U.S.A., 3rd February, 1942. Filed 18th September, 1939. Serial No. 467,262. Filed in the United States 6th October, 1938.

Claim. - 1. The method of producing a lightweight building material which comprises incorporating a foam with a substantially dry comminuted hardenable material to form a loose, lightweight, substantially non-cohesive mass, shaping said mass under pressure and hardening the same.

3. The method of producing a lightweight building material which comprises thoroughly incorporating a tenacious foam with a substantially dry comminuted hardenable material to form a loose, lightweight, substantially non-cohesive mass, shaping said mass under pressure, and hardening the same, said foam comprising soap bark, karaya gum, bentonite, and water, the total amount of water being only sufficient to bind the pressed lightweight mass previous to hardening.

5. The method of producing a lightweight building material having insulating properties which comprises incorporating a tenacious foam directly with a substantially dry mixture of comminuted argillaceous material to form a relatively dry mass capable of dry flow, shaping the resulting mass by pressure to form an article in substantially its final shape, and firing the latter.

7. The method of producing a lightweight ceramic material which comprises incorporating a tenacious foam directly with a substantially dry

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