3792

WI-02-1

WI. 2

MEMORANDUM

TO: FILE

DATE 11/6/87

FROM: C. Young

SUBJECT:

SITE NAME: Research Products Corporation
1015 E. WASHINGTON AVE

ALTERNATE NAME: ———

CITY: MADISON STATE: WI

OWNER(S)

Past: UNKNOWN Current: ———

Owner contacted ☐ yes ☐ no; if yes, date contacted ———

TYPE OF OPERATION

☒ Research & Development

- ☐ Production scale testing
- ☐ Pilot Scale
- ☐ Bench Scale Process
- ☐ Theoretical Studies
- ☒ Sample & Analysis

☐ Facility Type

- ☐ Manufacturing
- ☐ University
- ☐ Research Organization
- ☐ Government Sponsored Facility
- ☐ Other ———

☐ Production
☐ Disposal/Storage

TYPE OF CONTRACT

- ☐ Prime
- ☒ Subcontractor
- ☐ Purchase Order

☐ Other information (i.e., cost + fixed fee, unit price, time & material, etc) ———

Contract/Purchase Order # 7401-37-12

CONTRACTING PERIOD: LATE 1943

OWNERSHIP:

	AEC/MED OWNED	AEC/MED LEASED	GOVT OWNED	GOVT LEASED	CONTRACTOR OWNED	CONTRACTOR LEASED
LANDS	☐	☐	☐	☐	☐	☐
BUILDINGS	☐	☐	☐	☐	☐	☐
EQUIPMENT	☐	☐	☐	☐	☐	☐
ORE OR RAW MATL	☐	☐	☐	☐	☐	☐
FINAL PRODUCT	☐	☐	☐	☐	☐	☐
WASTE & RESIDUE	☐	☐	☐	☐	☐	☐

UNKNOWN

AEC/MED INVOLVEMENT AT SITE

Control
- ☐ AEC/MED managed operations
- ☐ AEC/MED responsible for accountability
- ☐ AEC/MED overviewed operations
- ☐ Contractor had total control
- ☐ unknown

☐ Health Physics Protection
- ☐ Little or None
- ☐ AEC/MED responsibility
- ☐ Contractor responsibility

MATERIALS HANDLED:

Type (on basis of records reviewed)

☒ No Radioactive
☐ Natural Radioactive from Feed Materials Production
- ☐ Ore
- ☐ Refined Source Material
- ☐ Residue

☐ Natural Radioactive Material from Non-Nuclear Activities
☐ Man-Made
☐ Other_____
Comment_____
_____

Quantities (on the basis of records reviewed)

☒ None ☐ Production Quantities
☐ Small Amounts
Comment_____
_____

OTHER PERTINENT FACTS:

☐ Facility was Licensed
- ☐ During AEC/MED-Related Operations
- ☐ For Similar Activities
- ☐ For Other Activities

Comment_____
_____

☐ Commercial Production Involving Radioactive Material during AEC/MED Operations

☐ Facility was Decontaminated and Released
- ☐ Availability of Close Out Records
  - ☐ None ☐ Some ☐ Sufficient

☒ Radioactive Status:

	YES	MAYBE	PROBABLY NOT	NOT
Contaminated	___	___	___	X
Potential for Exposure (accessible)	___	___	___	X

QUANTITY OF RECORDS AVAILABLE:

☒ Very Little ☐ Some ☐ Sufficient

PROBABILITY OF FINDING ADDITIONAL RECORDS:

☒ Low ☐ Possible ☐ High

RECOMMENDATIONS:

☒ Eliminate
☐ Consider for Remedial Action
☐ Collect More Data

Comment No indication radioactive material was involved in performance under MED Subcontract

REFERENCES: MUC-5KA-634; FINAL REPORT; Research Products Corporation - Subcontract *7401-37-12.
- Research Products Corporation letter; M. Shoemaker to R. Boston pertaining to advice of shipment of samples of Titanium Zeolite, November 6, 1943.

SUMMARY Research Products Corp, Reasmon Products & Chemical Company of Philadelphia and Chemical Process Company of Kentucky each produced absorber and ion-exchange resins for MED. The subcontract identified above was for preparation of Titanium Zeolite samples. No indication radioactive materials were involved

11-12-43

SKA

MVC 27942

WI.2

CONFIDENTIAL

MUC- SKA-634
This document consists of 7 pages and 0 figures
No 2 of 6 copies, Series A

FINAL REPORT

Research Products Corporation - Subcontract #7401-37-12

CONFIDENTIAL

DCV-A67479

CONFIDENTIAL COPY

+ the next 6 pages This is identical with Muc-LBA 212

RESEARCH PRODUCTS CORPORATION

1015 E. Washington Ave.
Madison 3, Wisconsin

Telephone Gifford 860

November 12, 1943

Dr. R. H. Beaton,
University of Chicago,
Department of Metallurgy,
Chicago, Illinois.

Dear Dr. Beaton:

We are submitting, herewith, in duplicate, a report covering preparation of samples of Titanium Zeolite. These samples were made up in accordance with our conversation of October 22, 1943. The original data is in a separate notebook in our archives.

For your information, we have not yet received the contract which Mr. Grainger Cook was to send us. However, we believe that, at least for the present, the work is completed and we are making up a statement. If we do not hear from Mr. Cook within the next few days, we will mark it for your attention.

Yours very truly,

RESEARCH PRODUCTS CORPORATION

M. J. Shoemaker

MJS/GB

Enc: 2

CONFIDENTIAL

COPY

Report to DR. R. H. BEATON

Special Titanium Zeolite Samples

(Confidential)

Submitted by RESEARCH PRODUCTS CORPORATION

OBJECT: It was the object of this work to prepare titanium zeolite samples of various densities and prepared from accessible raw materials in accordance with instructions received from Dr. R. H. Beaton, Department of Metallurgy, University of Chicago, on October 22, 1943.

SAMPLES: These were made and shipped as follows to Dr. R. H. Beaton, Department of Metallurgy, University of Chicago:

Date Shipped	Sample	p.s.i.	Wt.(lbs.)
Oct. 27, 1943	Sherwin Williams	5,000	2.6
Nov. 1, 1943	" "	10,000	1.18
" " "	" "	15,000	1.41
Nov. 5, 1943	Dupont (Krebs)	5,000	0.60
" " "	" "	10,000	0.63
" " "	" "	15,000	0.64
" " "	" "	20,000	0.56
" 6, "	" "	25,000	0.64
Nov. 5, 1943	Titanium Pig. Corp.	5,000	0.49
" " "	" " "	10,000	0.51
" " "	" " "	15,000	0.54
" " "	" " "	20,000	0.55
" " "	" " "	25,000	0.55

RAW MATERIALS:

(1) Titanium Pulp. Three sources were utilized as follows:

(a) Dupont Co. (Krebs Pigments Dept.) This pulp or so-called acid cake was purchased in March, 1941, at 12-1/4¢ per pound of TiO_2 f.o.b. Baltimore, Maryland, plus cost of containers. The TiO_2 is said to average 35%. There is also a small amount of

Sulfuric acid. The pulp used had a yield of 45.6% TiO_2 determined at 110°C.

(b) Sherwin-Williams Co. This pulp is produced at Gloucester, New Jersey, by a unique fluoride process. As received, the moisture is 79.4% when determined at 110°C. There is no acid present. The cake or pulp was reportedly removed from the Oliver filter ahead of the calciner. No recent quotation has been received but, under date of October 18, 1943, we were informed that "we will probably be able to take care of the 15,000 pounds per month that you will need". Shipment was received in October, 1943.

(c) Titanium Pigment Corporation pulp, according to their letter of September 17, 1943, contains an average of about 33% TiO_2 (and up to about 7% Sulfuric acid.) The price is 16-1/2¢ per lb. TiO_2 in the pulp, f.o.b. Sayreville, New Jersey. Shipment was received in September, 1943. The yield on the sample used was 39.7%.

(2) Mica. The Mica used was Aratone No. 270 which is produced by Atlantic Research Associates, Inc., Newtonville, Mass. The price is 5-1/2¢ per lb. in l.c.l. lots, with freight allowed.

(3) Water. Distilled.

(4) Caustic Soda. Commercial grade from the Mathieson Alkali Co.

EQUIPMENT

(1) Mixer. This was a small size Hobart dough mixer with a 2 gallon capacity aluminum bowl and steel wire and solid aluminum beaters.

(2) Filter. This was a 30" diameter horizontal single plate type with 1" water aspirator for suction. Material: Stainless steel. Filter Cloth: Cotton from Filter Media Corporation and recommended for titanium dioxide.

(3) Die. The attached drawing No. P-157 shows the die. It was made by the Monarch Machine Corporation of this city. The clearance between plunger and cylinder wall was 0.005 inches. In operation, the plunger jammed badly and soon became scored. Accordingly, the lower portion was replaced with seasoned lignum vitae. This worked very well up to pressures of 15,000 lbs. per sq. inch, when it began to fail. Thereupon, phenol formaldehyde laminated wood was used. This was furnished by Dr. A. J. Stamm of the U. S. Forest Products Laboratory, here. With use, it expanded near to where it was joined to the steel stub shaft and even overlapped the steel. Occasionally, it was necessary to machine down the high part. H. A. Brinkman, University of Wisconsin mechanician was employed to do this work and to make the lignum vitae plunger.

(4) Press. This was 120,000 lb. Riehle testing machine at the University of Wisconsin.

(5) Attrition Mill. This was of the 3" diameter steel disc type.

(6) Roller Mill. This was a 4" diameter x 12" wide Sturtevant Mill.

(7) Jaw Crusher. This was a 6" wide standard type machine.

PROCEDURE

(a) Sherwin-Williams pulp. This pulp was dried at about 150°F from its initial pasty condition to 83% dry. It was then run through the attrition mill.

The screen analysis follows: (U.S. Sieves)

On 30		6.3%
30 to 40	-	16.35%
40 " 45	-	8.65%
45 " 50	-	8.4%
50 " 80	-	19.6%
Thru. 80	-	40.7%

The hydrated titanium dioxide was then thoroughly mixed with 5% of its weight of Aratone mica in the Hobart mixer until tests showed it was thoroughly mixed.

In pressing out pellets of this material, the die was filled and the plunger inserted. The correct pressure was applied and held for 10 seconds. Thereupon, the pellet was pressed out of the cylinder, and the cylinder in turn back pressed from the die. This was repeated for the pressures indicated. It was found that by rubbing the plunger with graphite each time and occasionally cleaning adherent scale from the cylinder, the removal of the pellet and the plunger were greatly facilitated.

The pellets were weighed and measured for length.

The next step was to crush. The pellets were first crushed in a jaw crusher and then in a roll crusher. Finally, the material was screened to pass 8 and be retained on 50 U. S. mesh.

(b) Krebs pulp. Due to the acid in this pulp it was placed in the mixer with about one-fourth of its weight of water and as soon as the consistency was uniform, sufficient caustic soda was added to make the material alkaline to methyl orange but not to phenylphtalein. Aratone mica was then added corresponding to 6% of the weight of the TiO_2 present. The material was filtered and washed with about three volumes of distilled water to reduce the soluble salts to correspond to the conductivity of a sodium chloride solution of less than 15 grains per gallon.

The filter cake was 46.5% dry. It was dried at about 150° F to a moisture content of 17.36%. It was ground in the attrition mill, pressed and finished similarly to the Sherwin-Williams product described above.

(c) Titanium Pigment Corporation pulp. This was processed the same as the Krebs pulp and was dried to a moisture content of 15.28%.

DATA

Table No. 1

DENSITY OF PELLETS AFTER PRESSING

p.s.i.	Dupont	Sherwin-Williams	Titanium Pigment Corp.
5,000	1.38	0.86	1.22
10,000	1.49	0.98	1.36
15,000	1.53	1.27	1.50
20,000	1.67	1.47	1.58
25,000	1.90	1.58	1.58

Table No. 2

WEIGHT (lbs. per cu. ft.) OF GRANULES

Screened to 8 - 50 mesh

p.s.i.	Dupont	Sherwin-Williams	Titanium Pigment Corp.
5,000	41.8	-	41.2
10,000	46.4	33.3	43.3
15,000	47.5	34.4	43.4
20,000	59.2	48.0	49.5

* * * * *

Submitted By

M. J. Shoemaker

MJS/CB
11-11-43

COPY

MLRF.

WI, 2

RESEARCH PRODUCTS CORPORATION

1015 N. Washington Ave.
Madison, Wisconsin

Telephone Gifford 860

November 6, 1943

Dr. R. H. Beaton,
c/o University of Chicago,
Department of Metallurgy,
Chicago, Illinois

Dear Dr. Beaton:

Last night we shipped to you by express the following samples of Titanium Zeolite:

Krebs - for 5-10-15 and 20,000 lb. pressures

Titanium Pigments Co. samples for 5-10-15-20 and 25,000 lb. pressures.

We are hopeful of making shipment today on the Krebs 25,000 lb. pressure sample and believe that this will complete your current orders. However, the writer is planning shortly to review the possibility of the Molybdenum compounds along the lines discussed when you were here.

We still have received no contract nor formal order from you covering any of the above.

Yours very truly,

RESEARCH PRODUCTS CORPORATION

M. J. Shoemaker

MJS/GB

MLRF

WE 2

COPY.

RESEARCH PRODUCTS CORPORATION

1015 N. Washington Ave.
Madison, Wisconsin

Telephone Gifford 860

October 6, 1943

Dr. H. H. Beaton,
c/o University of Chicago,
Department of Metallurgy,
Chicago, Illinois.

Dear Dr. Beaton:

We expect to have the Titanium Zeolite material ready for briquetting later today and will await word from you as to whether you wish to have this briquetting done here or in Chicago. The chief trouble with doing it here is a shortage of help because we have not made provision in our organization for extra things such as this. As indicated to you earlier in the week, we have one or two dies which are not in very good condition.

Very truly yours,

RESEARCH PRODUCTS CORPORATION

M. J. Shoemaker

MJS/GB