18800

Spare in attic

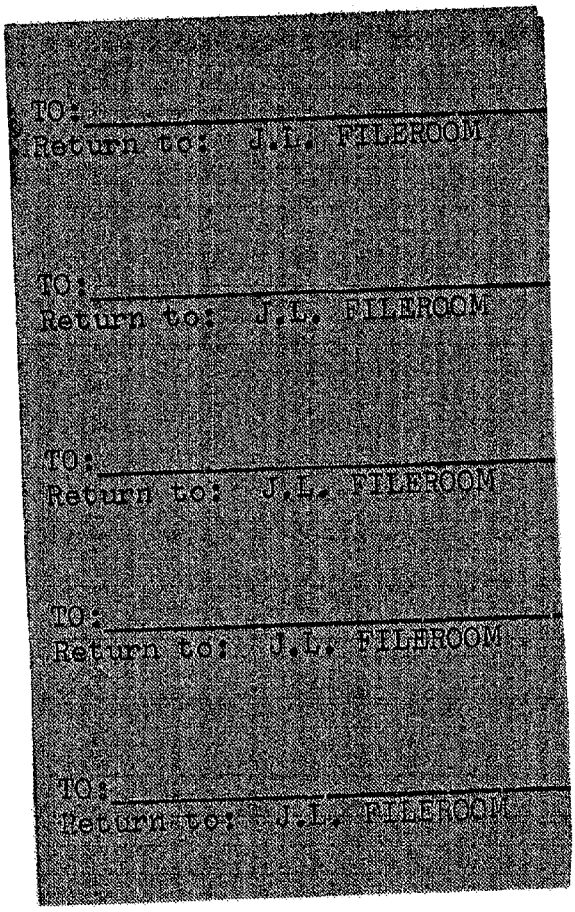
~~[illegible] (Pansol [illegible]) 12-1-55~~

~~[illegible] 11-18-55~~

(d) ~~C. F. Carr PTS 6/6/57~~

(d) ~~[illegible] PTS 12-23-57~~
Pansol

N37226



DUP050040993

Please return to
JACKSON LABORATORY
FILES

JLR-53-S-2, No. 5

Serial Number 18800

Prel. S.W. Process S.N. 18800-A
Tent. D.W. Process S.N. 18602-A

Dr. H. W. Elley	(2)
Dr. E. K. Bolton	(1)
Mr. R. J. Goodrich	(1)
Mr. A. J. Wuertz	
for I.C.I.	(3)
for C.I.L.	(1)
J. L. Files	(2)
Dr. O. Stallmann	(1)
Dr. M. A. Perkins	(1)

Noted
May 29-194
C. H. Lehmann

NOTED
MAY 2[illegible]
H.A.L.

E. I. DuPont de Nemours & Company

Jackson Laboratory

March 22, 1945

Ponsol Khaki 2G Crude From "Baked" Pentanthrimide (Ring-closure By the Rotary Baker Method)

Problem Report

G. Barnhart

O. Stallmann

Division Head

JLR-53-S-2, No. 5
Serial Number 18800

DUP050040994

Ponsol Khaki 2G Crude From "Baked" Pentanthrimide (Ring-closure By the Rotary Baker Method)

G. Barnhart

JLR-53-S-2, No. 5 Serial Number 18800

Object of the Investigation:

To develop further the laboratory process for the manufacture of Khaki 2G from "baked" pentanthrimide by a rotary baker ring-closure process and demonstrate this process on a production scale.

Period Covered by the Report:

May 15, 1943 to July 10, 1944.

Historical Background:

The development of this process in the laboratory was carried out in the period from February 20 to May 15, 1943, and is reported in JLR-53-S-2, No. 2.

Conclusions:

An improved procedure was developed on an experimental production scale for ring-closing the baked pentanthrimide by the rotary baker method to give Ponsol Khaki 2G in a more desirable physical condition than is obtainable by other proposed or standard ring-closure processes. In order to obtain satisfactory yields and quality of the final color, the baking equipment must be designed to provide efficient grinding action in order that, after the major portion of the reaction has taken place, the remaining unreacted materials be brought into intimate contact. In the available Semi-Works and plant equipment, this process has not given consistent and sufficiently high yields to recommend it for regular production.

Summary:

In our preferred baker process which we have developed for the ring-closure of pentanthrimide the rotary baker is charged with one part of baked pentanthrimide, 1-1/2 parts of $AlCl_3$, 0.3 part NaCl and 1.7 parts of Na_2SO_4 (anhydrous). The NaCl

DUP050040995

(0.3 part) plus that present in the pentanthrimide is just sufficient to form a eutectic (22% NaCl) with the $AlCl_3$. Heavy steel balls or bars in the baker provide the necessary grinding action.

The charge is heated to 145° in about 2 hours, then held at 145-150° for 4 hours, and raised to a final temperature of 180-185° during a period of 2 hours.

Twelve charges were made in the 50-gallon Semi-Works rotary baker, and four in the 900-gallon "B" carbonator in the Miscellaneous Intermediates Area.

In the Semi-Works the yields varied from 50 to 84% of theory, the better yields being obtained when the charge was loosened from the sides before the end of the heating period. Substitution of Na_2SO_4 for NaCl, except that required for low melting eutectic, improved the average performance appreciably.

Plant yields averaged only about 65% of theory, due probably to insufficient ball charge for efficient grinding action.

The quality of the baker product was quite satisfactory, generally, and showed a distinct improvement in physical form over current production in that it can be standardized to double strength pastes. A final sample J-53-F-84 was prepared from a composite of plant finished press cakes of the plant ring-closed product. (See appendix)

Patent Situation:

According to AN-2228, 2248 and infringement opinion, dated September 1, 1943 on U.S. 1,862,575, we are free to use our preferred processes for the manufacture and ring-closure of pentanthrimides in a rotary baker. Our U.S. Patent Applications, Serial Number 534,818 and 534,819 (OR-1656 and 1655) cover the patentable features of these processes.

Plans for Future Work:

There are none at present. If the requirements for Khaki 2G, Double Paste, should increase materially beyond the present production levels, the baker ring-closure method should be reconsidered for future production of this color paste.

DUP050040996

APPENDIX

COPY

JACKSON LABORATORY COST-ESTIMATE

Name of Product Khaki 2G Crude Date 9-1-43

Size Charge 250 lb. (100%) Pentanthrimide Yield 90.1% of theory

Materials Used	per 100# of Product	Price	Cost per 100 lbs. Prod. Total
Pentanthrimide	111.83	216.54	242.16
Aluminum chloride Anhydrous	215.00	9.92	21.33
Salt Purified	45.00	.41	.18
Sodium Sulfate Anhydrous	252.00	1.78	4.49
Pentanthrimide Cost Ex.	4.62		
Total Material Cost			268.16

Remarks:

Cost Ex.	25.43
Total	293.59

DUP050040997

COPY

CC: Dr. I. Gubelmann
Dr. E. C. Humphery
Dyestuffs
Dr. William Kirk, Dye Works
Att: Mr. R. J. Goodrich
Dr. E. F. Hitch
Mr. J. K. Reed
Mr. F. W. Peck
Mr. W. L. Main
Mr. J. M. Tinker, Jackson Lab.
Att: Dr. S. S. Rossander

February 7, 1944

DR. H. A. LUBS
ASSISTANT DIR., RESEARCH
CHEMICAL DIVISION

PONSOL KHAKI 2G DOUBLE PASTE
FINAL SAMPLE J-53-F-84

We herewith submit to you Technical Laboratory's report, Memo No. 1736-B, and dyetests on the above final sample, which was standardized in laboratory from a composite of four experimental plant press cake charges of special Khaki 2G Paste Crude, made by the "baker" ring closure method from "baked" pentanthrimide, which was produced from solvent grade tetra-chloro-anthraquinone in the "B" carbonator in the Miscellaneous Intermediates Area. The baker ring closed Khaki 2G Crude was bichromated and alkali-extracted in the Ponsol Colors Area according to the standard finishing methods.

J-53-F-84 is a fluid paste at 19.34% extracted color solids and is free of leucanol. When a corresponding plant lot (Lot 15) was standardized from the same Khaki 2G Paste Crude charges without using leucanol, the lot turned out to be too thick (due to its very pronounced thixotropic behavior) and unsatisfactory in the coagulation test. The lot was, therefore, re-standardized together with more baker ring closed material (from acid grade tetra-chloro-anthraquinone), using a normal amount of leucanol in the standardization. This well dispersed paste was standardized as Lot 30 and released for shipment on December 27, 1943, at 19.83% extracted color solids. Lot 30 was reported to be "satisfactory in our general tests, the only difference worth

DUP050040998

noting is slightly inferior migration." (Quoted from a letter by Mr. Fish to Mr. Schaumann.)

As reported in the attached Memo, Final Sample J-53-F-84 appears to be satisfactory in every respect, except that the paste showed a tendency to coagulate and was inferior to standard in a pigment filtration test through paper. Technical Laboratory also called our attention to the fact that spectrophotometer readings on unadsorbed color from a chromatograph column, showed the presence of a comparatively large amount of a yellow impurity. Jackson Laboratory's chromatograph studies and solvent extraction of the baked pentanthrimide showed conclusively that the slight excess of amino-anthraquinone used in the original premix to assure complete replacement of the chlorine in tetra-chloro-anthraquinone, is responsible for the presence of the unadsorbed impurity observed by Technical Laboratory. Steps have been taken to correct this deficiency in future production by decreasing the dosage of amino-anthraquinone to that required by theory, and by prolonging somewhat the premilling period and heating time in the pentanthrimide bake which in the proposed new equipment will be carried out under more favorable grinding conditions than we were able to obtain in the (unmodified) "B" carbonator.

It will be recalled that the plant milled and centrifuged Lot 15 was shown by electromicroscope pictures made at the Experimental Station, to be quite similar in average size, shape and uniformity of the color particles to the best competitive product (Indanthrene Khaki 2G Double Paste) and superior in this respect to several other lots which were included in the tests, being representative of other plant ring closure methods.

The "B" carbonator in which these four experimental ring closure charges were made, is not suitable for this operation, since it has only one small (1-1/2 inch diameter) opening through one of the trunions. As reported in our letter to you dated November 29, 1943, it is the joint recommendation of representatives from Jackson Laboratory, the plant people and the Engineers to install a new 6' x 10' rotary baker in the Miscellaneous Intermediates Area. This baker is to be provided with sufficient grinding efficiency, two large trunion openings, and auxiliary equipment. This equipment should be suitable for making the premix for the pentanthrimide as well as the ring closure of the baked intermediate. According to a High Spot estimate presented by the Industrial Engineers in their report dated November 4, this baker should accommodate charges of approximately 1,860 lbs.

DUP050040999

(100%) pentanthrimide each. When used for the ring closure of the baked pentanthrimide, charges of 483 lbs. (100%) Khaki 2G Crude can be made in this baker.

We expect to obtain in future large scale production a very substantial cost advantage in favor of the product represented by J-53-F-84 over Khaki 2G, Double Paste made by standard or other proposed processes for making pentanthrimide and Khaki 2G Crude. Unfortunately, the plant was to date unable to demonstrate more than about 85% of laboratory goal yield for the finished Khaki 2G Paste, made from baked pentanthrimide from solvent grade tetra-chloro-anthraquinone. Using exclusively acid grade tetra-chloro-anthraquinone for the last several months' production of baked pentanthrimide (about 90% of which was ring closed by the solvent method with operating difficulties, due to the freezing of the ring closure mass), plant yields as low as 65% of the 1944 standard will probably be reported for the most recent production. This compares with an estimated plant efficiency of approximately 85% if exclusively acid grade tetra-chloro-anthraquinone would be used for making pentanthrimide by the standard solvent method, followed by ring closure by the standard dry fusion process. Assuming that these yield difficulties can be straightened out in the future production of baked pentanthrimide and baker ring closed Khaki 2G Crude, a cost advantage of 24 cents per pound of baked pentanthrimide over the standard intermediate, and a total saving of approximately $1.00 per pound (100%) Khaki 2G Crude (from baked pentanthrimide, ring closed by the baker method) was estimated several months ago in preliminary cost studies which were made by the Jackson Laboratory cost estimating group and the Industrial Engineers, respectively. Final cost estimates on the product represented by J-53-F-84 will be prepared at a later date, after more reliable plant yield data are available from material to be made under more favorable conditions in the new rotary baker.

According to AN-2228 and 2248, we are free to manufacture the baked pentanthrimide and baker ring closed Khaki 2G by our proposed processes which are believed to be patentable. Two Invention Memoranda covering all patentable features on these and related products have been prepared and will be submitted to the Legal Department within the next few days.

We recommend that the new baker should be installed as soon as possible. In the meantime, advantage will be taken of available equipment for making baked pentanthrimide. We recommend to

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allocate as much of the preferred solvent grade tetra-chloro-anthraquinone to this operation as is possible under present conditions.

JACKSON LABORATORY

O. Stallmann

OS:rvw
aes

P.S. Mr. Schaumann's copy of the T. L. Memo is attached.

DUP050041001

SALES DIVISION TECHNICAL LABORATORY

Date: 10/13/43 Agency: Tech. Lab. Salesman: M. A. Dahlen

Customer: SEND DIRECT TO O. STALLMANN, No: 1736-B
JACKSON LABORATORY

D.S. or P.S. No.	Name of Product or Shade
P.S. 1560	Ponsol Khaki 2G Double Paste Final Sample J-53-F-84

Tests to be Made:

"We herewith submit to you by special messenger a 5-pound sample of the above product which is a very fluid paste of 19.34% extracted solids content, representative of the color made by ring closing in a plant rotary baker a portion of the recently produced "baked" pentanthrimide from 'solvent grade' tetra-chloro-anthraquinone.

"J-53-F-84 was standardized in laboratory from a sample of the special Khaki 2G Paste Crude from four experimental ring closure charges, which were bichromated and alkali-extracted in the Ponsol Colors Area. Due to the 'salt milling' effect associated with our new baker ring closure method, this Khaki 2G Paste Crude is obtained in such physical form that we were able to make a very fluid 20% paste without the use of leucanol.

"According to preliminary tests (reported in Technical Laboratory Memo #1763 as Research Sample No. 4160-91), this final sample is definitely superior in dyeing and padding shade (greener and brighter) as compared with standard on an equal color solids basis. Due to the absence of leucanol, our product shows improved migration properties over present standard.

"Please make a complete evaluation of this sample which may serve as a temporary standard for future production of Khaki 2G Double Paste made from baked pentanthrimide by the 'baker' ring closure method. We suggest that this sample be evaluated in comparison with the recent plant production of double strength Khaki 2G paste and with a competitive sample of the double paste, which, we understand, is now available. Please expedite the testing of this sample since we wish to standardize a trial lot

DUP050041002

from the four plant ring closure charges (totaling approximately 400 lbs. 100% color) as soon as possible and subject to your approval of this final sample."

(S) O. Stallmann

10/13/43 p.m. 12/7/43

FOR REPORT SEE ATTACHED SHEETS.

Reported By C.W.Harris J.W.Killheffer Director Geo. H. Schuler

DUP050041003

J-53-F-84 is not considered an entirely satisfactory replacement for the double paste now produced by the older method of ring closure for the reasons given in the next paragraph. Ponsol Khaki 2G, Lot 15, was produced by this process while our tests on the final sample were in progress and reported as being too thick a paste. This is not true of the final sample. Like the double paste which has been made by the usual method, this sample shows a tendency to coagulate and this may be the reason for our Franklin machine pigment dyeings showing a filtering effect as well as the inferiority in pigment filtration through paper.

Later in this report we show figures obtained from spectrophotometer readings made on the unadsorbed color from a chomatograph column. These figures show that dye produced by this method contains a much greater amount of what is probably a yellow impurity. We cannot demonstrate in the laboratory that this would cause objectionable results in practice but the amount of unadsorbed color is very close to that present in the poor lots of Ponsol Olive G and may produce yellow streaks in practice, under certain conditions, similar to the red streaks from Olive G.

With regard to fastness the final sample is essentially equal to the double paste standard and like most of our production is slightly inferior to the Indanthrene in fastness to chlorine.

Application Properties

When applied by the pigment padding method at the strength relation shown by dye test the final sample is equal in strength to Khaki 2G Double Paste, Lot 5, Khaki 2GP Paste, Lot 11 and Indanthrene Khaki 2G Double Paste, P.S.A.#22938.

	Coagulation		
	Acid	Alkaline	Migration
Khaki 2G Dbl. Pst.,Lot 5	very poor	very poor	fairly good
P.S.A#22938	" "	poor	" "
Khaki 2GP Pst., Lot 11	mod.to poor	moderate	moderate
Khaki 2G Dbl. Pst., Lot 15	very poor	ver poor	
P.S. 1560, J-53-F-84	" "	poor to very poor	good to fairly good
P.S.A#22938 (diluted)	moderate	moderate	
Khaki 2G, Lot 5 (diluted)	very poor	very poor	
Khaki 2G, Lot 15(diluted)	" "	" "	
P.S. 1560 (diluted)	poor	moderate	

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Filtration

	Reduced		Pigment	
	vs. Std.	Time required	vs. Std.	Time required
Khaki 2G Dbl., Lot 5		3 min.		195 min.
P.S.A.#22938	cons. inf.	12 min.	tr. sup.	140 min.
Khaki 2GP, Lot 11	apprec.inf.	4 min.	tr. inf.	70 min.
Khaki 2G Dbl., Lot 15	similar	2-1/2 min.	similar	135 min.
P.S.1560	similar	1-3/4 min.	cons.inf.	32 min.

When applied on the Franklin machine by the pigment method with the liquor flowing from outside to inside only, P.S.1560 filters out noticeably more than Khaki 2G Double Paste, Std., Lot 5 or the General product but noticeably less than Khaki 2GP, Lot 11.

Speck Test - 1.0 oz./gal. paddings

Khaki 2G Dbl. Pst., Lot 5, Std.	- noticeably specky
P.S.A#22938, Ind. Khaki 2G Dbl. Pst.	- very slightly specky
Khaki 2GP Pst., Lot 11	- slightly specky
P.S.1560, J-53-F-84	- slightly specky

Chromatographic Analysis

Ponsol Khaki 2G Dbl. Pst., Std., Lot 5	100	parts
P.S.A#22938, Ind. Khaki 2G Dbl. Pst.	140	"
Ponsol Khaki 2GP Pst., Lot 11	61.5	"
P.S.1560, J-53-F-84	8.5	"
Ponsol Khaki 2G Dbl. Pst., Lot 15	8.9	"

Shade and Strength on Cotton Skeins

Strength	Color	Shade	Exhaust
100 pts.	Ponsol Khaki 2G Dbl.Pst., Std., Lot 5		
110 pts.	P.S.A#22938, Ind. Khaki 2G Dbl. Pst.	tr.redder & duller	similar
190 pts.	Ponsol Khaki 2GP Pst., Lot 11	tr.greener	"
105 pts.	P.S.1560, J-53-F-84	tr.greener	"

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Solids

Ponsol Khaki 2G Dbl. Pst., Std., Lot 5	19.0% Ext. A & E
Ind. Khaki 2G Dbl. Pst., P.S.A#22938	17.92% " "
Ponsol Khaki 2GP Pst., Lot 11	9.28% " "
P.S.1560, J-53-F-84	19.05% " "

Fastness Properties

Tabulation of comparative fastness propeeties is attached.

We are forwarding herewith fastness, coagulation, migration, specking tests and shade and strength dyeings. The skeins are linked together in the following order, ticket attached to the exhaust.

Soaped
Unsoaped
Exhaust

J.W.Killheffer
C.W.Harris
dsg
12/7/43

DUP050041006

FASTNESS PROPERTIES

Comparison of the fastness properties of a 4.0 oz./gal. padding of P.S.1560, Ponsol Khaki 2G Double Paste, Final Sample J-53-F-84 with those of the colors listed below.

Test	Rating	vs. 4.0 oz./gal. Ponsol Khaki 2G Dbl. Pst., Std., Lot 5	vs. 4.4 oz./gal. Indanthrene Khaki 2G Dbl. Pst., P.S.A#22938	vs. 8.0 oz./gal. Ponsol Khaki 2G Pst., Lot 11
0.3% chlorine	3	similar	tr. to notic. inf.	trace inferior
One Laundry Wheel Test	2	trace superior	trace inferior	trace inferior
Five Laundry Wheel Tests	1	trace superior	similar	similar
Scrubbing with Soap	1	trace superior	trace inferior	trace inferior
40 hr. Fade-Ometer Exposure	5-4	similar	similar	notic. superior
144 hr. " "	5-4	similar	similar	notic. superior
20 day Weather Exposure*	1	notic. inferior	apprec. inferior	notic. inferior
30 day Weather Exposure	3	trace superior	notic. superior	trace superior

*The results of the 20 day weather exposure should be disregarded as something which we cannot explain happened to these tests.

DUP050041007

COPY

CC: Mr. J. C. Kinahan
Mr. J. T. Hale
Dr. W. R. Waldron

August 7, 1943

MR. F. W. PECK
ADMINISTRATION BUILDING

"PONSOL" KHAKI 2G PASTE, LOT 405
FROM
BAKED PENTANTHRIMIDE

The Miscellaneous Intermediate Area delivered to "Ponsol" Colors No. 2 on June 30, 1218# of charges 1, 3, and 4 of Baked Pentanthrimide with a 100% value of 946#.

This material was conveeted to Khaki 2G Crude in six fusions by the standard plant process. The crude was converted to paste crude by the bichromation and alkali boil methods using 1.25 parts of sodium bichromate. The shades of the resulting color were slightly red with a color value based on standard solids of 9.5% of 6705#. This gave an efficiency of 86.8% on the combined crude and paste crude steps.

The above paste crude (charges 534, 535, and 537) was standardized as lot 405 at 9.34% solids without any difficulty. The lot was centrifuged five times and shaded with 0.3% of "Ponsol" Olive 2GL Paste and 0.25% of "Ponsol" Flavone GC Double Paste. The value of this lot with adjustments for shading and bowl cleanings was 6565# which gives a standardization efficiency of 98.0% based on the 6705# of type in the paste crude. The overall efficiency from Pentanthrimide to standardized Khaki 2G was 85.0%. This compares with the 90.0% efficiency obtained in June from the Semi-Works Baked Pentanthrimide.

The Khaki 2G made in June was only bichromated with 0.75 parts of sodium bichromate and gave a color that was red and dull. Work done in the "Ponsol" Laboratory indicated that a larger amount of sodium bichromate would correct this shade so the recent production was treated with the 1.25 parts which did result in a color closer to standard but at a lower yield.

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The results obtained thus far in the plant on conversion of Baked Pentanthrimide to standardized Khaki 2G shows that the yield is less than the standard and the general plant average.

Four more charges of Baked Pentanthrimide (chgs. 8, 9, 10 and 11) totaling 2878# net was received on August 5th from the Miscellaneous Intermediate Area. Samples of these are being fused to Khaki 2G in the "Ponsol" Laboratory, and the crude thus obtained will be treated with 1.0 and 1.25 parts of sodium bichromate to determine the yield and shade differences. These charges of Pentanthrimide will be held in the plant awaiting the laboratory results.

"PONSOL" COLORS AREA

per (S)

B. A. Hess
Colors Hse. No. 2

BAH:ekd

DUP050041009

COPY

MEMORANDUM

August 19, 1943

MR. J. C. KINAHAN
"PONSOL" COLORS AREA

PENTANTHRIMIDE FROM THE BAKER PROCESS

We have tested the second group of charges which the Jackson Laboratory has sent us as produced in the plant by this process. These have been fused to Khaki in the normal way, followed by a cichromate oxidation and an alkali extraction. A yield of 75% of theory was obtained. This is slightly lower than the plant obtained on a previous group of charges, it being 76.6%.

KHAKI 2G FROM BAKER PENTANTHRIMIDE CHARGES 8-11
Purity 78.6% .78% Cl Average

	Normal Fusion Followed by Dichromate Oxidation & Alkali Extraction	
	Oxidized with 3/4 parts of dichromate	Oxidized with 1-1/4 parts dichromate
Yield of Color 100% Basis (% of Theory)	74%	76%
Dyetest - - - - - -	-Close 1:1 = solids Pads- Slightly red 1:1 = solids Franklin Filtration -satisfactory.	Dyeings and pads green & bright 1:1+ = solids Franklin Filtration- satisfactory.

"PONSOL" COLORS AREA

Per
W. R. Waldron

WRW:ekh

DUP050041010

COPY

CC: Dr. H. W. Elley, Orchem
Dr. H. A. Lubs, Orchem
Mr. C. J. Darlington, S. Works
Att: Mr. E. A. Peddrick

August 21, 1943

DR. WILLIAM KIRK, MANAGER
DYE WORKS

ATT: MR. F. W. PECK
MR. B. A. HESS

PONSOL KHAKI 2G PASTE CRUDE ACID RESEARCH

Confirming our telephone conversation with Mr. Hess, you were recently sent Ponsol Khaki 2G Paste Crude Acid Research, amounting to 3,440 pounds equivalent of 9.45% standard paste. This material represents twenty-four Semi-Works charges of Jackson Laboratory experimental material in which the crude dye was all made in the Semi-Works from baked pentanthrimide and ring closed by Jackson Laboratory's rotary baker process. It was subsequently treated with bichromate but has not been extracted with alkali. Our tests indicate the material to be green and bright versus standard.

It there is any further question relative to the above, please advise.

JACKSON LABORATORY

N. M. Bigelow

NMB:rvw

DUP050041011

COPY

CC: Mr. J. C. Kinahan
Dr. W. R. Waldron
Dr. O. Stallmann - Jackson Lab.

January 6, 1944

MR. F. W. PECK (2)
ADMINISTRATION BUILDING

"PONSOL" KHAKI 2G DOUBLE PASTE
LOT 30

Mr. Fish's letter of December 27, 1943 stated that this lot had been approved for shipment on specific orders and that all tests were satisfactory except that it was slightly inferior to migration. This lot of color was made from baked Khaki Crude produced at the Miscellaneous Intermediates Area and bichromated and alkali boiled by the standard processes in Colors House No.2. Lot 15 of 1750# of double paste that was made in November from the same type of crude and was dump and hold due to thickness, was used in this lot with new crudes.

The lot was centrifuged five times and only 1/20% of Compound No. 8 was used and it was shaded with .5% Flavone and .5% Olive 2GL.

The lot was packed out at 2585# with a solids of 19.3%. When adjustments for bowl cleanings and shading are made, and allowance for the lot 15 which was added, the overall efficiency from Khaki Crude Baked to standardized color was 64.7%.

"PONSOL" COLORS AREA

per_____
B. A. Hess
Colors House No. 2

BAH:ekd

DUP050041012

COPY

CC: Dr. E. C. Humphery, Wilmington
Dr. H. A. Lubs, Wilmington
Mr. F. W. Peck, Admin. Bldg.
Mr. B. A. Hess, "Ponsol" Area

January 7, 1944

JACKSON LABORATORY
DYE WORKS

ATTENTION: DR. O. STALLMANN

"PONSOL" KHAKI 2G
BY THE SOLVENT FUSION

During the past ten days, the plant has had considerable difficulty with the solvent fusion of Khaki 2G Crude. This has consisted in the fusion solidifying at the reaction temperature; these were all made from "Baker" type Pentanthrimide.

Controls were made in the laboratory on the last three charges available, Nos. 45, 46 and 47. The last gave a satisfactory solvent condensation, No. 46 was found to be fair, No.45 very poor. Plant fusions on these charges confirmed the laboratory results.

The difficulty was suspected to be incomplete pentanthrimide condensation and as evidence, charge No. 45 was found to contain an appreciable excess of unreacted alpha amino anthraquinone. This was further verified by adding 5% of Alpha Amine to a satisfactory charge of Pentanthrimide resulting in a frozen fusion.

It would appear to us that there are three reasons for the excess of alpha amine.

(1) Condensations made with low purity Tetra Chlor Anthraquinone, particularly acid grade.
(2) Accidental excessive amounts of alpha amine used in the condensation.
(3) Incomplete reaction in the Baker.

DUP050041013

We have talked with the Jackson Laboratory on our problem and they have agreed to try a refusion of one of the particularly poor charges. They have also agreed to consider the use of a smaller excess of alpha amine in this condensation, and also to study the possibility of incomplete fusion in the Baker.

The "Ponsol" Laboratory will continue to run controls on the various Baker type Pentanthrimides, recommending that those, which are found to produce this objectionable freezing in the solvent fusion, be used in the older molten type fusion.

WM. KIRK, MANAGER DYE WORKS

Per_____
W. R. Waldron

WRW:ekh

Submitted for typing - April 16, 1945
Typed - April 30, 1945

AES

DUP050041014