

INTER-OFFICE LETTER

FROM

Cleveland

OFFICE

Auxiliaries

DEPT.

FOR

#30 Coffeyville

OFFICE

DATE

August 24, 1960

MR.

G. F. Wyman

SUBJECT

The Glidden Co. - Personal

ANSWERING LETTER OF

DICTATED BY

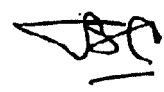
As per our phone conversation yesterday, I was shocked to get a report from the above that all our lithopone standards were low in light resistance. While they didn't feel this was of too much importance, nevertheless, they felt we should be aware of it.

A panel covering their tests on this is attached hereto and this is something we should run down immediately.

While I have heard of no complaints either from the trade or from our own companies, I suspect it's because no one checks this feature any more. At one time, as you know, this was very critical in the whole lithopone industry and I believe was licked by the addition of either nickel or cobalt, or both.

As I recall, shortly before World War II a Dutch chemist was in this country and contacted us regarding light stability of lithopones in general, making the claim that none of the U.S. producers had the material comparable with lithopones produced in Europe. He spent a few days in Coffeyville and pointed out that the very minute quantities of tin present in our lithopone accounted for the poor light resistance. Maybe some of the old timers at Coffeyville will recollect this.

In any case, as I requested yesterday will you please run this down and let me have a report later. It so happens that we are considering the possibility of using lithopone in an undercoater for latex paints but couldn't do so if the light resistance is as poor as the attached indicates.



S.B. Coelidge, Jr.:mek

0007-SWP-043229

Sample	Color	Ring	Oil	pH	U.V.	Chem	Wt. %	Vol. %	Wt. %	Vol. %
Std										
(OS-1) 11	Std.	0 100	16	9.1	Very Poor	2700	25	.30	99.70	0.13%
W-421	-, Cr2	97	18	9.4	Poor	1200	31	.30	-	0.10%
W-461	-, Cr2	110-113	20	9.7	Fair	1000	28	.30	-	0.13%
W-540	-1, Cr3	110-113	23	9.3	Good	1200	107	.30	99.70	0.13%
W-541	red	110	22	9.2	Fair	900	40	1.00	-	0.20%
Std										
(1-16) 119	Std.	0100	16	7.8	-	15000	-	.00	99.00	0.13%
40-M	-, Cr2	102	16	8.3	Poor	7200	-	.00	-	0.13%
60-M	+1, Cr1	110	12	8.7	Good	7200	-	.00	99.00	0.17%
80-M	+2, Cr2	107	17	7.7	Poor	9700	-	.10	-	0.16%
Std										
(1-18) 110	Std.	0100	13	7.8	-	24000	-	.00	99.00	0.13%
10-M	-, Cr2	90-93	17	6.7	Poor	7300	-	.00	-	0.10%
20-L	-, Cr2	85-90	14	8.7	Poor	7400	-	.10	99.00	0.10%
Std										
(F-5) 76	Std.	0100	23	8.1	-	9400	-	.07	-	0.10%
W-120	+, Cr1	85-90	21	8.0	Poor	4700	-	.10	99.90	0.11%
Std										
(OS-15) 176	Std.	0100	20	8.0	-	3500	-	.10	-	0.10%
W-840	+2, Cr1	93	23	8.8	Fair	2000	-	.30	99.70	0.13%
Std										
(OS-15) 9480	Std.	0100	17	8.2	Std.	13000	-	.00	-	0.10%
60-J	+, Cr2	100	16	8.3	Fair	9000	-	.00	Should not be	0.10%

The Glidden Data left here by their representatives
when here October 12, 1960 - Harry Scott, Kelley, ^{W.K.}
S. Schworm

0007-SWP-043230

0007-SWP-000126386

SPECIFICATIONS FOR CHLOROPHYLL PIGMENT

Grade	% Zinc Sulfide Grade	Flow	% Std. Lith. Tint Strength	Spatula Oil Abs.	Wgt. per Ounce	pH	Min. %		Max. % Moisture	Free Sol.
							325 Mesh	Screen		
L0	28-30	Excellent	100-105	12-14	35.6-35.8	8.3-9.3	99.8	0.07	0.2	0.3
H0	28-30	Excellent	100-105	15-18	35.6-35.8	8.3-9.3	99.8	0.07	0.2	0.3
96L0	28-30	Excellent	100-105	12-14	35.6-35.8	8.3-9.3	99.8	0.07	0.2	0.3
96H0	28-30	Excellent	100-105	15-18	35.6-35.8	8.3-9.3	99.8	0.07	0.2	0.3
96H	28-30	Excellent	100-105	12-15	35.6-35.8	8.3-9.3	99.95	0.07	0.2	0.3
JR	28-30		100-105	12-15	35.6-35.8	9.0-9.5	99.7	0.3	0.2	0.3
CWA	28-30	Retarded	100-105	15-18	35.6-35.8	8.3-9.3	99.8	0.07	0.2	0.3
CWTH	28-30	Retarded	100-105	12-15	35.6-35.8	8.3-9.3	99.95	0.07	0.2	0.3
Titano- lith			145 min.	14-17	35.4-35.6	8.0-8.5	99.8	0.2	0.2	0.3
76	28-29		95-100	20-25	35.5-35.7	7.5-8.0	99.8	0.1	0.2	0.3
W76B	28-29		95-100	20-25	35.5-35.7	8.0-9.0	99.8	0.3	0.2	0.3
W76B-MS	28-29		95-100	20-25	35.5-35.7	7.5-8.0	99.8		0.2	0.3
W76B-A	28-29		95-100	20-25	35.5-35.7	7.5-8.0	99.8		0.2	0.3
WK	28-30		100-105	15-18	35.6-35.8	7.0-8.0	99.8	0.25	0.2	0.3

GRADE: "Regular" (designated on orders and to our customers as "Regular" without using the word "regular")

FINISHED SPECS:

Tint ----- 95 minimum
Oil ----- L0, below 14.0; H0, above 15.0
Color ----- 13- minimum
Screen ----- 99.80 minimum
ZnO ----- .20% maximum
WSS ----- .07% maximum
Moisture ----- .30% maximum
pH ----- 8.3-9.3
Special treatment - none

MANUFACTURING SPECS:

- L-1 dept. -- Simultaneous, barium side strikes, brought up at very dark gray NIS spot test.
-- Finished faint gray NIS spot test.
-- Add cobalt sulfate (amt. per lab instructions) to finished strikes.
-- Soluble sulfate (such as salt cake) to be added any time strike is being made in order to reduce soluble barium in L-2 press filtrate. Amount per lab instructions.
- L-2 dept. -- Calcine at temperature per lab instructions.
- L-3 dept. -- Hydroseparator - 99.80 minimum screen
Acid treatment - to 3.5 pH
Water wash - to 6.8 pH minimum
Alkaline treatment tanks - adjust pH to 8.5 with barium hydrate.
Add ultramarine blue (amt. per lab orders, but usually $\frac{1}{2}$ lb.) by slurring in sodium silicate solution.
- L-4 dept. -- Permissible to add 1 pint sodium silicate per press tank to ease extrusion.
-- Finished end moisture - less than 0.30%.
- L-5 dept. -- Additions - none
Mikro mill screen size - to obtain 99.80 minimum screen test.
 $\frac{3}{64}$ h.b. usually works when hydroseparator results are O.K.
Bags - "Regular" bags, i.e., those showing no special grade designation.

0007-SWP-043232

0007-SWP-000126388

GRADE: #96 (designated on orders and to our customers as 960 or 9610)

FINISHED SPECS:

Same as "Regular" except under special treatment $\frac{1}{2}$ lb./ton Tamol N is added to improve dispersion and gloss.

MANUFACTURING SPECS:

L-1 dept. -- Same as "Regular"

L-2 dept. -- Same as "Regular"

L-3 dept. -- Same as "Regular" except 10 lbs. Tamol N is to be added to each treatment tank.

L-4 dept. -- Same as "Regular"

L-5 dept. -- Same as "Regular" except packed in bags imprinted "96".

0007-SWP-043233

0007-SWP-000126389

Tint ----- 95 minimum
 Oil ----- no specs but generally runs below 14.0
 Color ----- 13-
 Screen ----- 99.95 minimum
 ZnO ----- .20 maximum
 WSS ----- .07 maximum
 Moisture ----- .30 maximum
 pH ----- 8.3-9.3
 Special treatment - 96 grade which has been homogenized.

MANUFACTURING SPECS:

L-1 dept. -- Same as "Regular"

L-2 dept. -- Same as "Regular"

L-3 dept. -- Same as 96 except material is homogenized after the 96 treatment and after solids are adjusted to 35.5% or less at 5000 psi into clean tank.

L-4 dept. -- Same as "Regular"

L-5 dept. -- Same as 96 except screen test is to pass 99.95%.

0007-SWP-043234

0007-SWP-000126390

FINISHED SPECS:

Tint ----- 95 minimum
Oil ----- 15.8 or below
Color ----- 13- minimum
Screen ----- 99.80 minimum
ZnO ----- .20 maximum
WSS ----- .3 maximum
Moisture ----- .3 maximum
pH ----- 9.0-9.5
Special treatment - 0.2% tetrasodium pyrophosphate added to reduce
water absorption below 25.0 cc. water/100 grams
lithopone.

MANUFACTURING SPECS:

L-1 dept. -- Same as "Regular"
L-2 dept. -- Same as "Regular"
L-3 dept. -- Same as "Regular" or 96
L-4 dept. -- Same as "Regular" except 0.2% tetrasodium pyrophosphate added by
automatic feeder at end of steam dryer.
L-5 dept. -- Same as "Regular" except packed in bags imprinted "JR".

0007-SWP-043235

0007-SWP-000126391

FINISH SPEC:
Same as for "Regular" NO or 9640 except under special treatment .166% aluminum stearate is to be added as a flow inhibitor in oil base coatings.

MANUFACTURING SPECS:

L-1 dept. -- Same as "Regular"

L-2 dept. -- Same as "Regular"

L-3 dept. -- Same as "Regular" or 96

L-4 dept. -- Same as "Regular"

L-5 dept. -- Same as "Regular" except .166% aluminum stearate is to be added ahead of Mikro mill.

0007-SWP-043236

0007-SWP-000126392

except there is no lower limit for solids passing the 325 mesh screen.

Under special treatment it must be noted that this lithopone is to produce a low gloss, oil base coating in spite of it being an homogenized pigment. Special additions are made in both L-3 and L-5 to lower gloss and inhibit flow.

MANUFACTURING SPECS:

L-1 Dept. -- Same as for "Regular"

L-2 Dept. -- Same as for "Regular" high oil

L-3 Dept. -- Same as for "Regular" up to alkaline treatment tanks where this pigment is tested for suitability for CWAH:

- 1) Oil absorption in alkaline tank must be 18.0 or higher.
- 2) Screen test must be 99.85 or better.

If the lithopone meets these prerequisites, the following treatment is then applied in the alkaline tanks:

- 1) Treated for 96 and solids adjusted to 35.5% or below.
- 2) Homogenized at 5000 psi into a clean tank.
- 3) Dry sample and grind into CCF's formula. Rest of treatment is determined by amount of gloss which this shows.
 - a) 1/2% calcium chloride added to tank as a water solution and mixed 15 min.
 - b) 3/4% sodium bicarbonate added as a water solution and mixed 15 min.
- 4) pH lowered with phosphoric acid to 6.4 or below (should take about 4 gal. of 75% H_3PO_4). Let mix 1/2 hr.
- 5) pH raised with barium hydrate to 8.5 pH. However, do not use more than 250 lbs. of $Ba(OH)_2$ so long as pH is raised above 7.2 with this amount. In other words, pH is either raised no higher than 8.5 or 250 lbs. maximum of $Ba(OH)_2$ whichever occurs first, so long as final pH is above 7.2.

L-4 Dept. -- Use bypass line; do not contaminate with other grades of lithopone anywhere.

L-5 Dept. -- Additions: After Mikromill add .22% aluminum stearate and 1.0% "Celite" Superfloss.

Mikromill: Dry mill without a screen in the mill.

Pack: In "Regular" bags but stencilled CWAH. There must be a separate lot number assigned to each alkaline tank of material. Or two alkaline tanks can be taken to steam drier "boxed" together and packed under the same lot number.

Revised 9/9/59

0007-SWP-043237

0007-SWP-000126393

FINISHED SPECS:

Same as for 96H except Thixcin added as flow inhibitor:

Packard Electric ----- .14%
New London Mills ----- .25%.

MANUFACTURING SPECS:

L-1 dept. -- Same as for "Regular"

L-2 dept. -- Same as for "Regular"

L-3 dept. -- Same as for 96H

L-4 dept. -- Same as for "Regular"

L-5 dept. -- Same as for 96H except the above amounts of Thixcin to be added
dry ahead of Mikro mill.

0007-SWP-043238

0007-SWP-000126394

FINISHED SPECS:

Tint ----- 145
Oil ----- 16.5 to 17.5 (This range to meet requirements of Monroe, Lederer, and Taussig. Other ranges possible if required.)
Color ----- 13- minimum
Screen ----- 99.80 minimum
ZnO ----- .20 minimum
VSS ----- .20 minimum
Moisture ----- .30 minimum
pH ----- 8.3-9.3
Special treatment ----- Titanium dioxide (Zopaqua) added to raise tinting strength to 145.

MANUFACTURING SPECS:

L-1 Dept. -- Same as "Regular"

L-2 Dept. -- Same as "Regular"

L-3 Dept. -- Same as "Regular" up to alkaline treatment tanks. At this point:

- a) Tint and solids carefully determined and amount of Zopaqua to be added is preformulated in control lab.
- b) If for Monroe, Lederer, Taussig or Baltimore stock, then oil absorption is checked. If below 18.5, partial silicate treatment is added per lab instructions. Full treatment consists of:

- 1) Lbs. lithopone x 3% to get lbs. sodium silicate.
Add and mix $\frac{1}{2}$ hour.

- 2) Lbs. lithopone x 0.90% to get lbs. barium chloride.
Add and mix $\frac{1}{2}$ hour.

- 3) Adjust pH to 8.5 with sulfuric acid (usually 10% of silicate). Then let mix 4 hours.

- c) Add Zopaqua 15 bags at a time by slurring in small mix tank full of water, plus 1 gallon of sodium silicate.

- d) Retest tinting strength. Adjust to 145 by addition of more Zopaqua or lithopone.

- e) Usually do not add blue or barium hydrate. Balance salts with BaCl_2 before taking to steam drier.

L-4 Dept. -- Same as for "Regular"; do not add sodium silicate, however. Usually goes through press tank bypass line.

L-5 Dept. -- Same as for "Regular" but pack in Titanolith Imprinted bags.

Revised 9/9/59

0007-SWP-043239

GRADE: 76 (formerly 766)

FINISHED SPECS:

Tint	85 minimum
Oil	20.0 minimum
Color	13- minimum
Screen	99.80 minimum
ZnO	.20 maximum
SS	.10 maximum
Moisture	.30 maximum
pH	7.5-8.0 (For U. S. Gypsum)
Special treatment	treated at L-1 for high dry hiding.

MANUFACTURING SPECS:

L-1 Dept. -- Simultaneous, barium side strikes, brought up at very dark gray
NIS spot test. Adjust at end of strike to faint pink phenolphthalein.

- 1) Add cobalt per lab instructions. (Use factor of 2 x g/l
cl to equal ounces cobalt/strike.)
- 2) Full treatment - adjust for solids.
 - a) Add 12 1/2 lbs. "Iron-free" aluminum sulfate. Weigh
up other chemicals while this is mixing in.
 - b) Base with barium liquor to faint pink with phenolphthalein.
 - c) Add 14 lbs. 13 oz. "O" grade sodium silicate. Base again
to faint pink if necessary.
 - d) Add 24 lbs. 5 oz. of 75% phosphoric acid (2.46 gallons).
- 3) Then add enough barium liquor to give pronounced pink color
on phenolphthalein spot test.

L-2 Dept. -- Calcine at temperatures per lab instructions.

L-3 Dept. -- Hydrochloric acid treat, and water wash as for "Regular."

Alkaline treatment tanks: Adjust pH within 6.9 to 7.5 range with
Be(OH)2
Ultramarine blue as for "Regular"
Add protein solution: .00032 x lbs. lithopone equals gal.
of protein solution to be added.

L-4 Dept. -- Same as for "Regular"

L-5 Dept. -- Additions: None

Mikro mill screen size: Mill through 3/64 H6 screen. Be sure
Mikro mill screen has no holes, for many customers give this
pigment no additional milling.
Bags: Pack in bags imprinted "76."

Revised 9/9/59

0007-SWP-043240

FINISHED SPECS:

Same as for plain 76 grade except WSS will have 0.5% permissible maximum and under special treatment the fact that 0.2% tetrasodium pyrophosphate is added to lower water absorption below 30.

MANUFACTURING SPECS:

L-1 Dept. -- Same as for 76

L-2 Dept. -- Same as for 76

L-3 Dept. -- Same as for 76

L-4 Dept. -- Same as for 76

L-5 Dept. -- Additions: Using automatic feeder after the steam drier, add 0.2% tetrasodium pyrophosphate.
All else - same as 76.

Mikromill Screen: 3/64 or finer.

Revised 9/9/59

0007-SWP-043241

0007-SWP-000126397

FINISHED SPECS:

Same as for plain 76 except WSS which have a 1.0% maximum.
Under special treatment - treated to reduce sulfide staining of copper or other heavy metals by addition of certain chemicals. For use in paper coating.

MANUFACTURING SPECS:

L-1 Dept. -- Same as for 76

L-2 Dept. -- Same as for 76

L-3 Dept. -- Same as for 76 except that no protein need be added (no harm if it is, however). Color must be 13+ or better.

L-4 Dept. -- Same as for 76

L-5 Dept. -- Additions: 0.30% tetrasodium pyrophosphate at automatic feeder after steam drier. Hand feed 0.25% thiourea and 0.50% ammonium thiocyanate in Mikro mill hopper. Do not store in bins more than a few hours because of possible rusting of the steel.

Mikro mill screen size: 3/64 h.b. screen.

Bags: Pack in 76 bags.

Revised 9/9/59

0007-SWP-043242

0007-SWP-000126398

GRADE:

(For National Gypsum) Our offset for Sherwin Williams W-421.

FINISHED SPECS:

Tint ----- 95 minimum
Oil ----- 15.0 - 15.0
Color ----- 13 minimum
Screen ----- 99.80 minimum
ZnO ----- .20 maximum
WSS ----- .8 maximum
Moisture ----- .30 maximum
pH ----- 9.0 maximum
Special treatment - 3/4% sodium silicate added in L-3, 0.00% TSPP
added in L-5 to give maximum water dispersability
of the pigment.

MANUFACTURING SPECS:

L-1 dept. -- Same as for "Regular"

L-2 dept. -- Same as for "Regular" high oil

L-3 dept. -- Same as for "Regular" to the alkaline tanks. In the alkaline tanks it is given the following treatment:

- 1) Solids adjusted to 35.5% or below and homogenized at 5000 psi into a clean tank.
- 2) 3/4% sodium silicate added and mixed 1/2 hour.
- 3) Acidify with H_2SO_4 to 7.0 pH and mix at least 4 hours.

L-4 dept. -- Same as for "Regular" but do not add any additional sodium silicate.

L-5 dept. -- Additions: Add tetra sodium pyrophosphate after steam drier at rate of 0.00%.

Mikro mill screen size: To obtain 99.80 minimum screen test.

3/4 h.b. should normally be fine enough.

Bagg: pack in "Regular" bags.

0007-SWP-043243

0007-SWP-000126399

GRADE: 76 for Dunlop Tire & Rubber

FINISHED SPECS:

Same as for plain 76 except that tint and color have no importance. This material is used in golf ball centers and its consistency in a bentonite-water slurry test is the only important consideration. However, the exact consistency of this test slurry is very important so that the pigment's oil absorption must be within the usual 76 grade limits. Also, it is specially treated by the addition of 1/2 % Arquad 2 HT to further increase this consistency.

MANUFACTURING SPECS:

L-1 dept. -- Same as for 76

L-2 dept. -- Same as for 76

L-3 dept. -- Same as for 76 although no protein need be added.

L-4 dept. -- Same as for 76

L-5 dept. -- Addition - Approximately 0.5% of Arquad (Armour Chemical Co.) 2 HT is added ahead of the Mikro mill. Because of the critical nature of the consistency test, the amount of this addition should be preformulated in the lab, then rechecked after the actual run has been started in case any further adjustments need be made in the amount of the addition.

Mikro mill screen size - 3/34 h.b. screen
Bags - Pack in 76 bags.

0007-SWP-043244

0007-SWP-000126400

GRADE: W76B-A

FINISHED SPECS:

Same as for plain 76 except WSS which have a .6% maximum. Under special treatment - treated to reduce sulfide staining of copper by addition of certain chemicals. For use as a paper filler pigment to be added to the beaters.

MANUFACTURING SPECS:

L-1 Dept. -- Same as for 76

L-2 Dept. -- Same as for 76

L-3 Dept. -- Same as for 76 except no protein need be added.

L-4 Dept. -- Same as for 76

L-5 Dept. -- Additions: 0.30% tetrasodium pyrophosphate at automatic feeder after steam drier. Hand feed 0.25% ammonium thiocyanate in Mikro mill hopper. Do not store in bins more than a few hours because of possible rusting of the steel.

Mikro mill screen size: 3/64 h.b. screen

Bags: Pack in 76 bags.

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0007-SWP-043245

0007-SWP-000126401