-GRFM- DLH JEO KCK

Wilmington 98, Delaware
May 19, 1953

Production Approved

Date MAY 22 1953

MAY 26 1953

J. B. DIETZ) IN
L. H. PRIDAY) TURN

MARSHALL LABORATORY RELEASE LETTER NO. 1364
LEAD REDUCTION IN 347-817 HOUSE PRIMER

Project No. P-1047

The purpose of this memorandum is to close the file on Release Letter No. 1364, involving a 50% reduction in the amount of Basic Carbonate of White Lead used in House Paint Primer --- which was intended to conserve lead (then in very short supply) as well as to reduce costs.

As pointed out in J. W. Nestor's letter of July 26, '51, the risks involved in respect to blistering and customer dissatisfaction, did not justify the adoption of the formula offered in this release.

Under separate cover the file is also being closed on a revised House Paint Primer covered by Release Letter No. 1466, dated November 18, '52, which was considered by sales to be unsatisfactory in drying characteristics.

In closing the file on this release we are pleased to report that Release Letter No. 1466-A (approved by the Chemical Division on April 30) involving a revision of 347-817 House Primer to obtain improved gloss holdout with a satisfactory balance of other properties was submitted to J. B. Dietz for approval under date of May 14th.

S. L. MC SORLEY

SLMcS/mta

Approved LHD

Date MAY 20 1953

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N50723

L. H. PRIDAY
WILMINGTON D-8024

G. D. GRAVES
WILMINGTON D-7014

H. R. AYRES
CHICAGO

P. J. GRIFFIN
EVERETT

E. J. MACFARLAN
SO. SAN FRANCISCO

D. G. KENNEDY
PHILADELPHIA PLANT

N. I. DRESS
FORT MADISON

A. J. HEMMER
PHILADELPHIA PLANT

D. V. GREGORY
PHILADELPHIA PLANT

CC: J. D. McBurney, Wilm. D-701
P. B. Evans, Lab.
Stuart Graves, Lab.
W. F. Singleton, Lab.

MARSHALL LABORATORY
August 3, 1951

REVISED FORMULA CARDS FOR
MARSHALL LABORATORY RELEASE LETTER #1364

Attached are corrected formula cards for the proposed 347-817 House Primer. They should be attached to your copies of Release Letter #1364 in place of the formulas which you now have.

As explained in W. F. Singleton's letter dated 8/2/51 to J. D. McBurney, it was recently discovered that the amount of W-68, Basic Lead Carbonate, in the present 347-817 was reduced accidentally some time ago. As a result, the proposed formula now with Release Letter #1364 has a slightly lower lead content than the formula on which the background for the release letter was obtained.

The attached revision increases the lead content to correspond to the formula which had been tested and represents a true 50% reduction in lead from original concentration in 347-817.

MARSHALL LABORATORY

J. E. Oyler
J. E. OYLER

JEO:ELH
8/3/51

LMW 0010028

N50723.01

DUP150054477

CC: R. B. Davis, Lab.
P. B. Evans, Lab.
S. Graves, Lab.
J. E. Cyler, Lab.

July 30, 1951

J. D. McBURNEY
D-7012
WILMINGTON

RELEASE LETTER NO. 1364

LEAD PIGMENT CONTENT OF COMPETITIVE HOUSE PRIMERS

This is in answer to your inquiry in connection with Release Letter No. 1364 whether other paint manufacturers have a low content of white lead in their primer similar to that recommended in the release letter. Since we have not examined competitive samples of house primer recently, we cannot say possitively whether other manufacturers have taken steps to reduce the lead content of their primer. However, as far as we are aware, the lead content of competitive primers is in the range of the present product and higher than that proposed in Release Letter No. 1364.

Five competitive primers were examined in 1947 (Competitive Products Report #16, December 8, 1947). National Lead, Sears Roebuck and Devoe had primers with pigmentations similar to ours. The lead pigment was 4.75, 3.13 and 3.34 pounds per gallon as compared with 3.66 in our product.

MARSHALL LABORATORY

William F Singleton
W. F. SINGLETON

WFS:ELM
7/27/51

LMW 0010031

N50723.02

DUP150054480

K. Lotz

APPROVED
JUL 18 1951
D. McB.

CC: G. D. Graves, Wilm. D-7014 (3)
H. R. Ayres, Chicago (2)
P. J. Griffin, Everett
H. E. Johnson, Flint
E. E. Furst, Toledo (2)
E. J. Macfarlan, So. San Francisco
N. I. Dress, Fort Madison
J. W. Nestor, Wilm. D-7028
P. B. Cochran, Wilm. D-7030
J. B. Dietz, Wilm. D-7018
J. D. Shiels, Wilm. D-7033 (3)
J. D. Pickens, Flint
D. G. Kennedy, Phila. Plant
A. J. Hemmer, " "
D. V. Gregory " "
C. E. Stover, " "
R. A. DeWall, " "
W. E. Spaulding, " "
C. R. E. Merkle, Lab. (3)
Paul Robinson, Lab.
P. R. Evans, Lab.
I. L. McGinnis, Lab.
M. B. Lore, Lab.
C. E. Bartsch, Lab.
Phila. Label Section
Stuart Graves, Lab.
K. C. Lampert, Lab.
Ralph Plowman, Wilm. N-5539

L. H. PRIDAY (4)
DIRECTOR OF PRODUCTION
ROOM D-8024, WILMINGTON

W. P. FISHER
INDUSTRIAL SALES MANAGER
ROOM D-8020, WILMINGTON

C. L. McSORLEY
TRADE SALES MANAGER
ROOM D-8032, WILMINGTON

MARSHALL LABORATORY
July 10, 1951

MARSHALL LABORATORY RELEASE LETTER NO. 1364
LEAD REDUCTION IN 347-817 HOUSE PRIMER

Project No. P-1047

(Previous Release Letter #1098)

Introduction:

This letter suggests, for management consideration, a 50% reduction in the concentration of Basic Carbonate of White Lead in 347-817 House Primer to obtain a raw material cost saving of about 25¢ per gallon but with a possible sacrifice in moisture resistance.

An alternate method for reducing cost through use of Pigment 45-X, Basic Silicate of White Lead, has been explored but is not being considered because it offers no cost advantage over the suggested product and has deficient hold-out and ease of brushing as well as questionable moisture resistance.

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Reason for New Development:

The primary reason for this development is to reduced the raw material cost of 347-817 House Primer. An incidental justification for the proposal might be conservation of lead should our allocation of those pigments be reduced.

Reasons for Requesting Management Review:

1. There is a risk involved in moisture blister resistance.
2. Because this is a Trade Sales product and is sold in large quantities, the risk will be spread out over a large volume of business.
3. The revision will require a new label analysis which might not be considered beneficial from a customer reaction viewpoint.
4. The proposed formula will require an increase of .13 lb. of TiO2 per gallon to maintain hiding.

Extent of Release:

Full release for Trade Sales is proposed.

Description of Product:

The suggested low lead modification of 347-817 House Primer is essentially equal to the present product in initial properties. Comparison of laboratory batches of each show them to be equal in initial properties including ease of application, drag at lap, drying and gloss hold-out.

Moisture Blister Resistance:

The suggested formula and the present 347-817 Primer were tested in Series #10321, both as fresh films in 1949 and as aged films in 1950. In both cases, single direct comparisons were made with self-priming.

In the fresh films the 347-817 Primer was equal to self-priming. The low lead primer was inferior to self-priming. The average blister rating was 1.7 units poorer for the low lead primer on a 0 to 10 scale, and at individual inspection it was rated as much as 3.0 units poorer. The standard deviation for the test as determined from another group of panels is such that the reliability of the 1.7 unit difference is estimated to be better than 99%.

The 3 unit maximum difference is not large and could be detected by the unskilled observer only if the two paints were placed on the same house, side by side. However, this is a step in the wrong direction in house paints which are recognized to be weak in this property, and therefore it indicates a real risk of increasing customer dissatisfaction with our product.

In aged films the suggested primer was 5.7 units, on an average, better than self-priming. The standard deviation has been established for tests on fresh films only, but the reliability of this 5.7 unit difference is estimated to be high. The present 347-817 primer was 5.5 units better than self priming, indicating that the suggested primer is no worse than 347-817.

This indicates that the weakness noted above may exist only in fresh paint films (up to 1 year). If severe weather is prevalent the first winter after painting, slightly more than the usual amount of blistering may be encountered; if the house gets through the first winter without blistering, the evidence is that its performance will be at least as good as average thereafter.

The suggested primer was tested (vs. 347-817 Primer) on 4 houses in 1949. However, no failures have occurred on either primer in these limited tests.

Film Durability:

Completed exposures in Series #8053 show the proposed primer to be equal to the present 347-817 at all exposure locations. Concentrations of 75% and 25% DCHL were likewise equal to control in this study, but we suggest maintaining the 50% level for a margin of safety and because we have no moisture resistance evidence at the 25% level. Exposures of 1949 House Test Paints, Series 10820, show no failure of either the proposed primer or its control.

Stability:

Two laboratory batches of the proposed primer at 1 month and ten months and one plant batch at 2 years have shown satisfactory viscosity stability.

Comparison of Compositions:

The following table shows the composition, in pounds per gallon, of the proposed primer, and the changes from the present 347-817.

	347-817	50% DCHL	Change No.
V0-5359, 83% Z-4 Bodied L.O.	2.38	2.38	
H-253, Raw linseed oil	----	.28	(1)
G-217, Aluminum Stearate	.07	.07	
H-132, Magnesium Silicate	3.27	3.81	(2)
H-50, "Ti-Pure" R-610	1.20	1.33	(3)

	347-817	50% BCWL	Change No.
W-68, (BCWL	3.08	1.54	(4)
(Linseed Oil	.57	.29	(1)
VD-1689, Lead, Manganese Drier	.19	.19	
H-287, Aliphatic Solvent	.81	.81	
H-262, Aliphatic Solvent	1.53	1.53	
Gallon Weight	13.10	12.23	

1. Raw Linseed Oil added to replace grinding oil lost by replacement of W-68.
2. Replaces half of the Basic Carbonate of White Lead on a volume basis to maintain 40% Pigment Volume.
3. TiO_2 increased .13# to maintain equal hiding.
4. Basic Carbonate of White Lead reduced 50% to effect cost savings of 25¢ per gallon.

The present concentration of Basic Carbonate of White Lead is a carry-over from the 40/40/20 Titanium-Barium/BCWL/ Extender formula which was extensively tested and recommended by the National Lead Company, and generally accepted by the Trade. Although other changes have been made in more recent years, the concentration of BCWL has remained the same until now.

Cost Information:

The proposed formula for the revised 347-817 effects an estimated raw materials cost reduction of 25¢ per gallon. Exact costs should be obtained from the Cost Department.

Manufacturing Problems.:

A 100 gallon batch of the proposed formula was manufactured at the Philadelphia Plant for the 1949 House Test Program. No difficulties were encountered, nor are any anticipated.

New or Unusual Toxicity or Other Hazards:

There are no new health hazards involved in this proposal.

Label Information:

Label directions will remain the same.

Label analysis (pigment portion) will be changed as shown in the following table:

Composition of Pigment

	Present (based on formula card)	Proposed
Titanium Magnesium Pigment	53%	66%
Basic Carbonate of White Lead	41%	23%
Silicates	6%	11%
	100%	100%

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This large reduction in White Lead might be the source of considerable unfavorable customer reaction.

A complete label analysis will be supplied upon request.

Simplification:

There will be no change in the number of raw materials, intermediates or finished products.

Patent Information:

The proposed changes in the pigment composition of house paint primer do not entail any patent problems.

Confidential Information:

This product is included in the respective schedules of the du Pont/C.I.L. and the du Pont/Duperial Agreements.

Formula Cards:

Formula cards for the revised 347-817 and its mill base are attached to copies of this letter for Messrs. Graves, Friday, Hemmer, Ayres, Griffin, Dross, Macfarlan, Kennedy and Gregory.

MARSHALL LABORATORY

J E Oyler

J. E. OYLER

JEO:ann

APPROVED J.E.D. [illegible] 7/11/51

APPROVED ____________

DATE ____________

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DUP150054486