Cross Index:
33-676
33-677
33-679
33-697

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Philadelphia Laboratory
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MEMORANDUM REPORT M-295

SETTLING OF CHROME YELLOWS

The tendency of chrome yellows to settle has caused unsatisfactory package stability especially in Trade Sales items. This report will cover the investigation to determine the effect of grinding cycle and batch to batch variations in the following chrome yellow bases:

33-676 Chrome Yellow Medium "Dulux" Base
33-677 Chrome Orange Light "Dulux" Base
33-679 Chrome Yellow Light "Dulux" Base
33-697 Shading Yellow "Dulux" base

Samples of three factory batches for each base were taken at 15,000, 20,000 and final cycles. Half pints of the bases and single pigment 94 Line enamels made from the bases were checked for settling at one, three and six months. The procedure used followed TM-228.

A review of the data leads to the following observations:-

1. There is definite batch to batch variation.

2. Insofar as the bases are concerned, 33-677 has the poorest whereas 33-697 has the best settling characteristics.

3. The single pigment enamels show the 94-697 to have the poorest and 94-677 to have the best settling characteristics. This is a reverse of the base performance.

4. The established grinding cycle appears to be optimum.

5. Over grinding may accelerate enamel settling.

Since the best of the bases are not entirely satisfactory, a study to uncover a satisfactory antisettling agent will be made. Previous work has shown that such agents as milled rubber, soya lecithin and fatty acids are of questionable value. The soya lecithin appeared to have the most promise but even in amounts equal to 1.0% based on the pigment

the results were not consistent. One objection to the use of this agent in such amounts was the effect on flow especially in roller coating enamels. Definitely poorer flow resulted.

Among the new agents which will be evaluated are an acylated phenolic resin, a specially treated bentonite and a polyacrylonitrile.

The attached tables show the detailed settling data. The following is a brief explanation of the ratings.

C 10	=	Perfect dispersion
C 5	=	Failure, objectionable caking
T 10	=	Mushy and very loose cake
T 6	=	Tough and gummy cake.

PHILADELPHIA LABORATORY

W. P. Colio

W. P. COLIO

WPC:ms

ATTACH:

33-676 SETTLING

		Base			Enamel		
Batch	Cycles	1 Mo.	3 Mo.	6 Mo.	1 Mo.	3 Mo.	6 Mo.
A	15,000	C7-T8	C6-T6	C6-T6	C8-T10	C8-T8	C8-T8
	20,000	C7-T8	C7-T8	C6-T8	C8-T10	C8-T10	C8-T8
	Final	C7-T8	C7-T8	C6-T6	C6-T8	C7-T6	C7-T6
B	15,000	C8-T-10	C6-T-6	C6-T6	C8-T10	C6-T6	C5-T6
	20,000	C9-T10	C7-T-8	C7-T8	C8-T8	C7-T8	C6-T6
	Final	C9-T10	C7-T8	C7-T8	C8-T8	C7-T8	C5-T6
C	15,000	C7-T8	C7-T8	C7-T8	C7-T8	C7-T8	C7-T8
	20,000	C7-T8	C7-T8	C6-T8	C7-T8	C7-T8	C7-T8
	Final	C7-T8	C7-T8	C7-T8	C7-T8	C7-T8	C7-T8

33-677 SETTLING

		Base			Enamel		
Batch	Cycles	1 Mo.	3 Mo.	6 Mo.	1 Mo.	3 Mo.	6 Mo.
A	15,000	C5-T6	-	-	C8-T10	C6-T8	C6-T8
	20,000	C5-T6	-	-	C8-T10	C6-T8	C6-T8
	Final	C5-T6	-	-	C8-T10	C6-T8	C6-T8
B	15,000	C8-T10	C8-T10	C5-T6	C8-T10	C8-T10	C8-T10
	20,000	C8-T10	C8-T10	C5-T6	C8-T10	C8-T10	C8-T10
	Final	C8-T10	C8-T10	C6-T6	C8-T10	C8-T10	C8-T10
C	15,000	C5-T6	-	-	C8-T10	C6-T8	C6-T8
	20,000	C6-T6	C5-T6	-	C8-T10	C6-T8	C6-T8
	Final	C6-T6	C5-T6	-	C8-T10	C6-T8	C6-T8

33-679 SETTLING

		Base			Enamel		
Batch	Cycles	1 Mo.	3 Mo.	6 Mo.	1 Mo.	3 Mo.	6 Mo.
A	15,000	C6-T6	C5-T6	-	C7-T8	C6-T6	C6-T6
	20,000	C6-T6	C5-T6	-	C7-T8	C6-T6	C5-T6
	Final	C6-T6	C5-T6	-	C7-T8	C6-T6	C5-T6
B	15,000	C8-T10	C7-T8	C5-T6	C8-T10	C8-T10	C7-T8
	20,000	C8-T10	C7-T8	C5-T6	C8-T10	C8-T10	C7-T8
	Final	C8-T10	C7-T8	C5-T6	C8-T10	C8-T10	C7-T8
C	15,000	C6-T6	C5-T6	-	C8-T10	C7-T8	C6-T6
	20,000	C8-T10	C7-T8	C5-T6	C8-T10	C7-T8	C6-T6
	Final	C8-T10	C8-T10	C6-T6	C8-T10	C7-T8	C6-T6

33-697 SETTLING

		Base			Enamel		
Batch	Cycles	1 mo.	3 Mo.	6 Mo.	1 Mo.	3 Mo.	6 Mo.
A	15,000	C8-T10	C8-T10	C8-T10	C6-T8	C6-T6	C6-T6
	20,000	C-10	C-10	C8-T10	C7-T8	C7-T8	C7-T8
	Final	C-10	C-10	C8-T10	C7-T8	C5-T6	C5-T6
B	15,000	C8-T10	C8-T10	C8-T10	C6-T8	C5-T8	C5-T6
	20,000	C-10	C9-T10	C8-T10	C6-T8	C5-T8	C5-T6
	Final	C-10	C9-T10	C8-T10	C6-T8	C5-T4	C5-T4
C	15,000	C-10	C-10	C8-T10	C7-T8	C7-T8	C6-T8
	20,000	C-10	C-10	C8-T10	C7-T8	C7-T8	C6-T8
	Final	C-10	C-10	C8-T10	C7-T8	C7-T8	C6-T8