C. Dichter
W. Hopkins
H. Elias - Buffalo Tube
F. Mayer

Progress Report No. 6

Title: BASING CEMENT

Personnel Assigned: Martha Beeler

Progress from June 15, to June 19, 1953.

A batch of G.E. D50A5 basing cement was prepared with 2% SR-98 Silicone by weight. Debased necks of 21EP4's and 27EP4's were based with this cement and a torque test was made on them after an 18-hour water soak at 50°C and after a 42-hour water soak at 50°C. Torque test is to 20 in-pounds. Samples were first submitted to 18-hour water soak and then remaining samples were submitted to additional 24-hour water soak, all at 50°C.

Heating Time	No. of Samples	Torque Test	
		18 Hours	42 Hours
30 Min.	8 - 2% SR-98	7 withstood 1 broke	6 withstood 1 broke
	8 - Control	7 withstood 1 broke	5 withstood 2 broke
25 Min.	8 - 2% SR-98	8 withstood	5 withstood 3 broke
	8 - Control	6 withstood* 2 broke	
20 Min.	8 - 2% SR-98	8 withstood	5 withstood 3 broke
		8 withstood	1 withstood 7 broke

The addition of 2% SR-98 gives better water resistance to the cement cured at 20 Mins. and 25 Mins. On the number of samples run thus far on cement cured 30 Min., the results are indecisive.

Test other samples cured at 30 Min. with 2% SR-98 after 18-hour and 42-hour water soak at 50°C. Submit samples based with silicone-fortified cement to boiling water test of 3 hours.

*25 minute controls are in the process of completing the 42-hour soaking period.

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Materials and Processes
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Progress Report No. 8

Title: Basing Cement Investigation

Personnel Assigned: Martha Beeler

Progress From: June 30, 1953 to July 3, 1953

Progress:

A batch of G.E. D50A5 Basing Cement was made with the addition of Silicone SR-98. Debased necks of 21EP4 and 27EP4 were based with this cement and submitted to a torque test of 20 in-lbs after an eighteen-hour water soak at 50 degrees Centigrade and after a forty-two-hour water soak at 50 degrees C.

WATER SOAK METHOD

Heating Time	No. of Samples	Torque Test 18 Hours	42 Hours
30 Mins.	7 - 2% SR-98	6 withstood	5 withstood
	6 - controls	1 broke	1 broke
25 Mins.	8 - 2% SR-98	8 withstood*	5 withstood
	8 - controls	6 withstood	3 broke
		2 failed	2 withstood
			4 broke
20 Mins.	8 - 2% SR-98	8 withstood*	5 withstood*
	8 - controls	8 withstood*	3 broke
			1 withstood*
			7 broke

Conclusions:

The addition of 2% SR-98 gives better water resistance to the cement cured at 30 minutes, 25 minutes, and 20 minutes over non silicone-treated cement cured at these times.

Plans for Further Investigation:

Samples based with silicone-treated cement will be submitted to a boiling water treatment.

* Previously reported in Progress Report No. 6.

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Progress Report No. 9

Title: BASING CEMENT INVESTIGATION

Personnel Assigned: Martha Beeler

Progress from July 22, 1953 to July 26, 1953

Progress:

G. E. D50A5 Basing Cement was made with the addition of 2 percent SR-98 Silicone by weight. Debased necks of 21EP4's and 27EP4's were based with this cement and a torque test was made on them after a boiling water soak for four hours. The torque test was to 20 in-pounds. Results on eighteen-hour water soak at 50 degrees C and forty-two-hour water soak of 50 degrees C for cement with 2 percent SR-98 are reported in Progress Reports No. 6 and No. 8.

Heating Time	No. of Samples	Torque Test
30 mins.	6 - 2% SR-98	6 withstood 20-in-lbs.
	5 - controls	4 broke before 20 in-lbs.
		1 withstood 20 in-lbs.
25 mins.	6 - 2% SR-98	6 withstood 20 in-lbs.
	6 - controls	6 broke before 20 in-lbs.
20 mins.	5 - 2% SR-98	4 withstood 20 in-lbs.
		1 broke before 20 in-lbs.
	6 - controls	6 broke before 20 in-lbs.

Conclusions:

The addition of 2% SR-98 gives better water resistance in a boiling water treatment to the cement cured at 30 minutes, 25 minutes, and 20 minutes over non-silicone-treated cement cured at these times.

Plans for Further Investigation:

This completes the investigation on the effect of SR-98 silicone to basing cement for the present time.

Martha Beeler
Materials and Processes
CATHODE-RAY TUBE SUB-DEPARTMENT

MB/idb

PROGRESS REPORT

Cathode Ray Tube Engineering

PROGRESS REPORT NO. 1 26 April 1954

TITLE: BASING

PERSONNEL ASSIGNED: M. B. Lees

PROGRESS FROM: 15 March 1954 to 10 April 1954

PROGRESS:

A heat curve was taken on I & M Basing Unit No. 4. A thermocouple was placed in the cement and indicated the cement reached 150°C about thirteen (13) minutes after heat is applied. 150°C is the temperature most referred to as required for adequate curing.

Three groups of five (5) tubes each were based adding various amounts of silicone SR-98. Group A had 2% by weight, B had 5% and C had 8%. All were given a thirty (30) minute bake with the supposition that over half the time the cement would be over 150°C. Octal long radar bases were used. The bases were then subjected to the immersion and torque tested at 20 in. lbs.

The following results were obtained:

Torque Test After Hours of Immersion

Group	0 Hrs.	18 Hrs.	42 Hrs.	62 Hrs.	82 Hrs.	Water Temp. 0C
A	all passed	all passed	all passed	all passed	not taken	44
B	all passed	all passed	all passed	4 failed	all failed	55
C	all passed	all passed	all passed	all passed	all failed	55

CONCLUSION:

The use of silicone SR-98 mixed with standard basing cement, and base baking times in excess of the present twenty (20) minutes enable the bases to withstand the PET proposed fifty (50) hours immersion test at 50°C.

PLANS FOR FUTURE INVESTIGATION:

Determine minimum baking time and optimum percent of silicone if the Services indicate the proposed test will be included on CRT MIL Specifications.

M B Lees

M. B. Lees
Design Engineering - I & M
CATHODE RAY TUBE SUB-DEPT.

MBL:am

cc: M. Beeler
C. Dichter
TA Elder - I & T Sub-Dept.
H. Leeder
RT McKenzie
LE Swedlund
FILE: M-BA