FILE NAME: Union Carbide (UC)

DATE: 1962 Nov 6

DOC#: UC021

DOCUMENT DESCRIPTION: Johns-Manville Internal Report - Delamination Free Thermobestos by Pan Casting

JOHNS-MANVILLE RESEARCH
AND ENGINEERING CENTER

MASTER FILE COPY

Report No. [illegible]

Date November 6, 1962

Title: DELAMINATION FREE THERMOBESTOS BY PAN CASTING
Progress Report No. 2 - Dustiness During Fabrication

Requested by: Sales Product Request 3090

SUMMARY

Preliminary dust concentration tests indicated that the superiority of Kaylo over standard Thermobestos and experimental pan cast Thermobestos reported by Union Carbide is questionable. Standard Thermobestos appeared equivalent to Kaylo and two of the experimental pan cast formulas appeared superior.

It is recommended that the results of these tests be reviewed with the Product Manager to determine which samples will be submitted to Union Carbide for their tests.

Contents: Summary, Discussion, Recommendation, Appendix I - Formula, Appendix II Test Data.

Approved by _____
W. L. Stafford

Reported by Osborne Ayers
O. Ayers

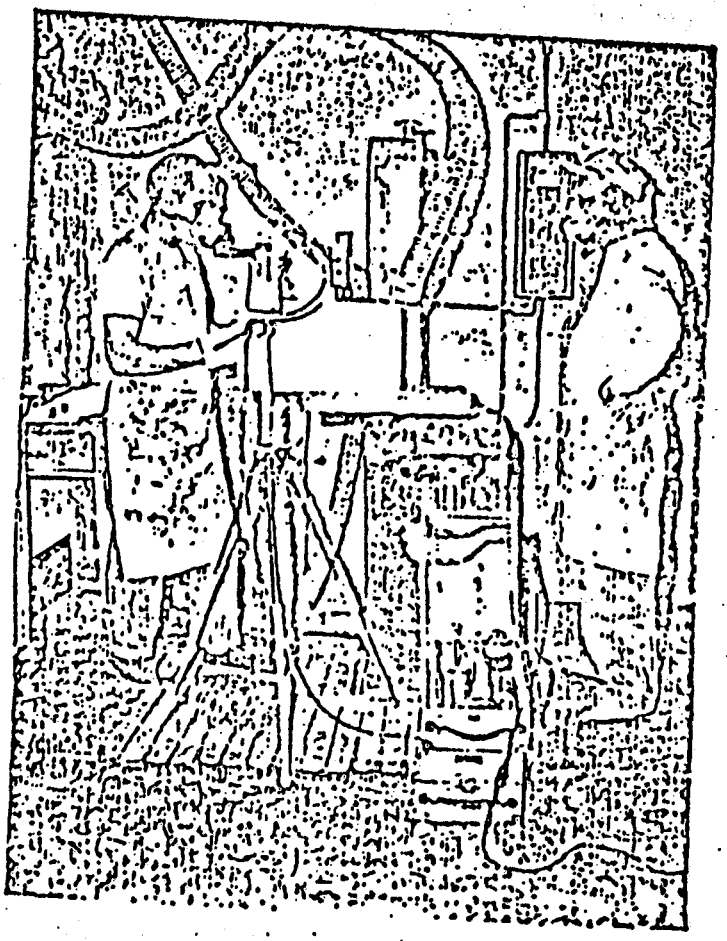
bjo

cc: P. B. Proctor, CH (S)
J. B. Jobe, DH (S)
H. W. Burleson, DH (S)
E. F. Briggs, DH (S)
A. Pocius, DH (Excl. App. I)
C. E. Ernst, DH (Excl. App. I)
C. A. deVyver, DH (S)
E. C. Lindstrom, DH
S. Lane, Long Beach
K. H. Slater, Manville plant
R. W. Honnig, Manville plant
T. F. Bodnarchuk, Manville plant
L. H. Adamson, Tor Off (Excl. App. I)
A. G. Sinclair, Tor Off
N. B. Oliphant - Oil Drill Mkt

C. F. Russweiler, CH
A. C. Smith (2 + S)
J. A. McKinney
J. Q. Trico
F. L. Fundsack
Att: C. B. Bradley
W. L. Stafford (MF-233)
R. B. Dunbar
O. Ayers
File:
W. M. MacAlpine
Library (3)
C

DISCUSSION

Atmospheric dust concentration tests were made on October 30, 1962, during the fabrication of insulation blocks on the DO-ALL Model L-H-V band saw in the Research Center Materials Testing Laboratory sample preparation room. The National Conference of Governmental Industrial Hygienists Test Method was followed using the Greenburgh-Smith impinger. Tests were conducted by Mr. T. F. Bodnarchuk of the J-M Industrial Hygiene Laboratory at Manville. To obtain comparative data, the room ventilation was adjusted to give more than the usual amount of atmospheric dust. The test set up is shown in the photograph below.



J. M. CONFIDENTIAL - Not for general distribution or reproduction.

In addition to the room ventilating system, air was removed from directly above the block at a rate of 37 cu ft per min and from the metal housing surrounding the saw at a rate of 15 cu ft per min. The saw blade was standard and had six teeth per in. and a lineal speed of 2000 ft per min. The blocks were 18 x 11 x 4 or 6 in. and were cut so that the blade entered the 11-in. edge.

Five types of insulation were tested including standard Thermobestos, Kaylo, and three experimental pan cast blocks. Formulas are given in Appendix I. Prior to testing, blocks of each were conditioned by: a) drying a minimum of seven days at 250F; b) drying at 250F and conditioning for 18 days at 70 per cent RH, 70F; c) drying at 250F and conditioning for 18 days at 95-100 per cent RH, 95F.

The test data are given in Appendix II. The dust concentration tests were analyzed and indicated that the superiority reported by Union Carbide of Kaylo over standard Thermobestos and the experimental pan cast blocks submitted to them is subject to question. The results also indicated that the slate dust composition, 2-AT, caused less atmospheric dust than the other types of blocks.

The effect that conditioning of the blocks had on the dust concentration in air was not apparent. This is attributed to the limited amount of material tested and the possibility that an equilibrium condition of dust concentration in the sampling area may not have been reached in some cases. In order to definitely establish the effect moisture content of the blocks has on atmospheric dust a more extensive series of tests would be required. Such tests would also serve to more definitely establish the relative dustiness of the formulas investigated.

APPENDIX I

FORMULAS

Raw Materials	Experimental Pan Cast 6-in. Blocks			Std. 4-in. Thermobestos	Std. 4-in. Kaylo
	1-AT	2-AT*	3-AT*	4-AT	5-AT**
Hydrated Lime, Warner - %	45.2	44.2	44.1	44.5	
W-3 Amosite - %	12.9	12.1	12.1	11.1	
Celite 256 - %	25.8	-	12.9	29.6	
Celite 392 - %	16.1	-	-	14.8	
Silex (Supersil) - %	-	19.5	25.8	-	
Bentonite, Schundlers - %	-	10.2	5.1	-	
Blue Black Slate Dust - %	-	14.0	-	-	

*Formulas 2-AT and 3-AT are identical to formulas 111 and 85 in Research Report No. 432-257 of September 5, 1962, by R. B. Dunbar and J. F. Palochko. For additional information refer to that report.

**Competitive material, no formula available.

APPENDIX II

TEST DATA

ATMOSPHERIC DUST CONCENTRATION DATA

	Experimental Pan Cast 6-in. Blocks			Std. 4-in. Thermobestos	Std. 4-in. Kaylo
	1-AT	2-AT	3-AT*	4-AT	5-AT
Concentration in mppcf of Air					
Dried at 250F	110.8	19.9	16.4	34.2	52.0
Conditioned at 70% RH, 70F	39.3	14.8	47.1	15.8	36.4
Conditioned at 95-100% RH, 95F	99.6	10.6	31.4	104.0	97.6
Avg. of three conditions	83.2	15.1	31.6	51.3	62.0
Moisture Absorbed During Conditioning - %					
Dry to 70% RH, 70F	2.7	2.0	2.5	6.8	3.9
Dry to 95-100% RH, 95F	13.6	12.3	17.2	15.6	12.8

*This formulation was used for samples submitted to Union Carbide for evaluation. Refer to formula No. 58, samples 21, 22, 23, Research Report No. 432-256, p 1.

AFFIDAVIT

STATE OF COLORADO)
) ss:.
COUNTY OF JEFFERSON)

R. B. VON WALD being duly sworn acco[illegible] and says he is Vice President and Corporate Couns[illegible] MANVILLE SALES CORPORATION, a defendant in this act[illegible] authorized to make this Affidavit on its behalf and th[illegible] set forth in the foregoing pleading have been supplied to him by others upon whom he relies and are true and correct to the best of his knowledge, information and belief.

R. B. VON WALD

Sworn and subscribed to before me this 25 day of March, 1982.

NOTARY PUBLIC

My Commission Expires 11/12/84

P.O. Box 5723
Denver, CO 80217