APPENDIX 3

NASA
APRIL 30, 1997 REPORT

NASA
DIRECTOR OF LOGISTICS OPERATIONS
MATERIALS SCIENCE DIVISION
MATERIALS AND CHEMICAL ANALYSIS BRANCH
LO-MSD-1C
KENNEDY SPACE CENTER, FLORIDA 32899

APRIL 30, 1997

REPORT 97-1C0064

SUBJECT: National Transportation Safety Board (NTSB) Sample MB-4 TWA-800

REQUESTER: Dr. Merritt M. Birky/NTSB/(202) 314-6503

RELATED DOCUMENTATION: Report 97-1C0063

INVESTIGATOR: C. Bassett/LO-MSD-1C/(407) 867-9618

1.0 FOREWORD

As part of the ongoing investigation of TWA's flight 800, the sample labeled Seat 4, Arm, Row 23 (MB-4) was submitted for analysis. The objective was to characterize the organic chemical nature of the unknown material. During the course of the analysis, results were communicated to the requester as they developed.

2.0 CHEMICAL ANALYSIS

2.1 The analysis was accomplished using Fourier-Transform Infrared (FTIR) microscope spectroscopy. Anion analysis was accomplished using Ion Chromotography.

2.2 The material in the sample bottle labeled Seat 4, Arm Row 23 (MB-4) was optically examined under a microscope and organic appearing materials were isolated for preparation and FTIR analysis. The sample consisted of a dull white looking material, some dark looking material, a translucent looking material and a fibrous looking material.

2.3 The separated components of the sample were then prepared and spectra generated for each.

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3.0 RESULTS AND CONCLUSIONS

3.1 Ion detection using Ion Chromotography was inconclusive for sample MB-4 because of the insufficient quantity of the sample available.

3.2 The major component of the dull white substance was identified as a polyester material, but the presence of a surface active agent was also detected. It would be plausible to conclude that the polyester material was coated with a surfactant much like a common detergent or soap.

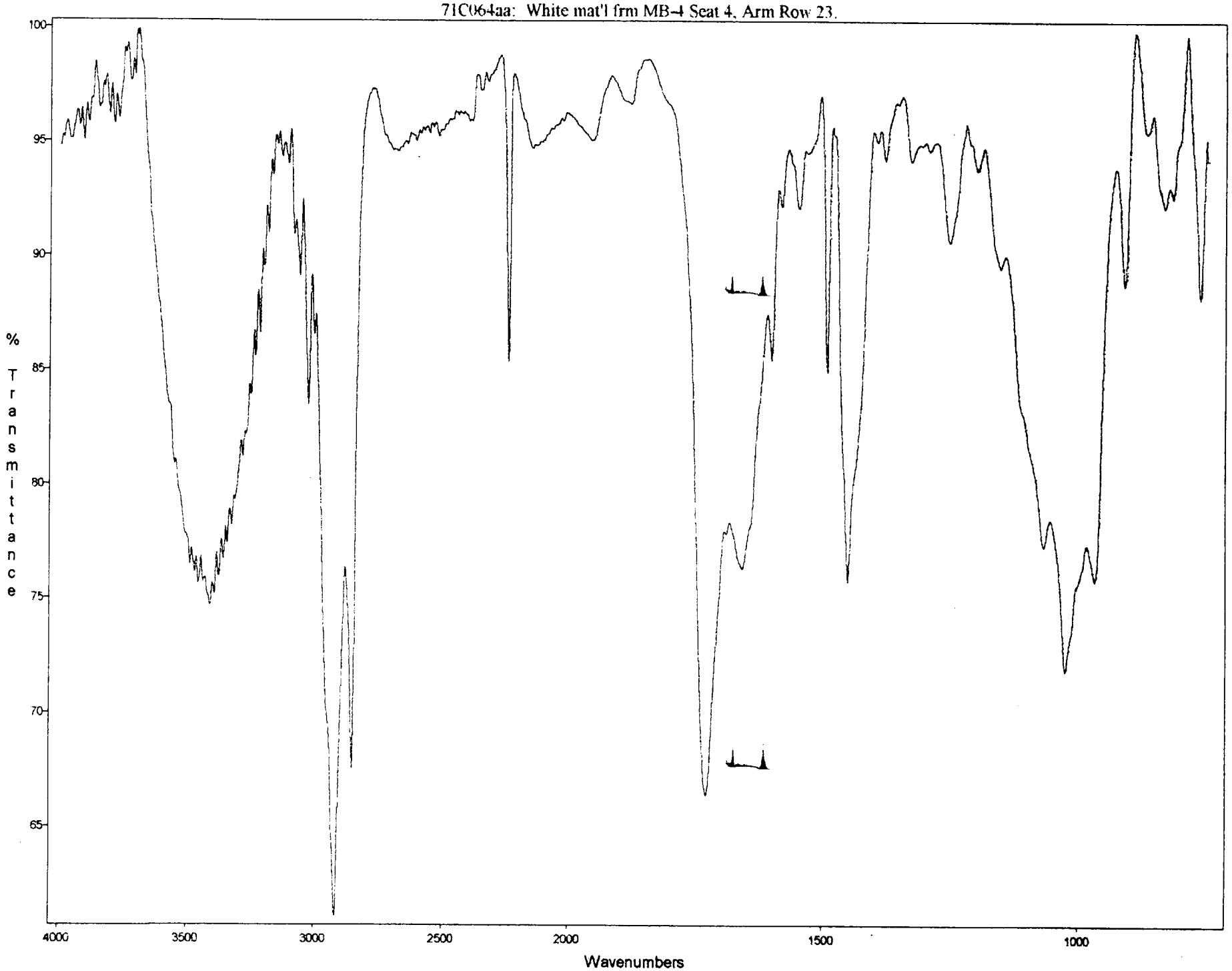
3.3 The dark looking portion of the sample was identified as a polyurethane material.

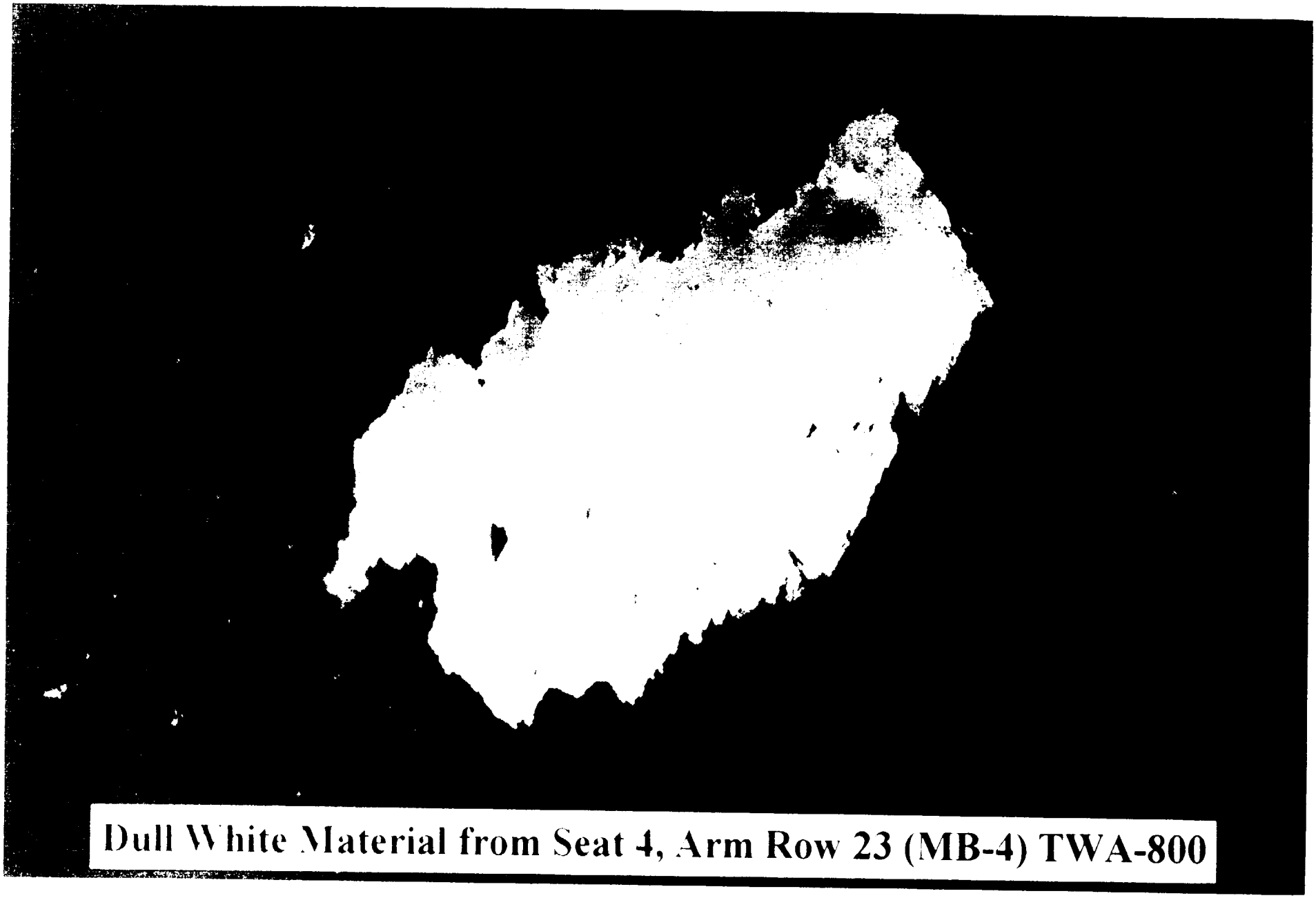
3.4 The translucent appearing material was identified as a polyamide material much like the Nylon™ 6 series.

3.5 The blue to gray colored substance was identified as a material much like Azlon.

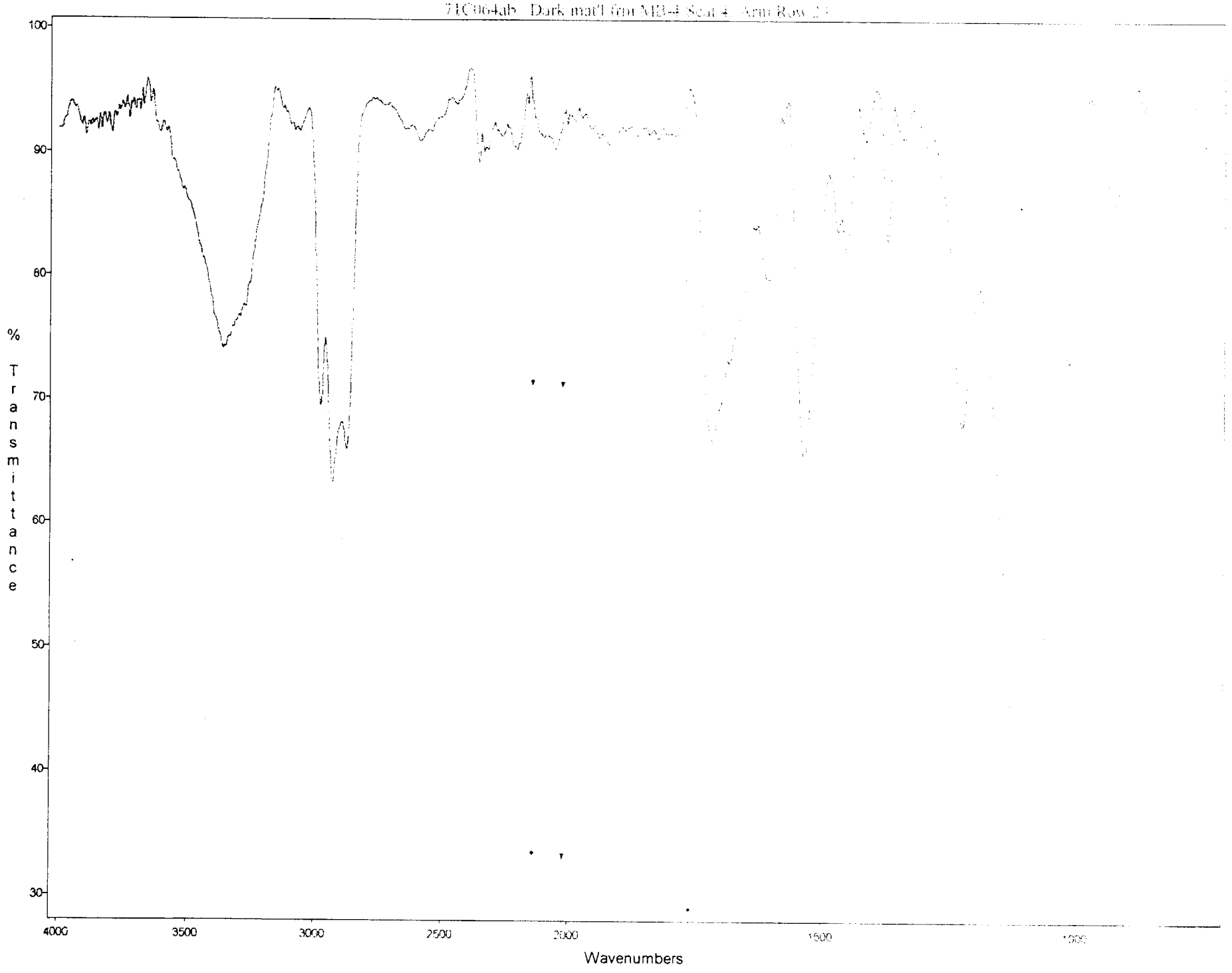
INVESTIGATOR: _____
Charles W. Bassett/(407) 867-9618

CONCURRENCE: _____
Lee D. Underhill, Lead Engineer


71C064aa: White mat'l frm MB-4 Seat 4, Arm Row 23.
100
95
90
85
80
75
70
65
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers



Dull White Material from Seat 4, Arm Row 23 (MB-4) TWA-800


100
90
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% Transmittance
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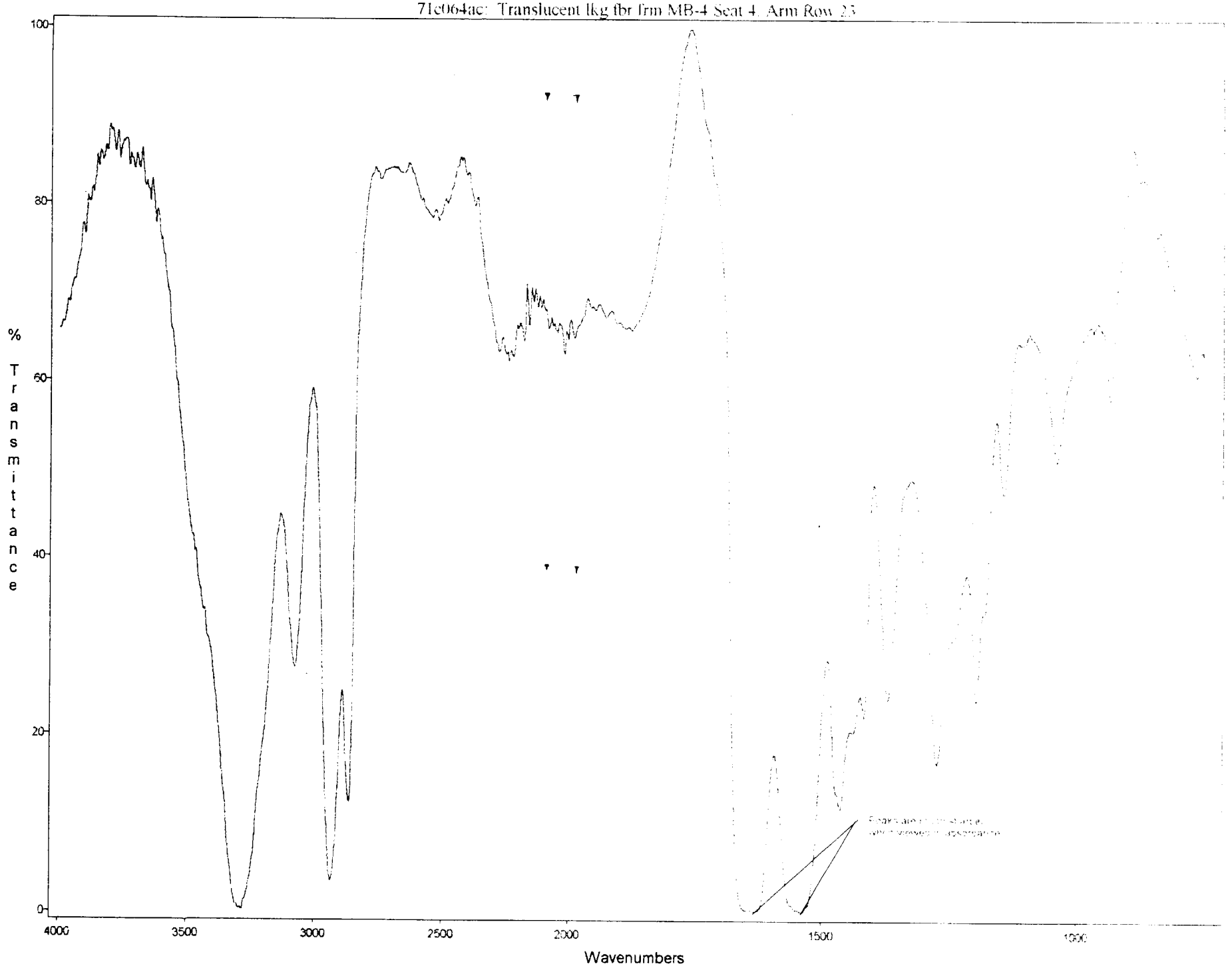
Wavenumbers


71c064ac: Translucent lkg fbr frm MB-4 Seat 4, Arm Row 23
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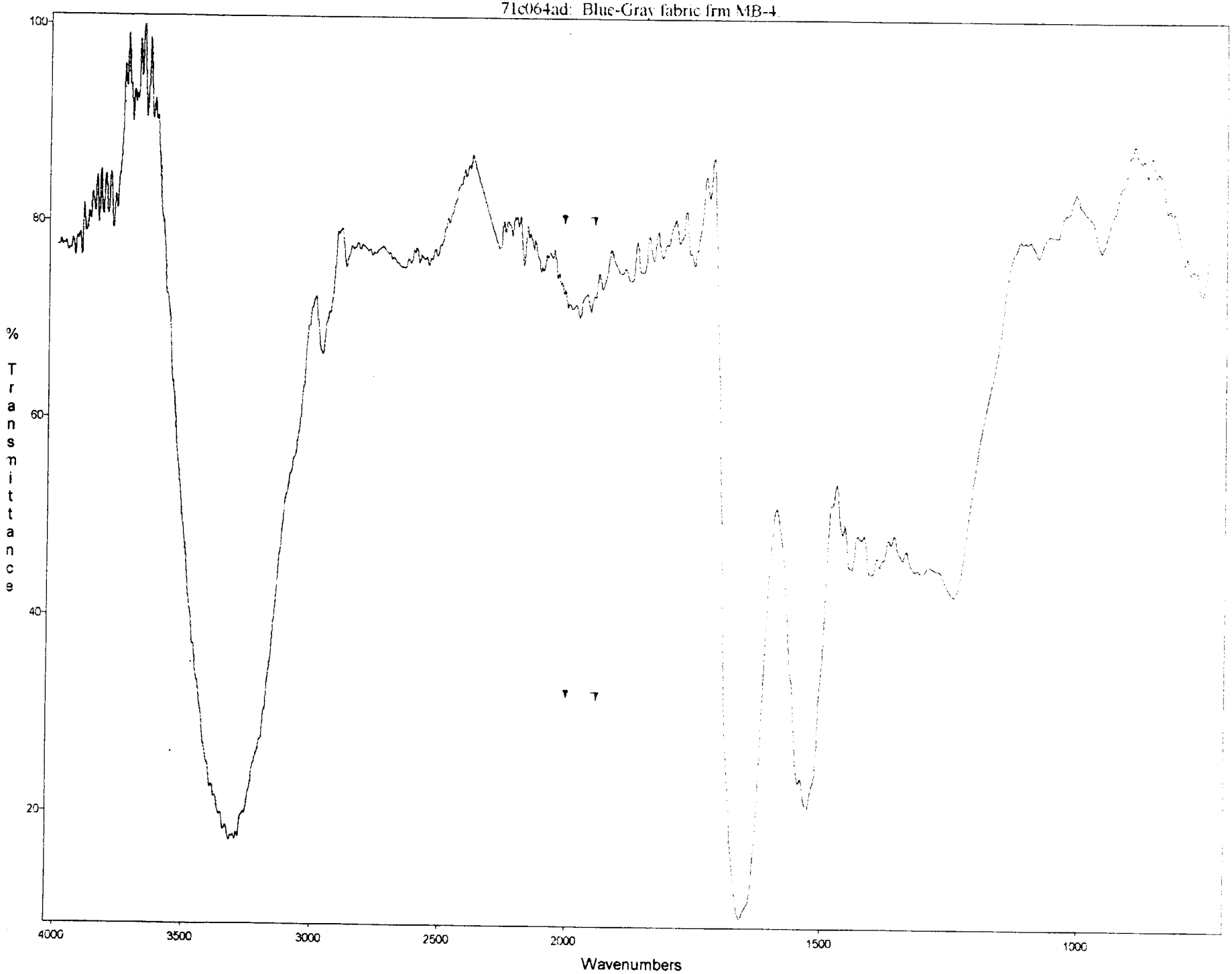
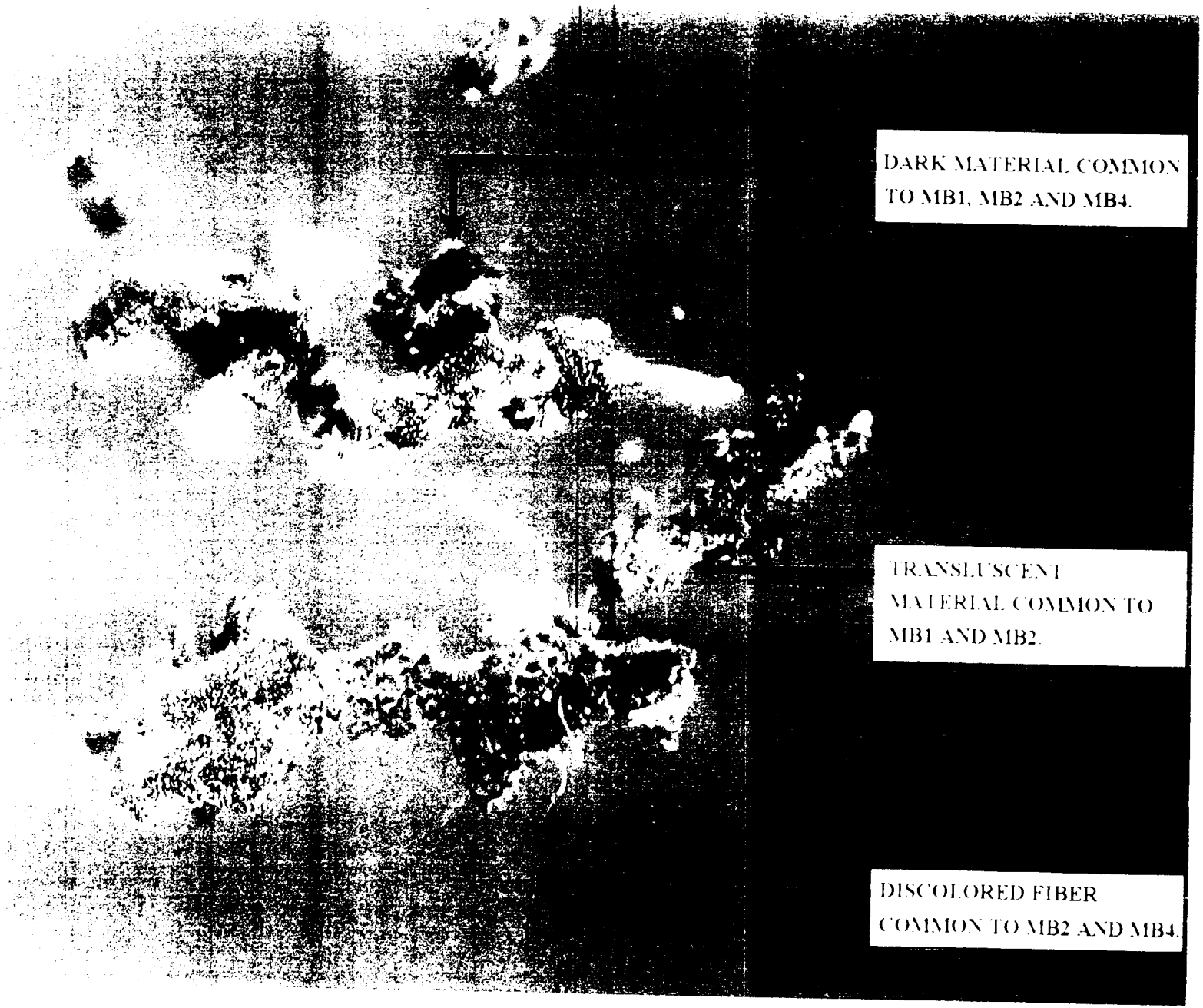
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers


71c064ad: Blue-Gray fabric frm MB-4
100
80
60
40
20
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers


DARK MATERIAL COMMON TO MB1, MB2 AND MB4.
TRANSLUSCENT MATERIAL COMMON TO MB1 AND MB2.
DISCOLORED FIBER COMMON TO MB2 AND MB4.