APPENDIX 2

NASA
APRIL 29, 1997 REPORT

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

APRIL 29, 1997

REPORT 97-1C0063

SUBJECT: National Transportation Safety Board (NTSB) Samples MB-1 and MB-2 TWA-800

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

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

1.0 FOREWORD

In support of the NTSB's investigation of TWA's flight #800 tragedy, samples labeled Z-3028 CW-114 (MB-1) and CW-504 Inside Top (MB-2) were submitted for analysis. The objective was to characterize the chemical nature of the unknown material. As per the requester, writing the final report was withheld until now.

2.0 CHEMICAL ANALYSIS AND RESULTS

2.1 The analyses were accomplished using Infrared (IR) microscope spectroscopy and Ion Chromatography (IC).

2.2 The material in the sample bottle labeled MB-1 Z-3028 CW-114 (MB-1) was optically examined under a microscope and organic appearing materials isolated for preparation and IR analysis. The sample consisted of a dark looking material and some translucent material closer examination of which revealed a fibrous texture.

2.3 The material in the sample bottle labeled MB-2 CW-504 Inside Top (MB-2) was optically examined under a microscope. Samples of a dark material, a translucent looking fibrous material and a discolored fiber (which may have been red at one time) were isolated and examined with IR microscope spectroscopy.

2.4 Subsequent to information obtained from a separate analysis of a related accident sample, IC was conducted on both samples. Information obtained from the IC analyses indicated the presence of 7.5 micrograms nitrate, 70 micrograms sulfate and greater than 400 micrograms chloride anions for the sample Z-3028 CW-114 (MB-1) and 10 micrograms nitrate, 70 micrograms and greater than 200 micrograms chloride anions for the sample CW-504 Inside Top (MB-2). The related accident sample analysis previously mentioned, will be addressed separately and will reference this report.

3.0 CONCLUSIONS

3.1 Polyurethane was the major component of the dark material in both samples. The translucent looking material found in both samples was a polyamide material much like the Nylon™ 6 series. The discolored fiber from MB-2 appeared to be a fibrous material much like Azlon. As defined by the Federal Trade Commission, Azlon is a generic name for a manufactured fiber in which the fiber-forming substance is composed of any regenerated naturally occurring protein. For instance, proteins from corn, peanuts, and milk have been used in such manufacturing applications.

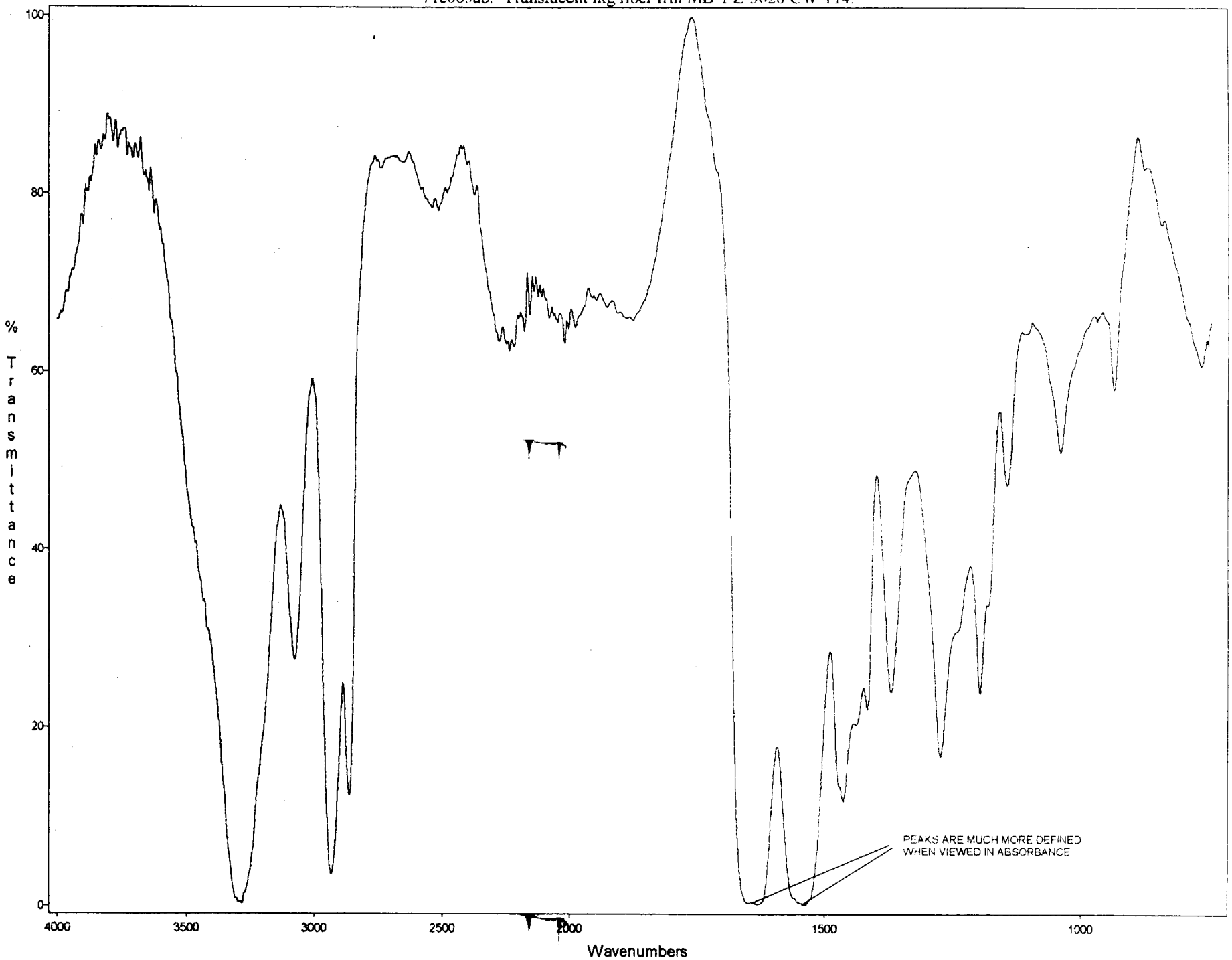
3.2 An attempt to determine the origin of the anions present in both samples was not conducted at this time but is of concern and is under further investigation.

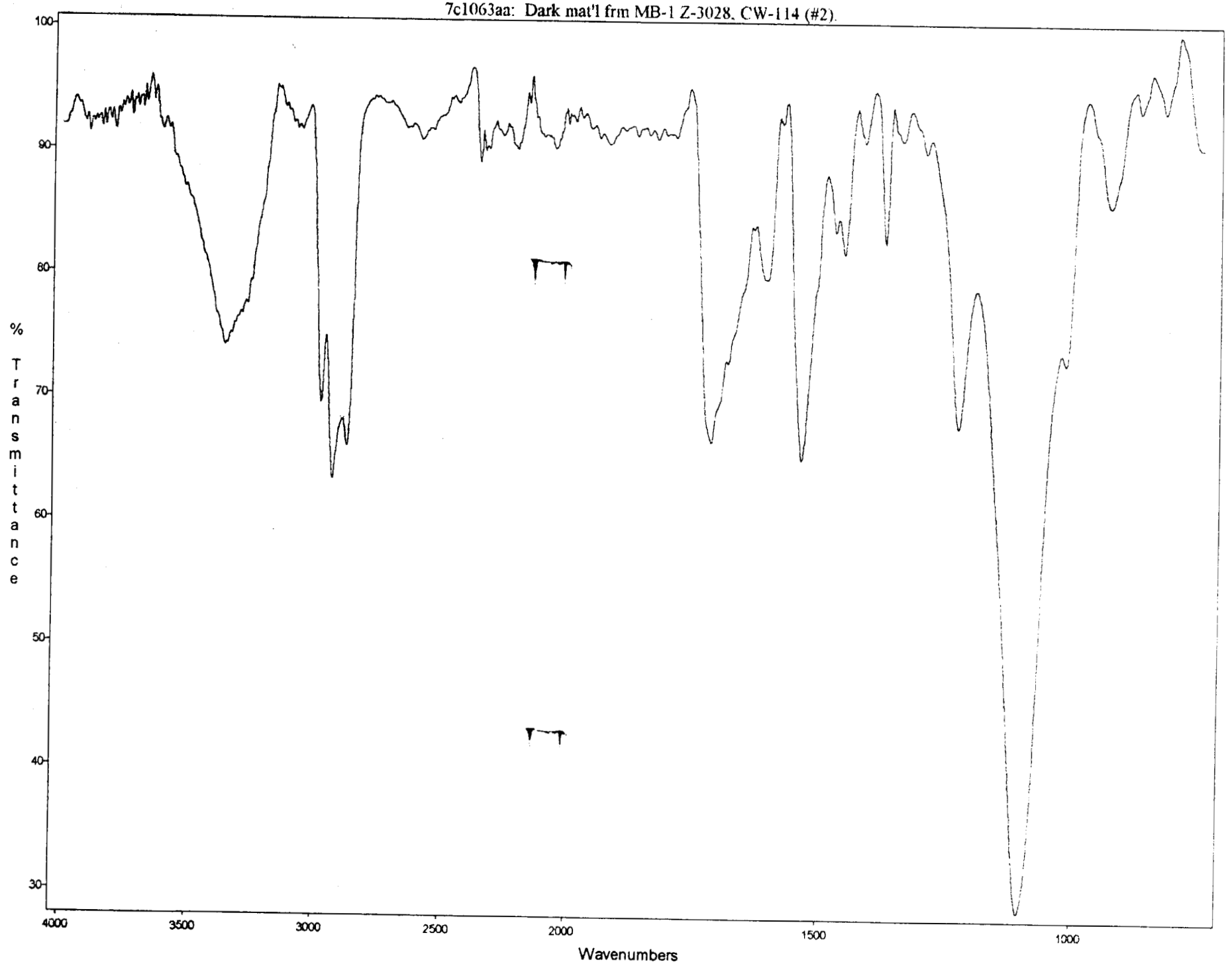
INVESTIGATORS: _____
Charles W. Bassett/(407)-867-9618

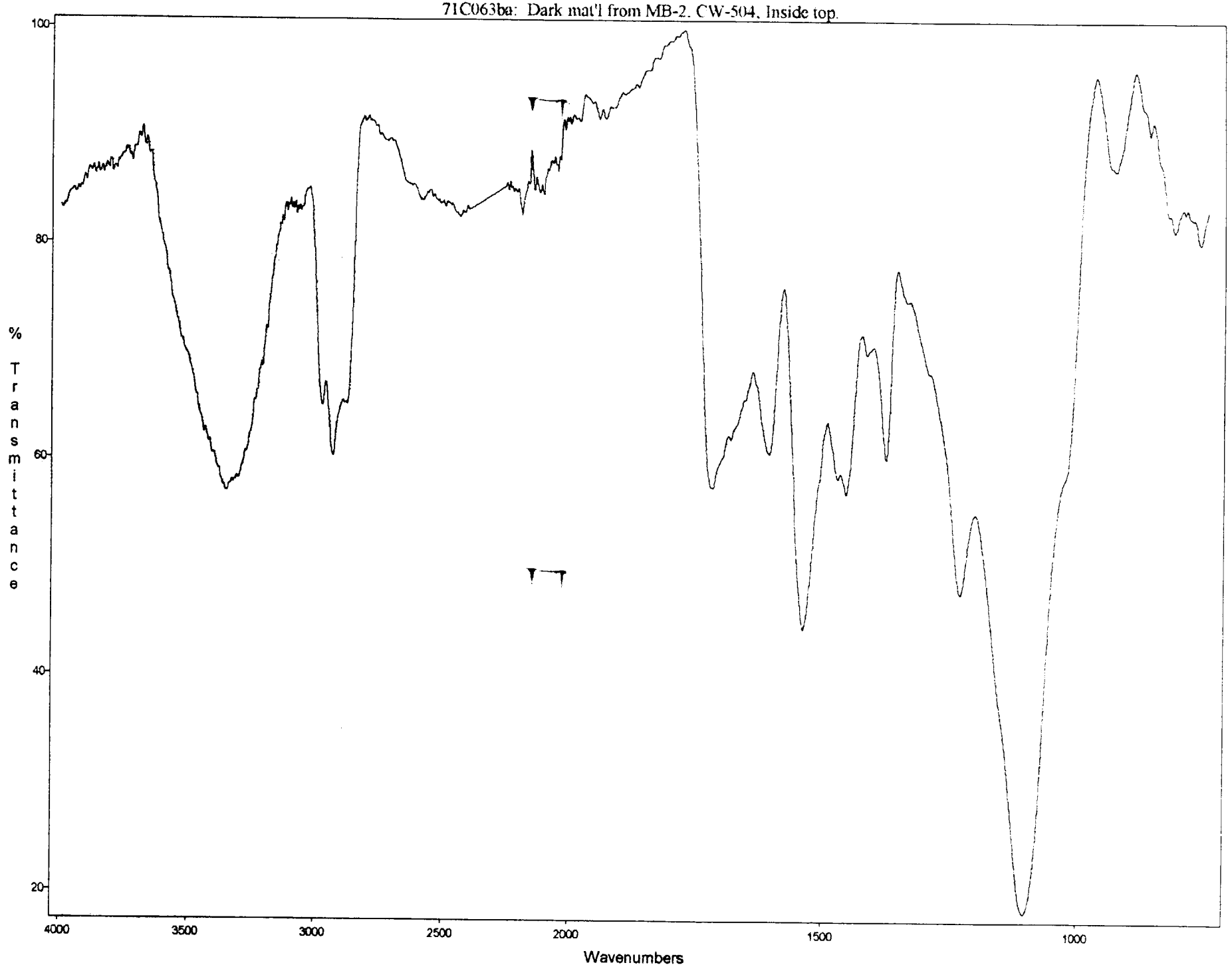
_____
Wayne Marshall/(407)-867-3910

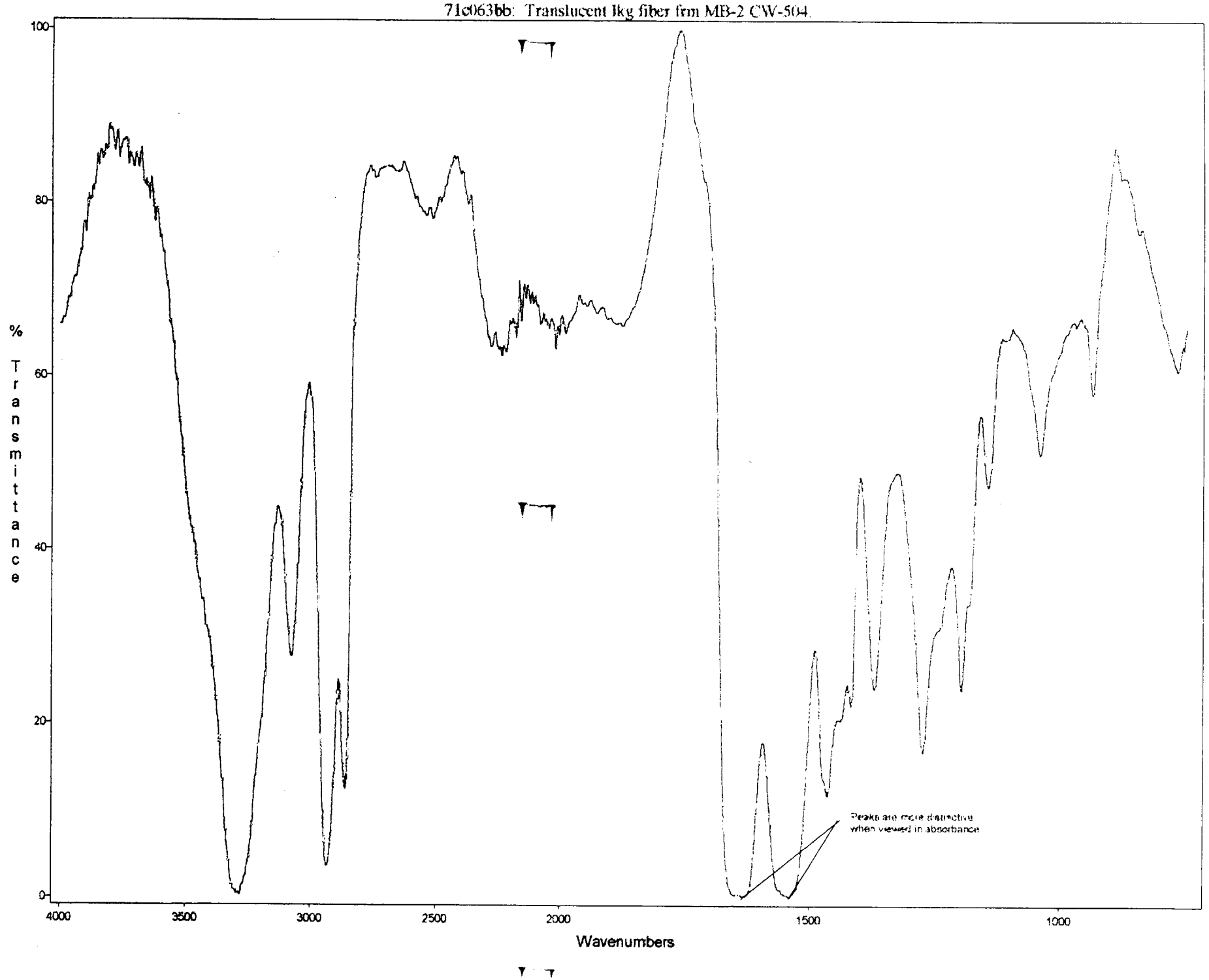
CONCURRENCE: _____
Lee D. Underhill, Lead Engineer

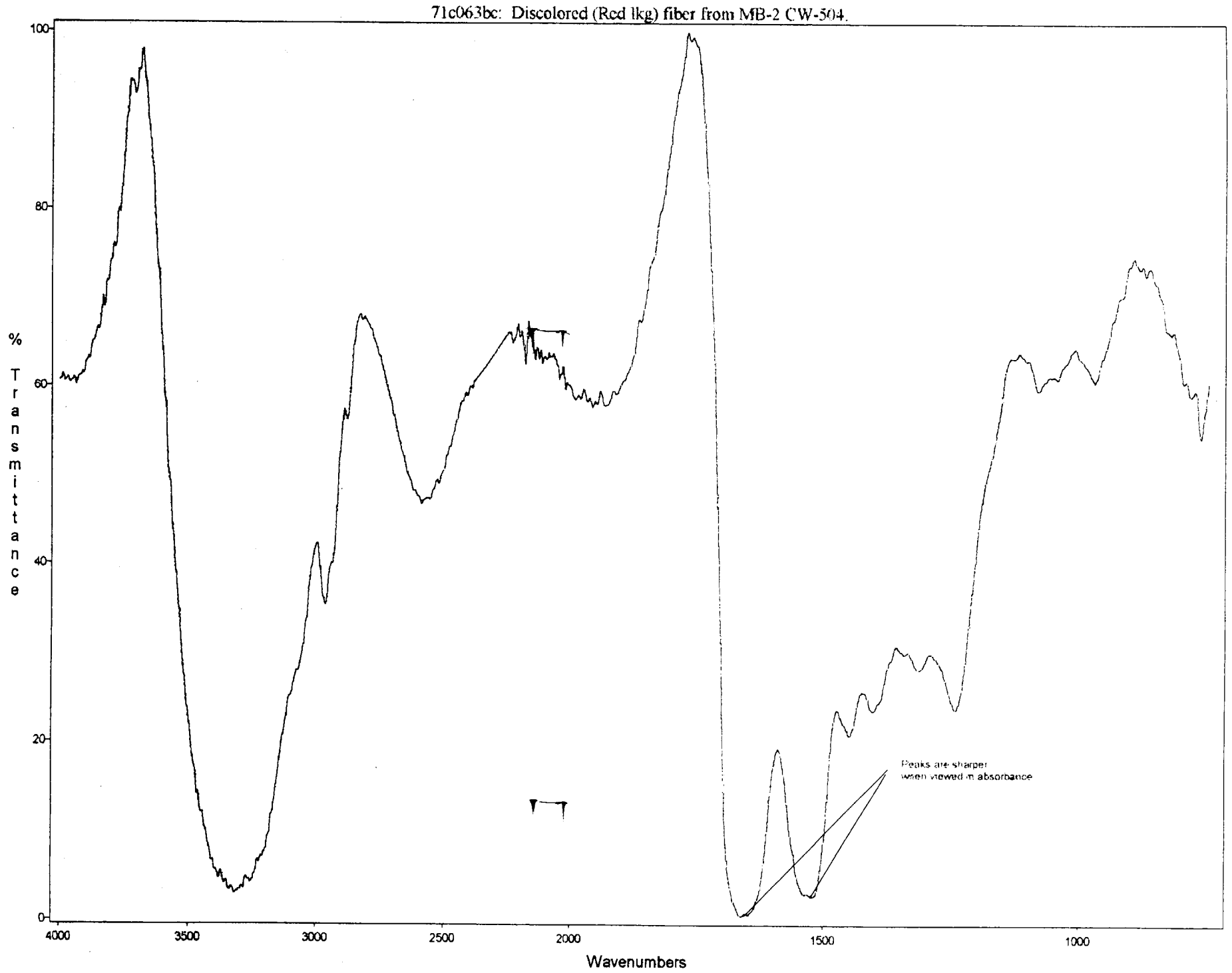
71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.

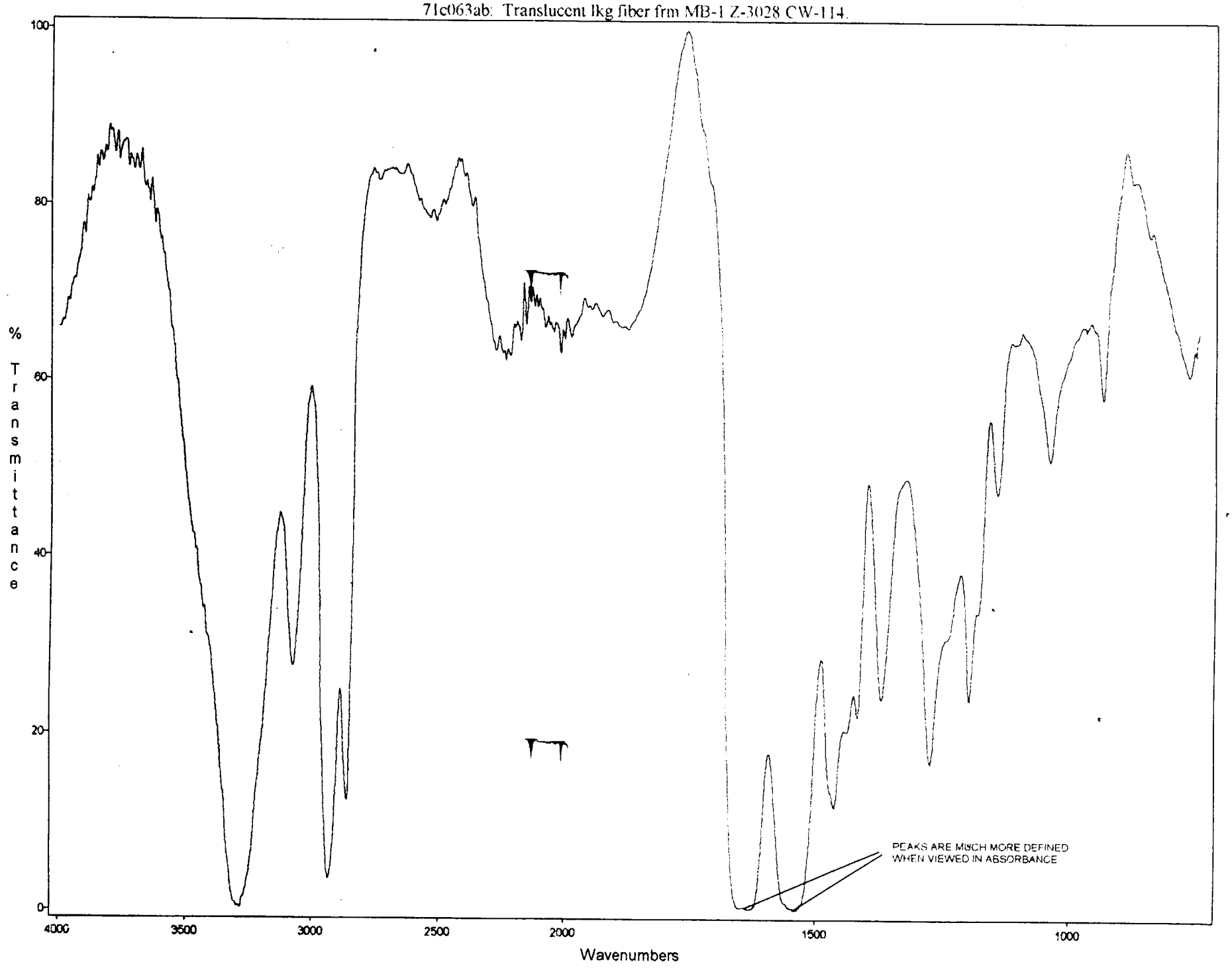


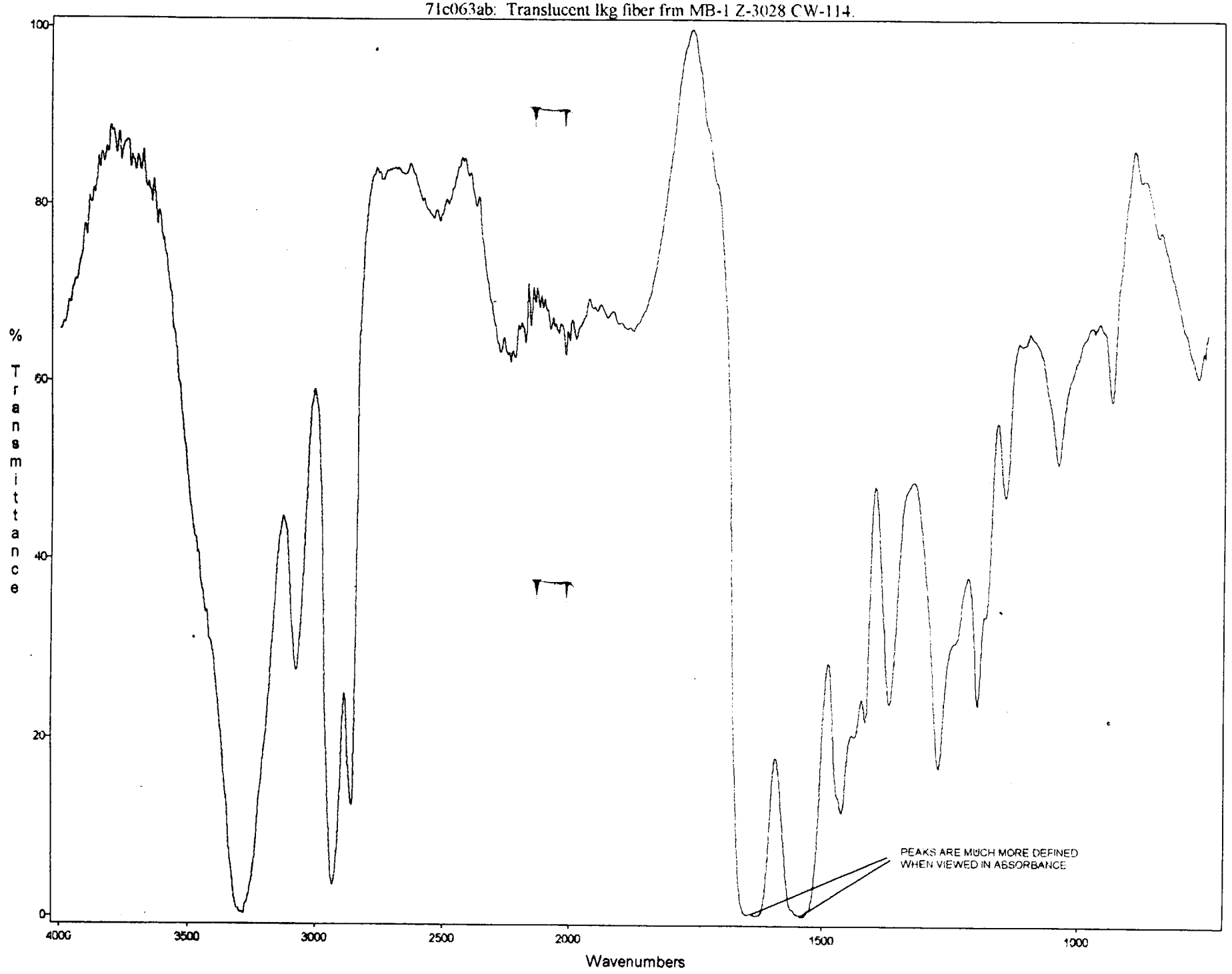

7c1063aa: Dark mat'l frm MB-1 Z-3028, CW-114 (#2).
100
90
80
70
60
50
40
30
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers

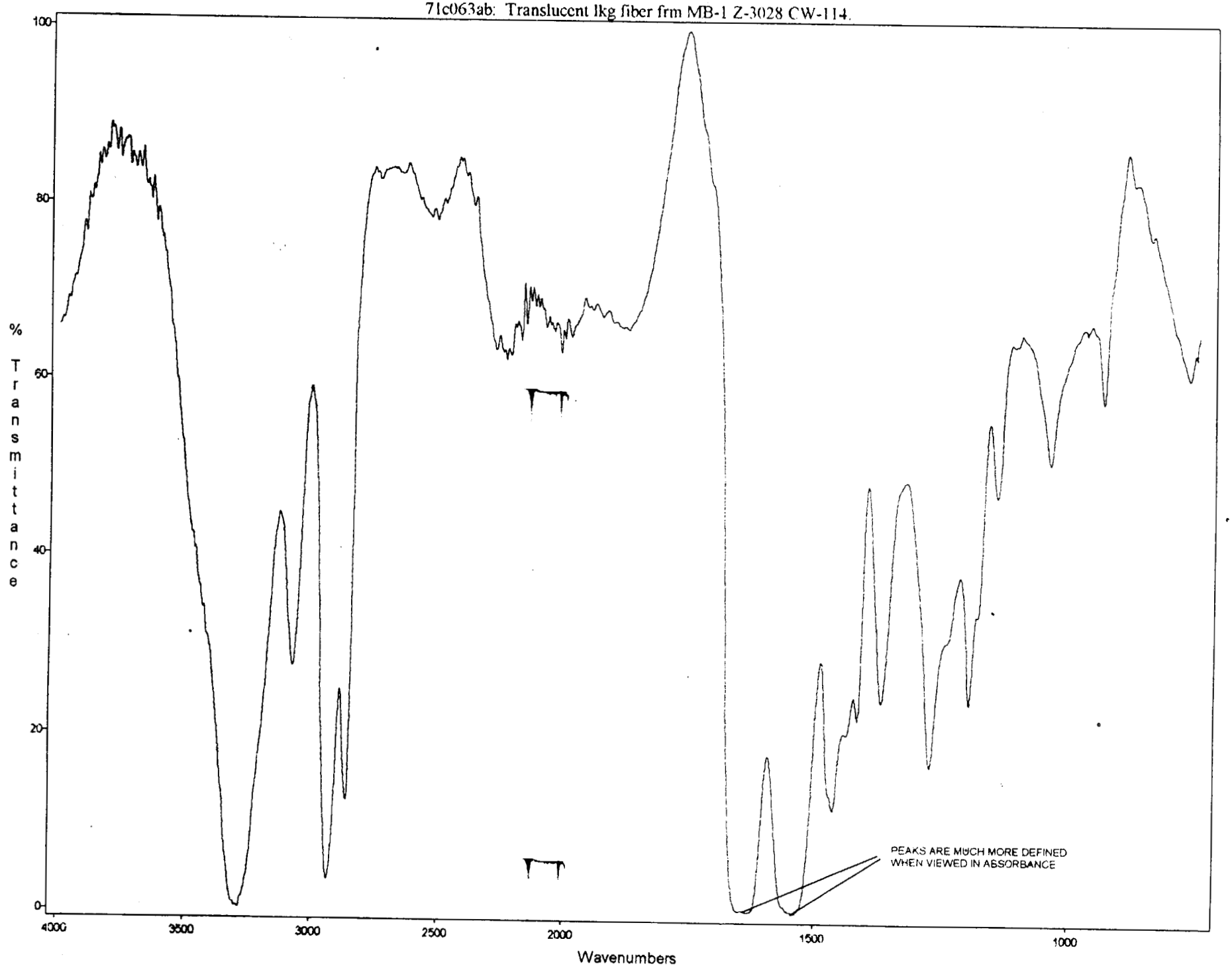

71C063ba: Dark mat'l from MB-2, CW-504, Inside top.
100
80
60
40
20
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers

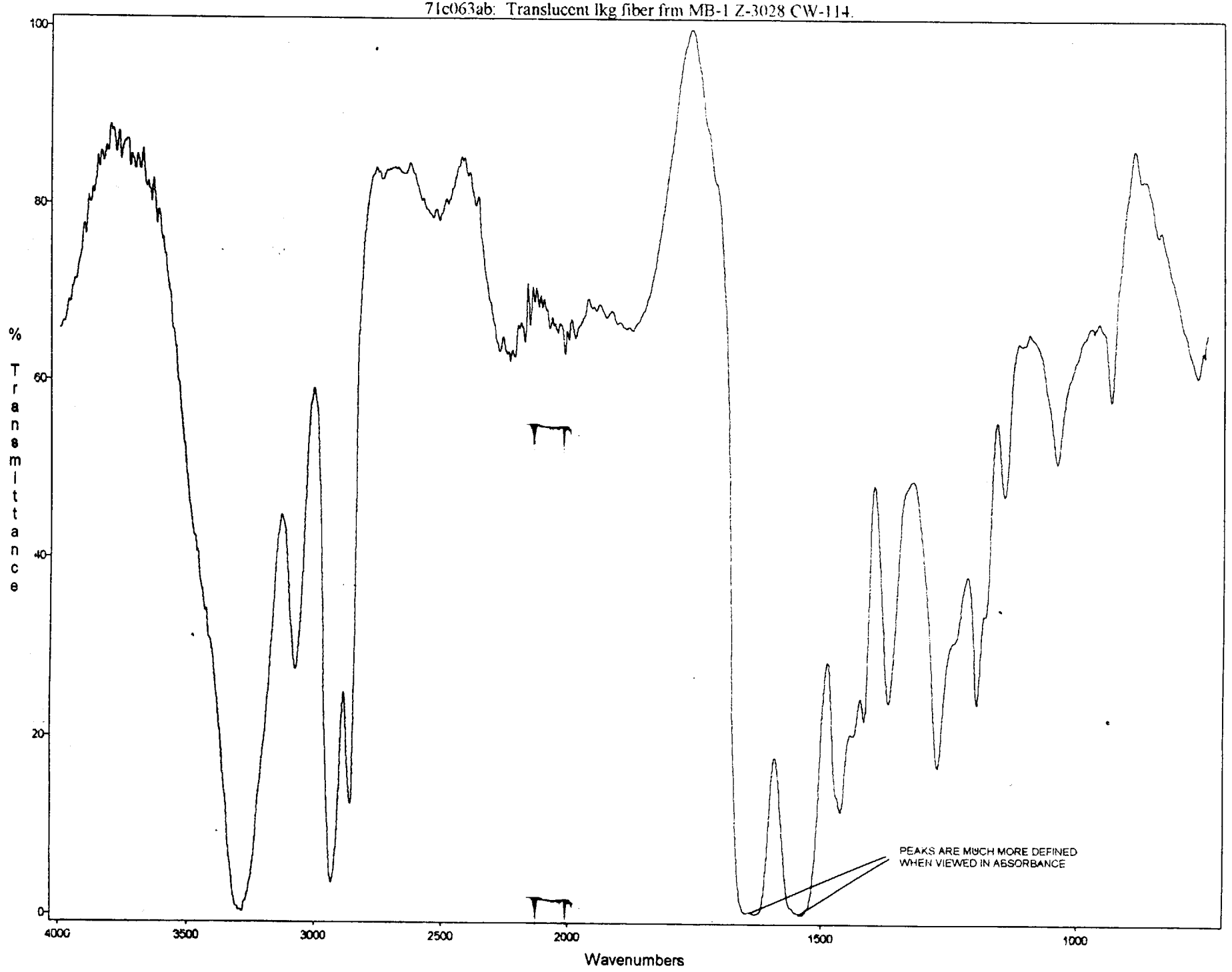

71c063bb: Translucent 1kg fiber frm MB-2 CW-504
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
Peaks are more distinctive when viewed in absorbance

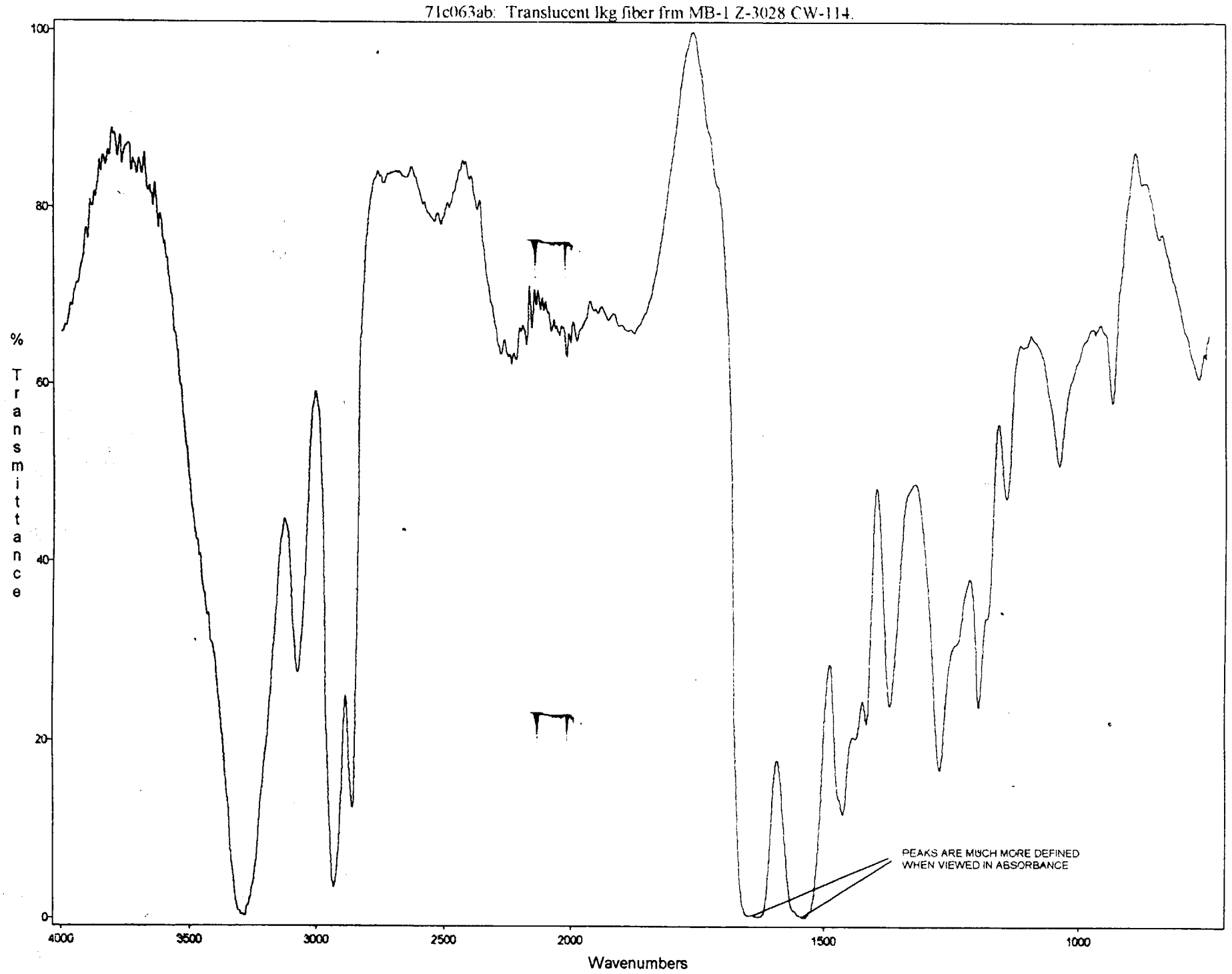

71c063bc: Discolored (Red lkg) fiber from MB-2 CW-504.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
Peaks are sharper
when viewed in absorbance

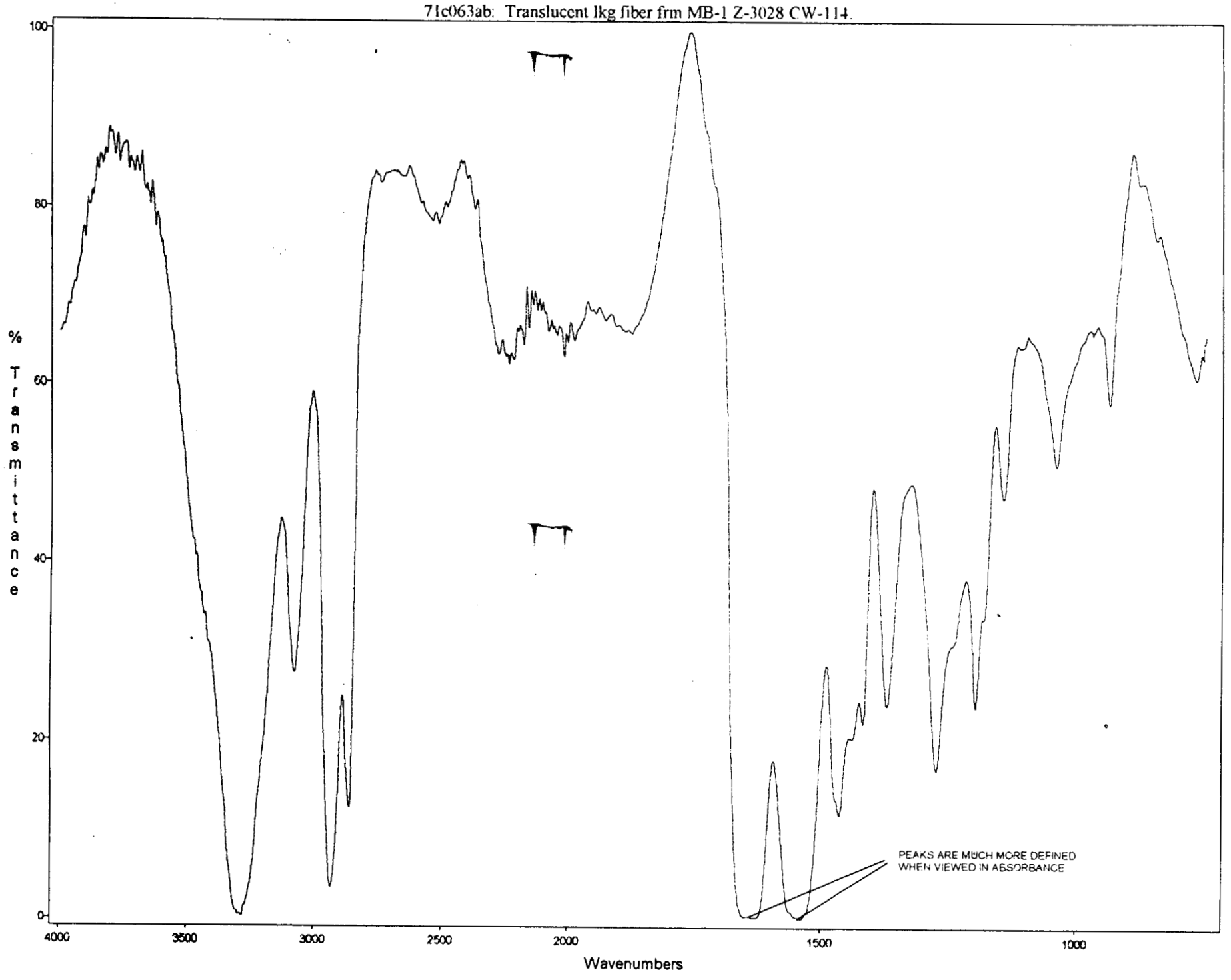

71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
PEAKS ARE MUCH MORE DEFINED
WHEN VIEWED IN ABSORBANCE


71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
PEAKS ARE MUCH MORE DEFINED
WHEN VIEWED IN ABSORBANCE


71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
PEAKS ARE MUCH MORE DEFINED
WHEN VIEWED IN ABSORBANCE


71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
PEAKS ARE MUCH MORE DEFINED
WHEN VIEWED IN ABSORBANCE


71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
PEAKS ARE MUCH MORE DEFINED
WHEN VIEWED IN ABSORBANCE


71c063ab: Translucent lkg fiber frm MB-1 Z-3028 CW-114.
100
80
60
40
20
0
% Transmittance
4000
3500
3000
2500
2000
1500
1000
Wavenumbers
PEAKS ARE MUCH MORE DEFINED
WHEN VIEWED IN ABSORBANCE