DISTRIBUTION SHEET

To	From	Page 2 of 2
DISTRIBUTION	ANALYTICAL SERVICES	Date: 12/19/94
Project Title/Work Order WHC-SD-WM-DP-078, Rev. 0, "45-Day Safety Screen Results for Single Shell Tank 241-AP-106, Liquid Grab Samples, Riser 1, 30° and 150° in Conjunction with Evaporator Campaign 95-1"		EDT NO.: EDT-140749 ECN NO.: N/A

Name	MSIN	Text With all Attach	Addendum 1A Only	EDT/ECN Only
ONSITE CONT.				
Westinghouse Hanford Company Cont.				
OSTI	L8-07	2		
TFIC (Tank Farm Information Center)	R1-20			X
OFFSITE				
Washington State Department of Ecology Single-Shell Tank Unit Manager S. E. McKinney P.O. Box 47600 Olympia, Washington 98504-7600				X
Environmental Protection Agency Single-Shell Tank Unit Manager D. R. Sherwood 712 Swift Boulevard, Suite 5 Richland, Washington 99352				X

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

DEC 29 1994
55 Sta. 5

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 140749

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Program Support	N/A
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
Tank 241-AP-106/Waste Management/PS/AS	George L. Miller	N/A
8. Originator Remarks:		**9. Equip./Component No.:**
This document is being released into the Supporting Document System for retrievability purposes.		N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks:		**12. Major Assm. Dwg. No.:**
For Release.		N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 12/19/94

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-DP-078	N/A	0	45-Day Safety Screen Results for Single Shell Tank 241-AP-106, Liquid Grab Samples, Riser 1, 30° and 150° in Conjunction with Evaporator Campaign 95-1	Q	2	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN	(J) Name (K) Signature (L) Date (M) MSIN	(G) Reason	(H) Disp.
2	1	Cog.Eng. G. L. Miller George L. Miller 12/21/94 TL-OU			
2	1	Cog. Mgr. J. G. Kristofzski 12-20-94 TL-OU			
2	1	QA J. C. Langford J.C. Langford 12-27-94 TL-03			
		Safety			
		Env.			

18.	19.	20.	21. DOE APPROVAL (if required) Ctrl. No.
A.E. Young Signature of EDT Originator 12-19-94 Date	Authorized Representative for Receiving Organization Date	J.G. Kristofzski Cognizant Manager 12/20/94 Date	☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1 (07/91)

RELEASE AUTHORIZATION

Document Number:	WHC-SD-WM-DP-078, REV 0
Document Title:	45-Day Safety Screen Results for Single Shell Tank 241-AP-106, Liquid Grab Samples, Riser 1, 30 Degrees and 105 Degrees in Conjunction with Evaporator Campaign 95-1
Release Date:	12/29/94

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz — December 29, 1994

Kara M. Broz

SUPPORTING DOCUMENT

1. Total Pages 40 43

2. Title	3. Number	4. Rev No.
45-Day Safety Screen Results for Single Shell Tank 241-AP-106, Liquid Grab Samples, Riser 1, 30° and 150° in Conjunction with Evaporator Campaign 95-1	WHC-SD-WM-DP-078	0

5. Key Words	6. Author
45-Day Safety Screen, 45-Day Report, Single Shell Tank, Tank 241-AP-106, AP-106, Liquid Grab Samples, Riser 1, 30°, 150°, Evaporator, Campaign 95-1, 95-1	Name: George L. Miller Signature Organization/Charge Code 8E480/MDR2D

KMB 12/29/94 APPROVED FOR PUBLIC RELEASE

7. Abstract

N/A

8. RELEASE STAMP

DEC 29 1994

55 Sta. 5

DISCLAIMER

MASTER

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-078, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREEN RESULTS FOR SINGLE SHELL TANK 241-AP-106, LIQUID GRAB SAMPLES, RISER 1, 30° AND 150° IN CONJUNCTION WITH EVAPORATOR CAMPAIGN 95-1

Tank: 241-AP-106

Date Printed: DECEMBER 14, 1994

TABLE OF CONTENTS

This document consists of pages 1 through 40.

NARRATIVE

TITLE

45-DAY SAFETY SCREEN REPORT FOR SINGLE SHELL TANK 241-AP-106 LIQUID GRAB SAMPLES, RISER 1, 30° AND 150° IN CONJUNCTION WITH EVAPORATOR CAMPAIGN 95-1

SUMMARY

No analytes exceeded the notification limits.

REFERENCE

WHC-SD-WM-TP-277, Rev. 1, "Tank 241-AP-106 Tank Characterization Plan", released on November 17, 1994, Westinghouse Hanford Company, Richland, WA 99352.

SCOPE

This is the 45-Day report for the fiscal year 1995 safety screening characterization of three liquid grab samples from single shell tank 241-AP-106.

The required analyses are differential scanning calorimetry (DSC), thermal gravimetric analysis (TGA) and appearance (APPR). No analytes exceeded the notification limits, therefore, secondary analyses (RSST, cyanide, and hot persulfate-total organic carbon) were not required. Summary data tables 2, 3 and 4 present the appearance, DSC and TGA data, respectively. Total alpha analyses are not included in this report, because it is not required for liquid grab samples.

SAMPLING INFORMATION

Table 1: Tank 241-AP-106 Grab Sample Data

CUSTOMER SAMPLE NUMBER	DATE SAMPLED	LAB ID NUMBER	SAMPLE LOCATION*	SAMPLE DEPTH**	Date Sample Received at Lab
106-AP-1C	11/14/94	V153	Riser 1 (30°)	343 inches	11/15/94
106-AP-2C	11/15/94	V156	Riser 1 (30°)	547 inches	11/17/94
106-AP-3C	11/17/94	V157	Riser 1 (150°)	590 inches	11/18/94

* Riser 1 is located northeast of AP-106 central pump pit (30 degrees from North direction). Riser 1 is located southeast of AP-106 central pump pit (150 degrees from North direction).

** Sample depth is defined as the length measured from the bottle top on the sample bottle to the riser flange top.

ANALYTICAL QUALITY CONTROL

All DSC and TGA analyses were performed in duplicate. No blanks or sample spikes were required for quality control.

SAMPLE APPEARANCE AND DOSE RATE DATA

Samples 1C, 2C and 3C appeared visually identical. Observation was difficult, however, because the samples were collected in amber glass bottles which interfered with the estimation of apparent sample color. All samples were inspected initially by the project coordinator on the day of delivery to the laboratory when they were removed from the shipping pigs and transferred to smaller shielded containers. At these times, the samples were observed to not have separate organic layers, because none of the samples exhibited any obscuring turbidity, and there were no phases which would have had different indices of light refraction.

The appearance and "over-the-top" dose rate (APPR/OTR) analyses of these samples were performed on November 23, 1994 on the direct sample. Table 2 shows these data, confirming that no separate organic phase was observed.

DIFFERENTIAL SCANNING CALORIMETRY DATA

No DSC safety criteria were exceeded. DSC analyses were performed on the direct samples on November 23 and 27, 1994. DSC analyses were conducted with 500 °C as the upper temperature of the temperature range. Analyses were performed in duplicate on all three samples and LMCS control standards were analyzed prior to analysis of the sample batches. The control standards were within control limits. All analyses were conducted in an ambient air environment (not dry nitrogen). No exotherms were observed in any of the samples or their duplicates. Endotherms were observed in all of the samples and their duplicates. As a consequence, the DSC notification limits were not exceeded. The limits specified were as follows.

1. Any exotherm which was less than 335 °F, or

2. When the absolute value of the exotherm divided by the endotherm was greater than 1.

For exotherm precision, the quality control requirement was ±10 Relative Percent Difference (RPD). Because there were no exotherms, this QC parameter could not be determined. In addition, because no exotherms were observed in any of the samples or duplicates, no secondary analytes (RSST, cyanide, TOC) were examined.

THERMOGRAVIMETRIC ANALYSIS DATA

No TGA safety criteria were exceeded. TGA analyses were performed on the direct samples on November 23 and 26, 1994. TGA analyses were conducted on samples V151 and V153 in the presence of nitrogen gas, which has no impact on the quality of data. Analyses were performed in duplicate on all three samples and LMCS control standards were analyzed prior to analysis of the sample batches. The control standards were within control limits.

Precision between the samples and their duplicates was acceptable with RPDs ranging from 0.02 to 6.6 percent. The precision control limit was ±10 RPD.

The average weight percent of water for each of the samples ranged from 83.74 to 95.88 percent. The notification limit for TGA is < 17 weight percent. None of the sample values qualified as falling within the notification limit.

TABLE 2
VISUAL APPEARANCE AND DOSE RATE
Direct Analysis
LA-519-151, Rev. E-2

SAMPLE INFORMATION		SAMPLE INFORMATION		
Sample I.D.	Lab I.D.	Visual Observations (see note below)	Dose Rate per Hour at 4 inches	Sample Size (Approx)
V153	106-AP-1C	Yellow color, clear, no solids, single phase	100 mRad	100
V156	106-AP-2C	Yellow color, clear, no solids, single phase	350 mRad	100
V157	106-AP-3C	Yellow color, clear, no solids, single phase	1.4 Rad	100

Note: The analyst noted, "sample was in amber glass making observation difficult

TABLE 3
DIFFERENTIAL SCANNING CALORIMETRY
Direct Analysis
LA-514-113, Rev. B-1

SAMPLE INFORMATION		SAMPLE RESULTS				QC RESULTS		
Sample I.D.	Lab I.D.	Sample Exotherm J/g	Sample Endotherm J/g	Duplicate Exotherm J/g	Duplicate Endotherm J/g	Exotherm Precision RPD	Standard Indium % Rec	Standard I.D.
V153	106-AP-1C	None	1239.3	None	1727.5	NA	96.0	V151
V156	106-AP-2C	None	1550.0	None	1504.8	NA	103.7	V154
V157	106-AP-3C	None	1482.9	None	1447.3	NA	103.7	V154

TABLE 4
THERMOGRAVIMETRIC ANALYSIS
Direct Analysis
LA-560-112, Rev. A-2

SAMPLE INFORMATION		SAMPLE RESULTS			QC RESULTS		
Sample I.D.	Lab I.D.	Sample WATER Wt %	Duplicate WATER Wt %	Average WATER Wt %	Precision RPD	Standard % Rec	Standard I.D.
V153	106-AP-1C	98.20	91.96	95.08	6.6	100.6	V151
V156	106-AP-2C	95.77	95.99	95.88	0.2	99.0	V154
V157	106-AP-3C	83.75	83.73	83.74	0.02	99.0	V154

ApDscTga.WK1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Copy

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: ☐ Priority ☒ Normal

Collector: D.E. Melville	Company Contact: WHC D.E Melville	Telephone No.: 3-0257
Project Designation: NA	Sampling Location: 241-AP-106, Riser 1 (30)	SAF No.: NA
Ice Chest No.: NA	Field Logbook No.: NA	Method of Shipment: Truck WHC-TRANSPORTATION
Shipped To: 2225 Labs Dock 10	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: RADIOACTIVE	Preservative	
	Type of Container	
	No. of Container(s): 2	
Special Handling and/or Storage: N/A	Volume: 100ml	

SAMPLE ANALYSIS

Sample Seal # OBI-3631 1C-3635

	Sample No.	Matrix*	Date Sampled	Time Sampled	
*	106-AP-OBI	liquid	11/14/94	10:17	Dose Rate Contact <.5 mR/hr.
	106-AP-1C	liquid	11/14/94	11:05	Dose Rate Contact 140 mR/hr.
	↓				

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By: Dave Melville D.E. Melville	Date/Time: 11/15/94 9:45	Received By: J L HENSLEY	Date/Time: 0945 11-15-94
Relinquished By: J L HENSLEY	Date/Time: 11-15-94 1055	Received By: Sandra Cobb	Date/Time: 11-15-94 10:55
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

* Note 106-AP-OBI is a Field Blank.

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

WHC-SD-WM-DP-078, REV. 0

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COPY

Page 1 of 1

Data Turnaround: ☐ Priorty ☒ Normal

Collector: D.E. Melville	Company Contact: WHC	Telephone No.: 3-0257
Project Designation: NA	Sampling Location: 241-AP-106, Riser 1 (150)	SAF No.: NA
Ice Chest No.: NA	Field Logbook No.: NA	Method of Shipment: Truck WHC TRANSPORTATION
Shipped To: 222-S	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: RADIOACTIVE	Preservative	
	Type of Container: GLASS	
	No. of Container(s): 1	
Special Handling and/or Storage: X / A	Volume: 100ml	

SAMPLE ANALYSIS

Sample No.	Matrix*	Date Sampled	Time Sampled	
106-AP-26	liquid	11/15/94	14:43	Seal # 3628, Contact dose rate 260 mR/hr

WHC-SD-WM-DP-078, REV. 0

CHAIN OF POSSESSION — Sign/Print Name

Relinquished By	Date/Time	Received By	Date/Time
D.E. Melville	11/17/94 1430	[illegible]	11-17-94 1435
[illegible]	1450	[illegible]	1450
James R. Fuhrberg	11-17-94	[illegible]	11-17-94
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION: Received By ____ Title ____ Date/Time ____

FINAL SAMPLE DISPOSITION: Disposal Method ____ Disposed By ____ Date/Time ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COPY

Page 1 of 1

Data Turnaround
- [ ] Priorty
- [x] Normal

Collector	WHC
Project Designation	N/A
Ice Chest No.	N/A
Shipped To	222S Labs
Company Contact	James Sickels
Sampling Location	241-AP-106
Field Logbook No.	N/A
Offsite Property No.	N/A
Telephone No.	373-3578
SAF No.	N/A
Method of Shipment	WHC Transportation
Bill of Lading/Air Bill No.	N/A

Possible Sample Hazards/Remarks: Radioactive

Special Handling and/or Storage: N/A

Preservative	
Type of Container	Glass
No. of Container(s)	2
Volume	200mL Total

SAMPLE ANALYSIS

Sample No.	Matrix*	Date Sampled	Time Sampled		
106-AP-3C	L	11-17-94	11:00 Am	Seal # 5640	Dose at Contact 4.6 R/Hr
106-AP-4	L	11-17-94	10:20 Am	Seal # 3642	Dose at Contact 325 mR/Hr
6					

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature] James Sickels	225 11-18-94	[signature] J Hensley	1425 11-18-94
[signature] J Hensley	1525 11-18-94	[signature]	1525 11-18-94

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

UNDIGESTED SAMPLE ANALYSES - DIRECT

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.	Customer ID:
V 153	106AP1C
Analysis:	**Sample Prep:**
DSC	DIRECT

Instrument: WC16134, WC16129	Procedure/ Rev: LA-514-113 B-1
Technologist: SM FULTON SM Fulton	Date: 11/23/94
Starting Time: 1600	Temperature 25
Ending Time: 2000	Chemist: J. FRYE

Comments: BATCH #4903

Verified 11/28/94 J. M. Frye

	Description	Lab ID
1	LMCS STD	V 151-5511
2	SAMPLE	V 153-5711
3	SAMPLE DUPLICATE	V 153-5811
4		
5		
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	12N14A 6.778 mg			

DIFFERENTIAL SCANNING CALORIMETRY ANALYSIS - DIRECT

Batch 4903

Serial No	Sample Point	Date	Time Issued	Priority
V 151 -5511	106-AP	11-16-94	17:17	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	% RECOVERY	N4038	0

Sample Size	Customer ID
? 6.778	STD

Remarks, Calculations, Results

R230 INDIUM
STD# 12N14A RESULT 27.3
STD VAL 2.845E01 %REC 96.0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11.23.94	2000	

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
V 153.-5711	106-AP	11-16-94	17:26	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N4038	0

Sample Size	Customer ID
? 9.837mg	106AP1C

Remarks, Calculations, Results

No Exotherms

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11.23.94	2000	

54-6800-061 (R-10-83)

DIFFERENTIAL SCANNING CALORIMETRY ANALYSIS - DIRECT

Serial No	Sample Point	Date	Time Issued	Priority
V 153.-5811	106-AP	11-16-94	17:26	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N4038	0

Sample Size	Customer ID
? 10.139mg	106AP1C

Remarks, Calculations, Results:

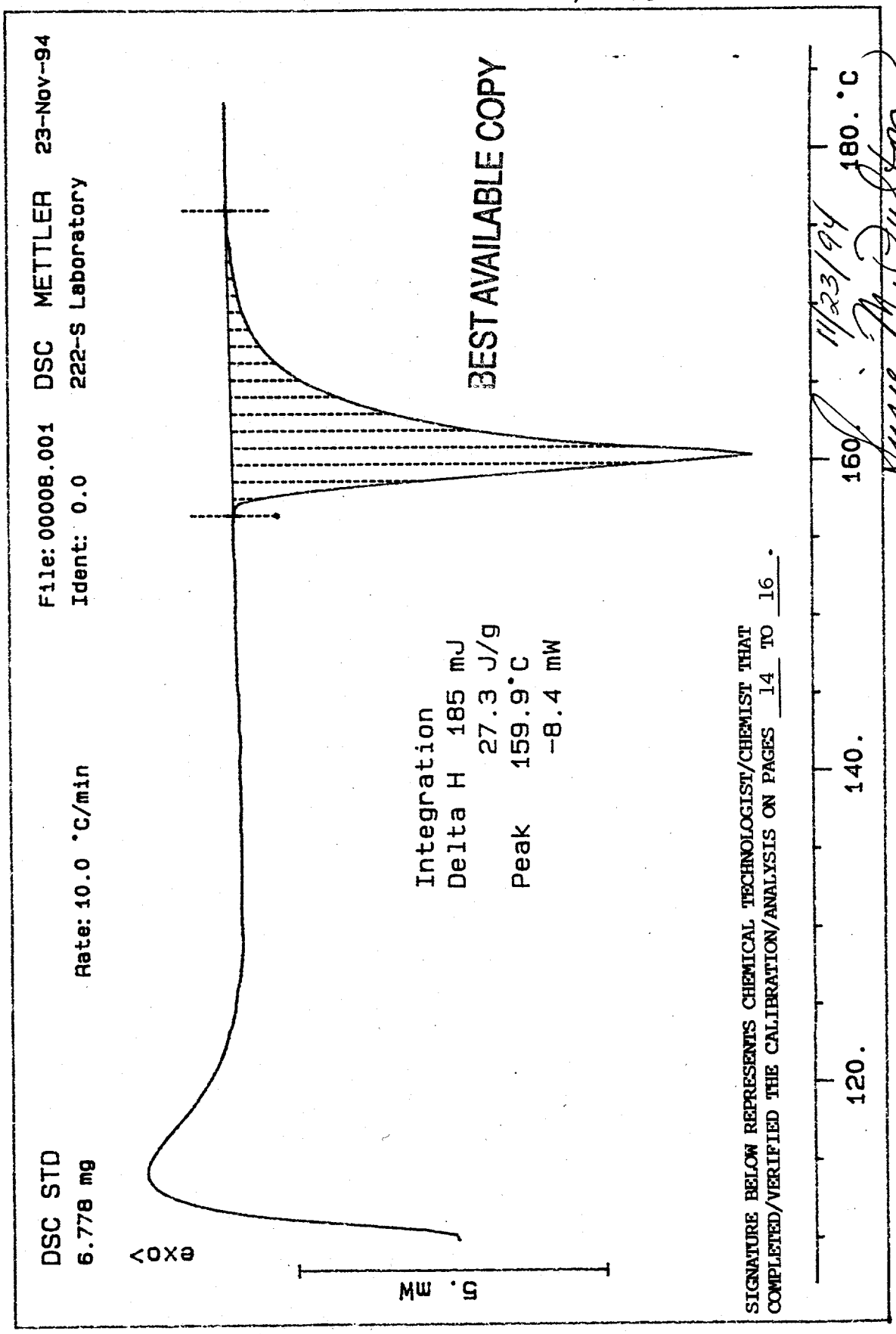
No EXOTherms

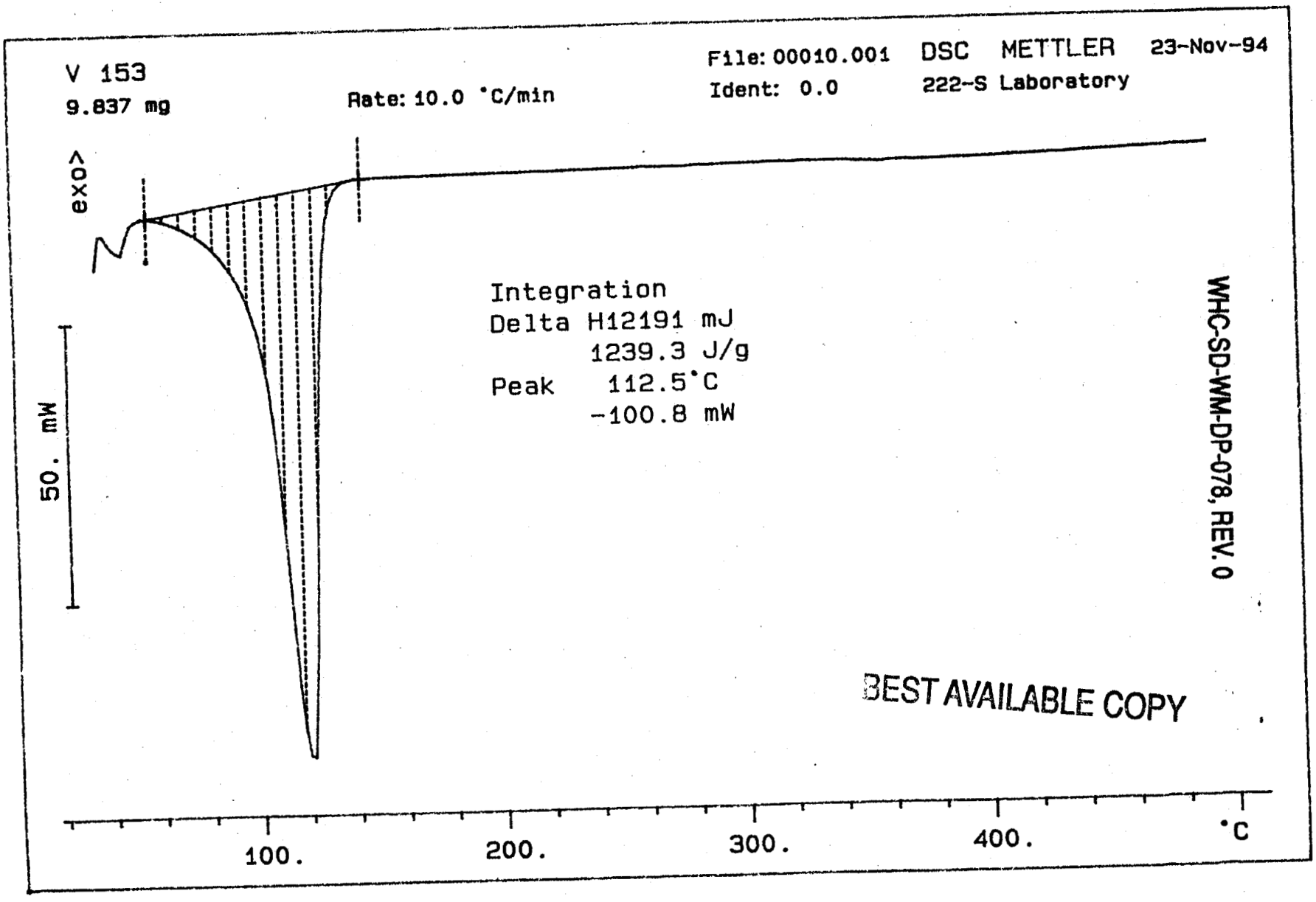
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

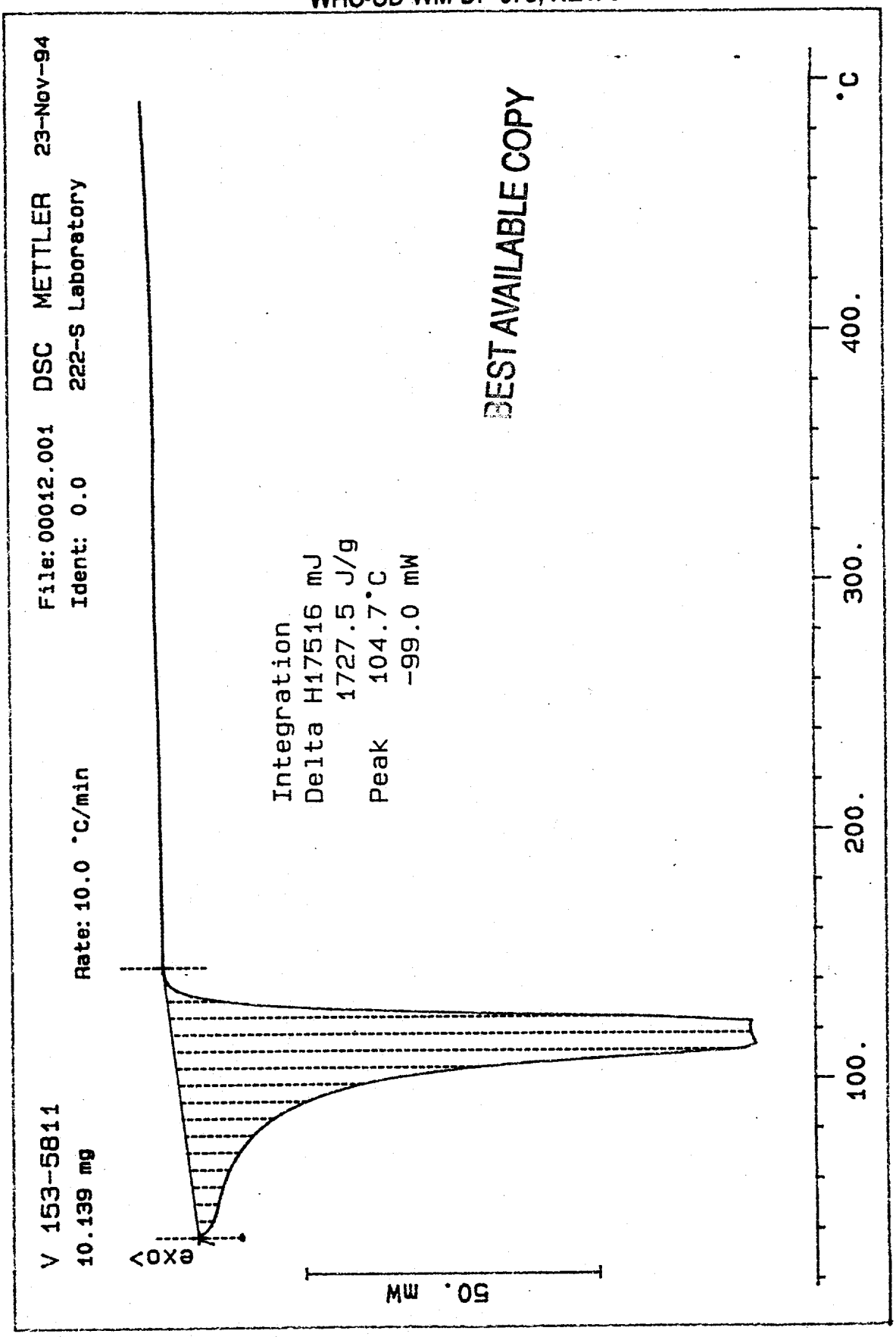
Date	Time Completed	Lab Unit Mgr
11-23-94	2000	

54-6800-061 (R-10-83)

BEST AVAILABLE COPY


DSC STD
6.778 mg
Rate: 10.0 °C/min
File: 00008.001
Ident: 0.0
DSC METTLER 23-Nov-94
222-S Laboratory
BEST AVAILABLE COPY
Integration
Delta H 185 mJ
27.3 J/g
Peak 159.9°C
-8.4 mW
exo
5. mW
120.
140.
160.
180. °C
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 14 TO 16 .
11/23/94


V 153
9.837 mg
Rate: 10.0 °C/min
File: 00010.001 DSC METTLER 23-Nov-94
Ident: 0.0 222-S Laboratory
exo>
50. mW
Integration
Delta H12191 mJ
1239.3 J/g
Peak 112.5°C
-100.8 mW
100.
200.
300.
400.
°C
WHC-SD-WM-DP-078, REV. 0
BEST AVAILABLE COPY


V 153-5811
10.139 mg
Rate: 10.0 °C/min
File: 00012.001 DSC METTLER 23-Nov-94
Ident: 0.0 222-S Laboratory
Integration
Delta H17516 mJ
1727.5 J/g
Peak 104.7°C
-99.0 mW
BEST AVAILABLE COPY
exo>
50. mW
100.
200.
300.
400.
°C

104

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.	Customer ID:
V 154 - V 157	106AP2C, 106AP3C
Analysis:	**Sample Prep:**
DSC	DIRECT

Instrument: WC16134, WC16129	Procedure/ Rev: LA-514-113 B-1
Technologist: KL VOGEL	Date: 11/26/94 LAD 12-15-94
Starting Time: 0015	Temperature 25
Ending Time: 0700	Chemist: J. FRYE

Comments: BATCH #4953

Verified 11/28/94. J. M. Frye

	Description	Lab ID
1	STD	V 154-5511
2	SAMPLE	V 156-5711
3	SAMPLE DUPLICATE	V 156-5811
4	SAMPLE	V 157-5711
5	SAMPLE DUPLICATE	V 157-5811
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	12N14A 6.619 mg			

DIFFERENTIAL SCANNING CALORIMETRY ANALYSIS - DIRECT

Batch 4953

Serial No	Sample Point	Date	Time Issued	Priority
V 154.-5511	106-AP	11-18-94	16:12	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	% RECOVERY	N4038	0

Sample Size	Customer ID
? 6.619	STD

Remarks, Calculations, Results

R230 INDIUM

STD# 12N14A RESULT 29.5 J/g

STD VAL 28.45 J/g %REC 103.7%

Analyst 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
11-27-94	0700		

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
V 156.-5711	106-AP	11-18-94	16:25	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N4038	0

Sample Size	Customer ID
? 10.380 mg	106AP2C

Remarks, Calculations, Results

7/0 exotherm

Endotherm 1590 J/g at 104.7°C

Analyst 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
11/27/94	0700		

54-6800-061 (R-10-83)

DIFFERENTIAL SCANNING CALORIMETRY ANALYSIS - DIRECT

Serial No.	Sample Point	Date	Time Issued	Priority
V 156.-5811	106-AP	11-18-94	16:25	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N4038	0

Sample Size: ? 10.106 mg

Customer ID: 106AP2C

Remarks, Calculations, Results:

No exotherm

1504.8 J/g at 112.0°C

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11/27/94	0700	

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
V 157.-5711	106-AP	11-18-94	16:31	24

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N4038	0

Sample Size: ? 12.849 mg

Customer ID: 106AP3C

Remarks, Calculations, Results:

No exotherm

Endotherm of 1482.9 J/g at 117.5°C

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11/27/94	0700	

54-6800-061 (R-10-83)

DIFFERENTIAL SCANNING CALORIMETRY ANALYSIS - DIRECT

Serial No.	Sample Point	Date	Time Issued	Priority
V 157.-5811	106-AP	11-18-94	16:31	24

Determination	Method-Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N4038	0

Sample Size	Customer ID
? 12.135 mg	106AP3C

Remarks, Calculations, Results

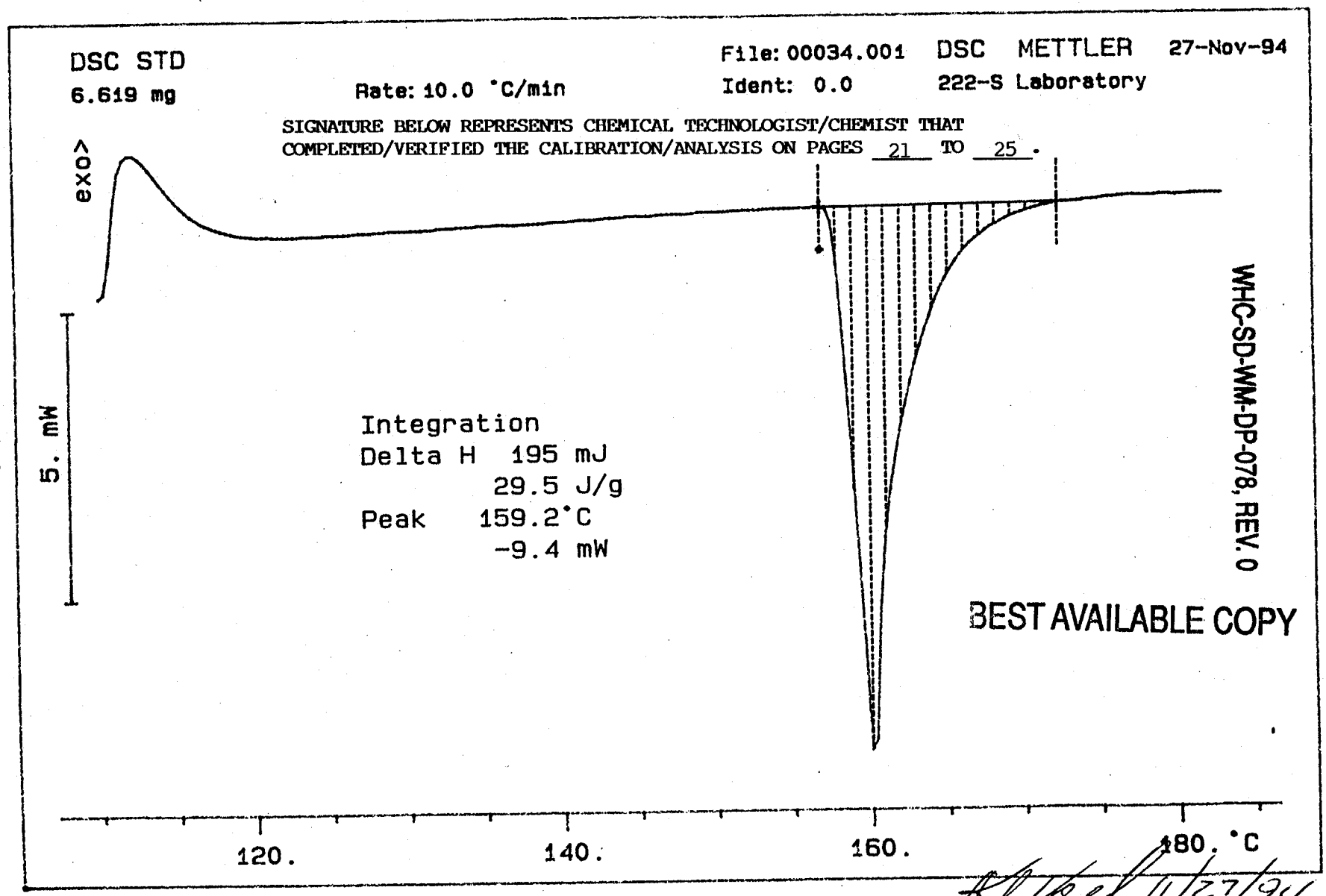
No exotherms

Endotherm at 115.7°C & 1447.3 J/g

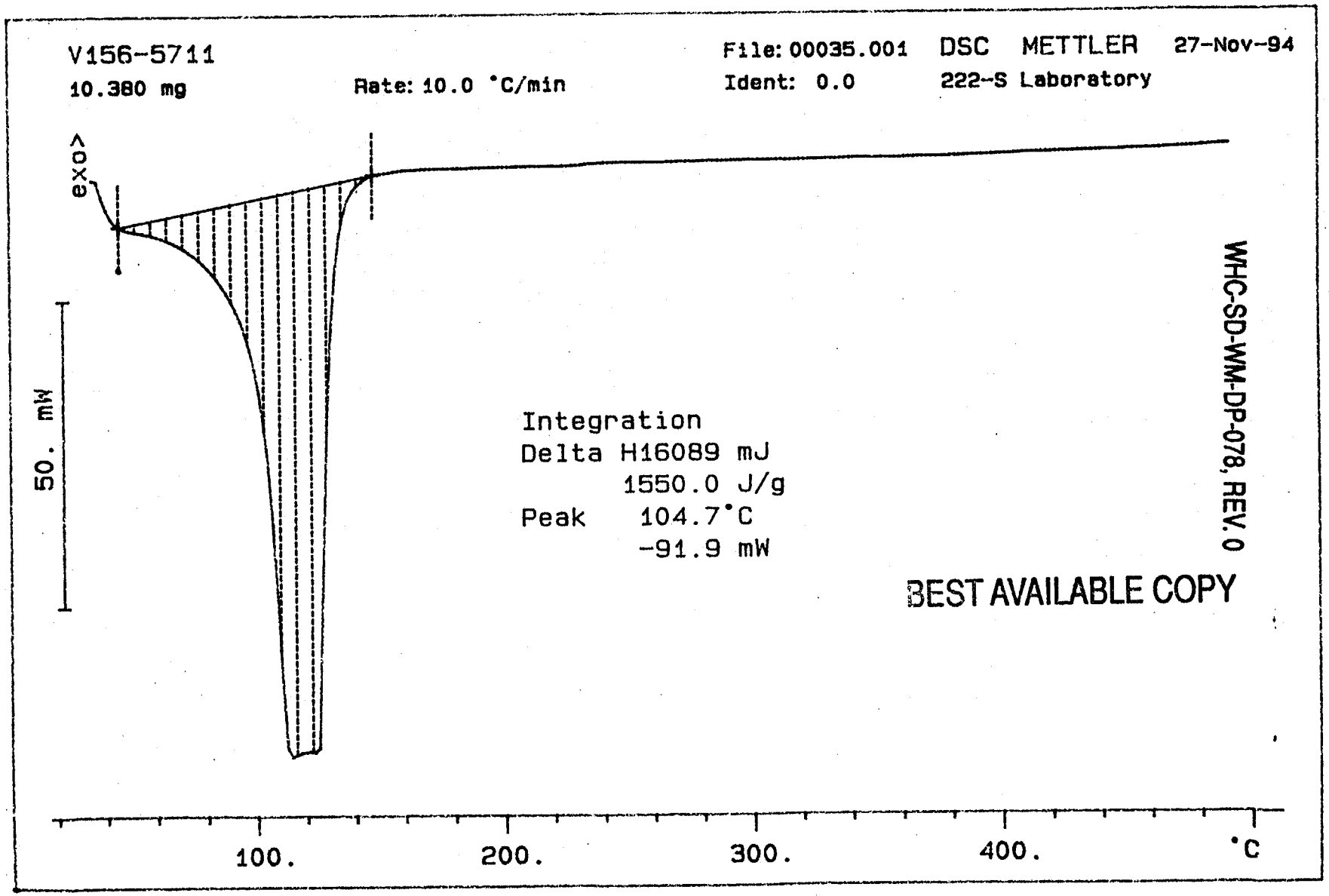
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

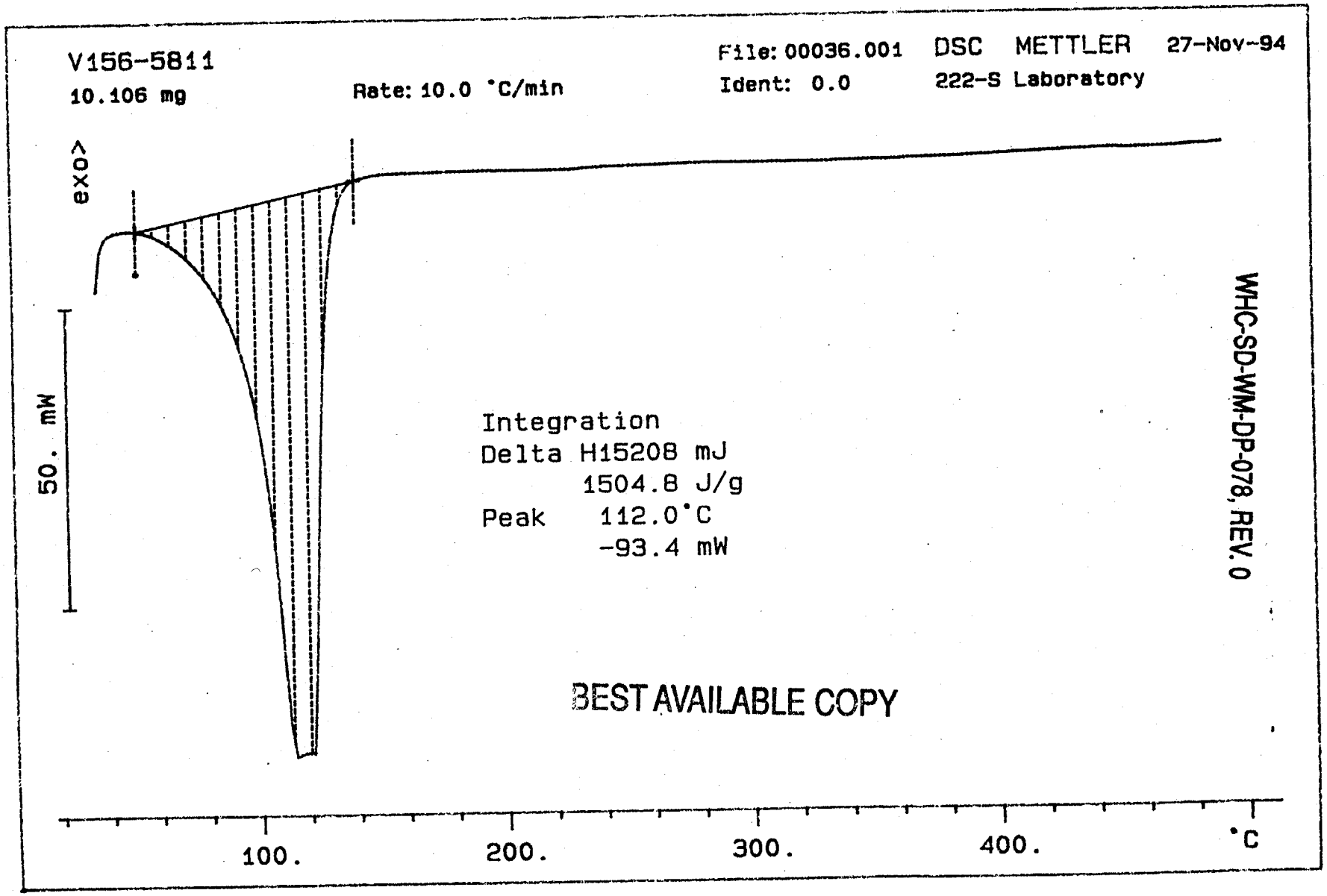
Date	Time Completed	Lab Unit Mgr	
11/27/94	0700		

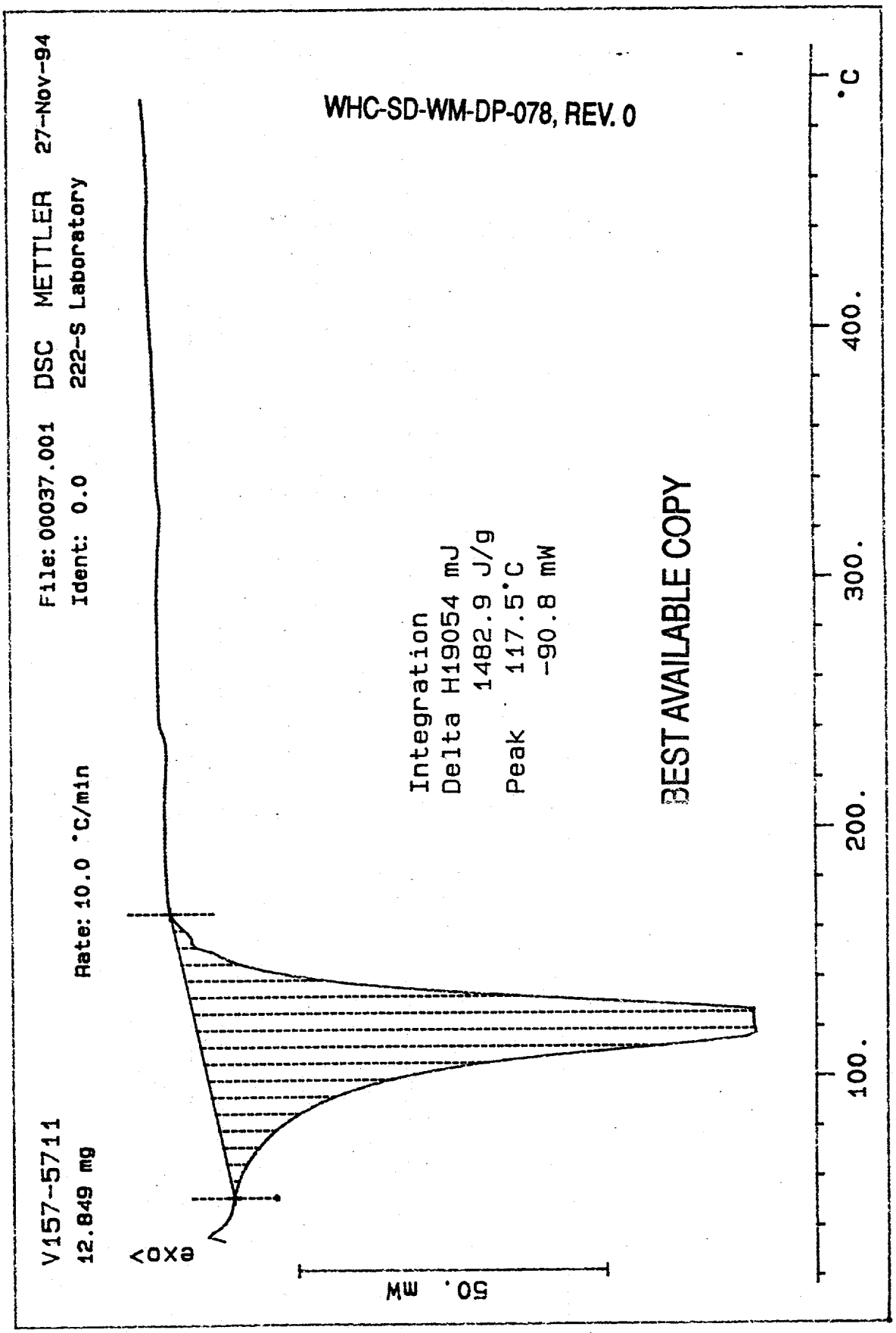
54-6600-061 (R-10-83)

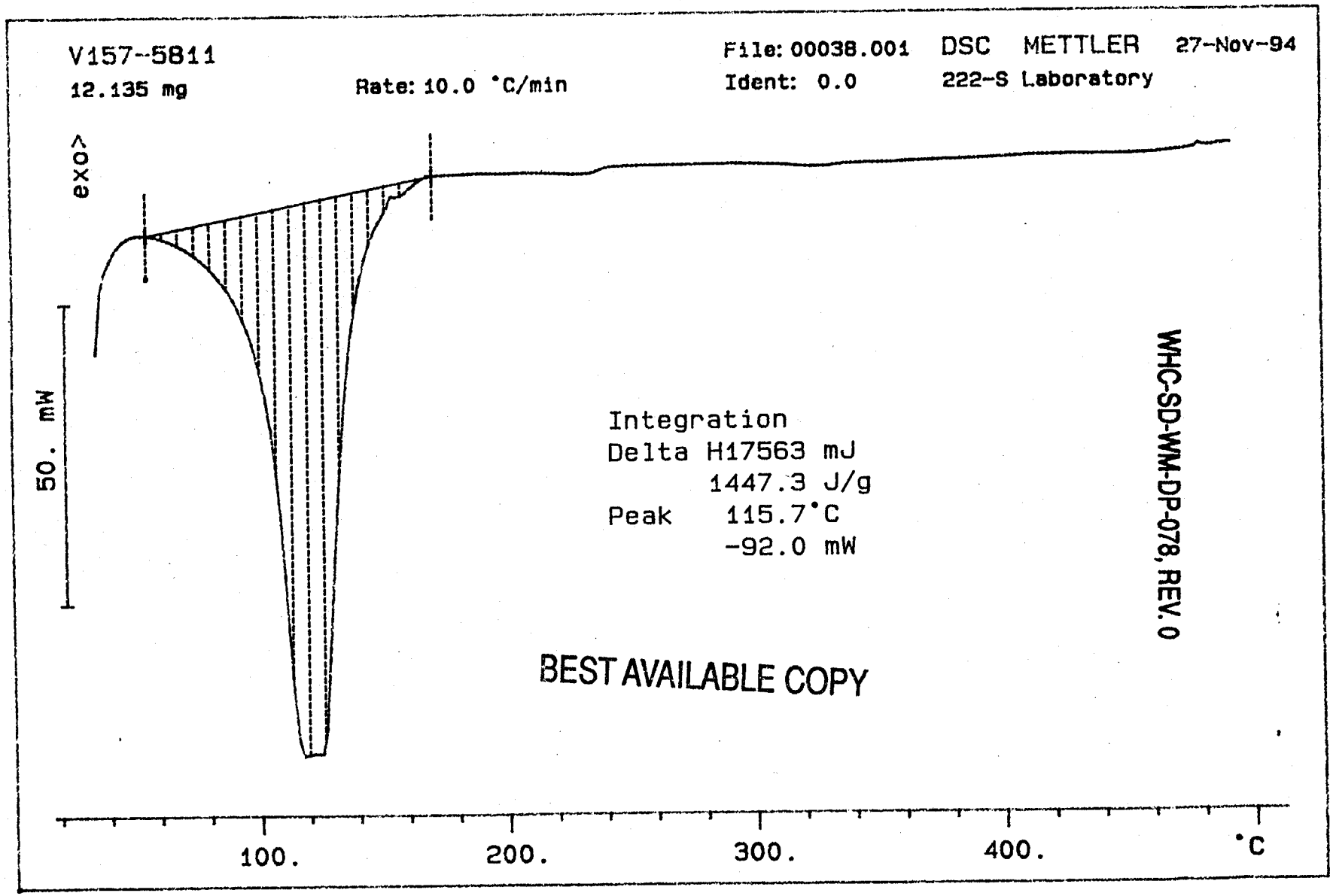

DSC STD
6.619 mg
Rate: 10.0 °C/min
File: 00034.001 DSC METTLER 27-Nov-94
Ident: 0.0 222-S Laboratory
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 21 TO 25.
exo>
5. mW
Integration
Delta H 195 mJ
29.5 J/g
Peak 159.2°C
-9.4 mW
120.
140.
160.
180. °C
WHC-SD-WM-DP-078, REV. 0
BEST AVAILABLE COPY

11/27/94


V156-5711
10.380 mg
Rate: 10.0 °C/min
File: 00035.001
Ident: 0.0
DSC METTLER
222-S Laboratory
27-Nov-94
exo>
50. mW
Integration
Delta H16089 mJ
1550.0 J/g
Peak 104.7°C
-91.9 mW
WHC-SD-WM-DP-078, REV.0
BEST AVAILABLE COPY
100.
200.
300.
400.
°C




V157-57 11
12.849 mg
Rate: 10.0 °C/min
File: 00037.001 DSC METTLER 27-Nov-94
Ident: 0.0 222-S Laboratory
Integration
Delta H19054 mJ
1482.9 J/g
Peak 117.5°C
-90.8 mW
BEST AVAILABLE COPY
50. mW
exo>
100.
200.
300.
400.
°C


V157-5811
12.135 mg
Rate: 10.0 °C/min
File: 00038.001
Ident: 0.0
DSC METTLER 27-Nov-94
222-S Laboratory
exo>
50. mW
Integration
Delta H17563 mJ
1447.3 J/g
Peak 115.7°C
-92.0 mW
BEST AVAILABLE COPY
WHC-SD-WM-DP-078, REV. 0
100.
200.
300.
400.
°C

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.	Customer ID:
V 153	106AP1C
Analysis:	**Sample Prep:**
TGA	DIRECT

Instrument: WC16124, WC16129	Procedure/ Rev: LA-560-112 ~~A-1~~ A-2 LAD 12-15-94
Technologist: SM FULTON SM Fulton	Date: 11/23/94
Starting Time: 1600	Temperature 25
Ending Time: 2000	Chemist: J. FRYE

Comments: BATCH #4902

Verified in LMCS 11/29/94 James Frye

	Description	Lab ID
1	LMCS STD	V 151-5512
2	SAMPLE	V 153-5712
3	SAMPLE DUPLICATE	V 153-5812
4		
5		
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	42N8A .010 ML			

THERMAL GRAVIMETRIC ANALYSIS - DIRECT

Batch 4902

Serial No	Sample Point	Date	Time Issued	Priority
V 151 -5513	106-AP	11-16-94	17:20	24

Determination	Method Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% RECOVERY	N4038	0

Sample Size: ? 13.963 mg

Customer ID: STD

Remarks, Calculations, Results

EDP 5362

STD# 42N8A

VALUE 5.919 EOI WT%

100.6 % Recovery

Result 5.953 EOI WT%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11-23-94	~~2000~~ 2230	

SMT 11.23.94

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
V 153.-5712	106-AP	11-16-94	17:36	24

Determination	Method Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% H2O	N4038	0

Sample Size: ? 9.856 mg

Customer ID: 106AP1C

Remarks, Calculations, Results

98.2 % H_2O

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11-23-94	2000	

54-6800-061 (R-10-83)

THERMAL GRAVIMETRIC ANALYSIS - DIRECT

Serial No	Sample Point	Date	Time Issued	Priority
V 153.-5812	106-AP	11-16-94	17:36	24

Determination	Method/Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% H2O	N4038	0

Sample Size	Customer ID
? 10.614 mg	106AP1C

Remarks, Calculations, Results

DUPLICATE SAMPLE

91.96 % H_2O

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

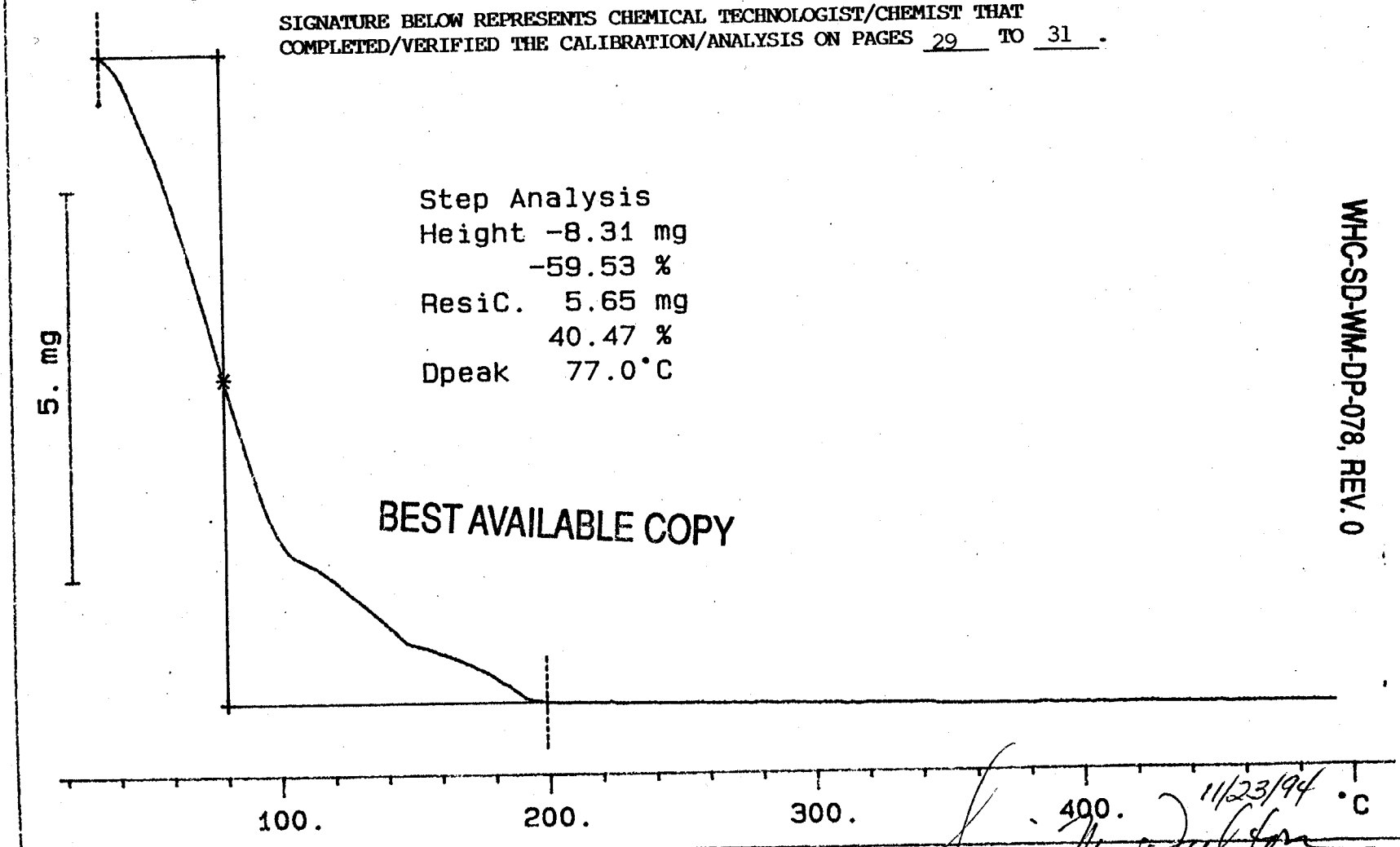
Date	Time Completed	Lab Unit Mgr
11-23-94	2000	

54-6800-061 (R-10-83)

TGA STD
13.963 mg

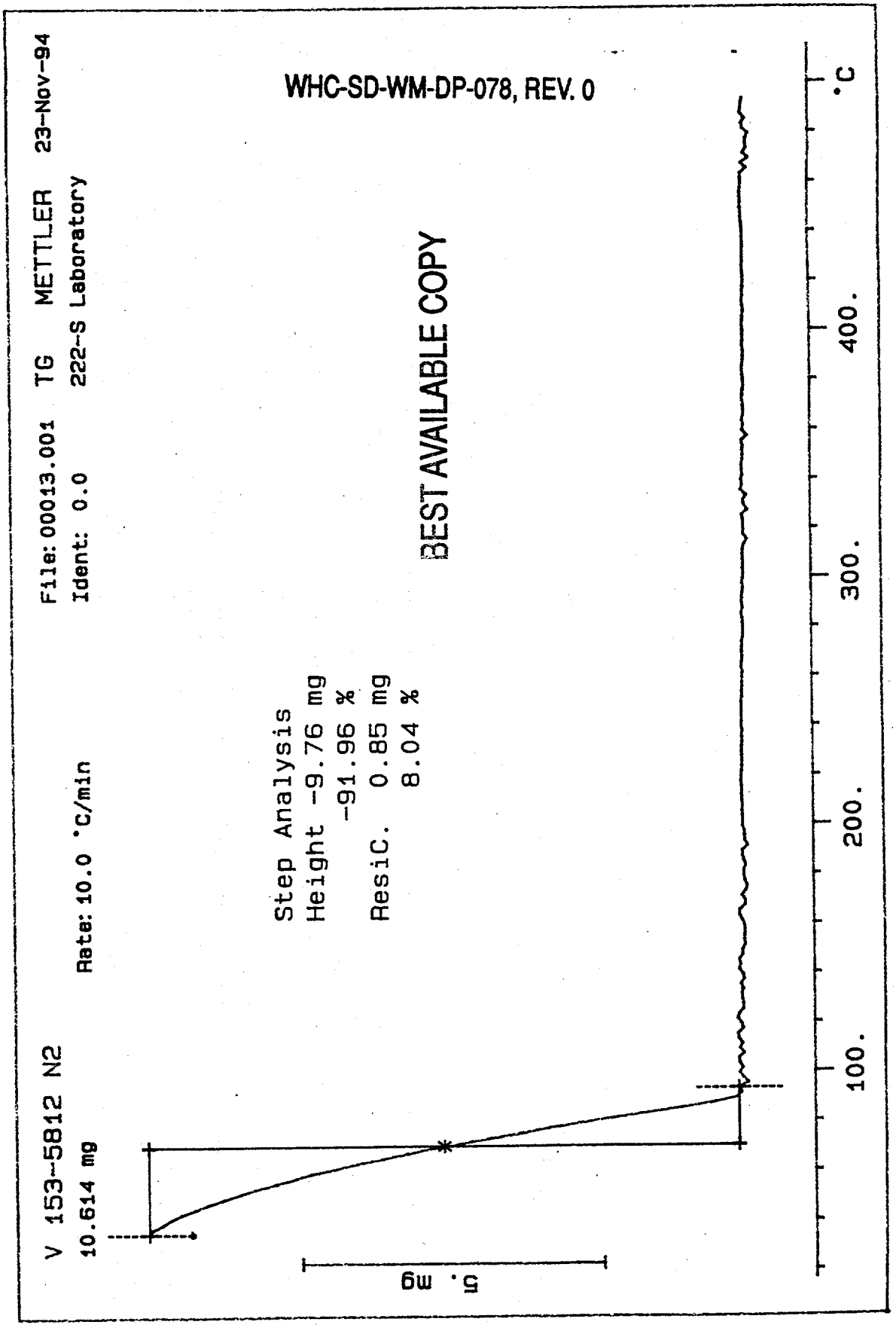
File: 00009.001 TG METTLER 23-Nov-94
Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

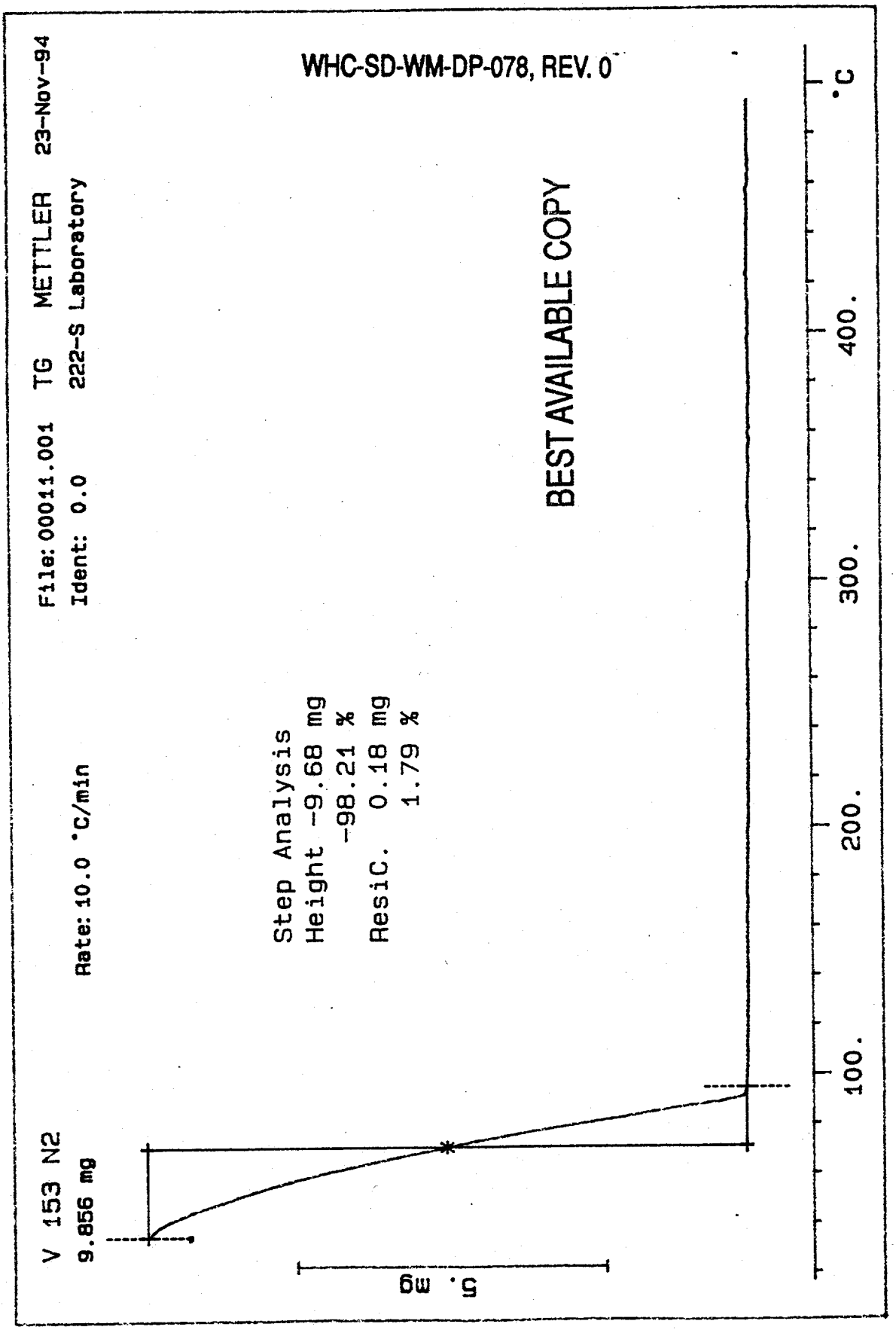
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 29 TO 31 .



WHC-SD-WM-DP-078, REV. 0

11/23/94
Susie M. Dalton





04

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.	Customer ID:
V 156, V 157	106AP2C, 106AP3C
Analysis:	**Sample Prep:**
TGA	DIRECT

Instrument: WC16124, WC16129	Procedure/ Rev: LA-560-112/A-12 gmf 11/28/94
Technologist: SM FULTON	Date: 11/26/94
Starting Time: 0015	Temperature 25
Ending Time: 0730	Chemist: J. FRYE

Comments: BATCH #4954

Verified 11/30/94 J. M. Frye

	Description	Lab ID
1	LMCS STD	V 154-5512
2	SAMPLE	V 156-5712
3	SAMPLE DUPLICATE	V 156-5812
4	SAMPLE	V 157-5712
5	SAMPLE DUPLICATE	V 157-5812
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	42N8-A .010ml			

THERMAL GRAVIMETRIC ANALYSIS - DIRECT

Batch 4954

Serial No	Sample Point	Date	Time Issued	Priority
V 154.-5512	106-AP	11-18-94	16:12	24

Determination	Method Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% RECOVERY	N4038	0

Sample Size	Customer ID
? 14.805 mg	STD

Remarks, Calculations, Results:
Terlig # 42N8-A
Std. value: 59.19%
Result: 58.41%
% Recovery: 99.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11-26-94	0730	

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
V 156.-5712	106-AP	11-18-94	16:25	24

Determination	Method Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% H2O	N4038	0

Sample Size	Customer ID
? 8.473 mg	106AP2C

Remarks, Calculations, Results:
95.77% H_2O

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11-26-94	0730	

54-6800-061 (R-10-83)

BEST AVAILABLE COPY

THERMAL GRAVIMETRIC ANALYSIS - DIRECT

Serial No	Sample Point	Date	Time Issued	Priority
V 156.-5812	106-AP	11-18-94	16:25	24

Determination	Method Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% H2O	N4038	0

Sample Size	Customer ID
? 8.722	106AP2C

Remarks, Calculations, Results

DUPLICATE SAMPLE

95.99% H_2O

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11-26-94	0730	

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
V 157.-5712	106-AP	11-18-94	16:31	24

Determination	Method Standard	Result Units	Charge Code	Reruns
TGA	LA-560-112	% H2O	N4038	0

Sample Size	Customer ID
? 5.855 mg	106AP3C

Remarks, Calculations, Results

83.75%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11-26-94	0730	

54-6800-061 (R-10-83)

THERMAL GRAVIMETRIC ANALYSIS - DIRECT

Serial No	Sample Point	Date	Time Issued	Priority
V 157.-5812	106-AP	11-18-94	16:31	24

Determination	Method Standard	Result-Units	Charge Code	Reruns
TGA	LA-560-112	% H2O	N4038	0

Sample Size	Customer ID
?	106AP3C

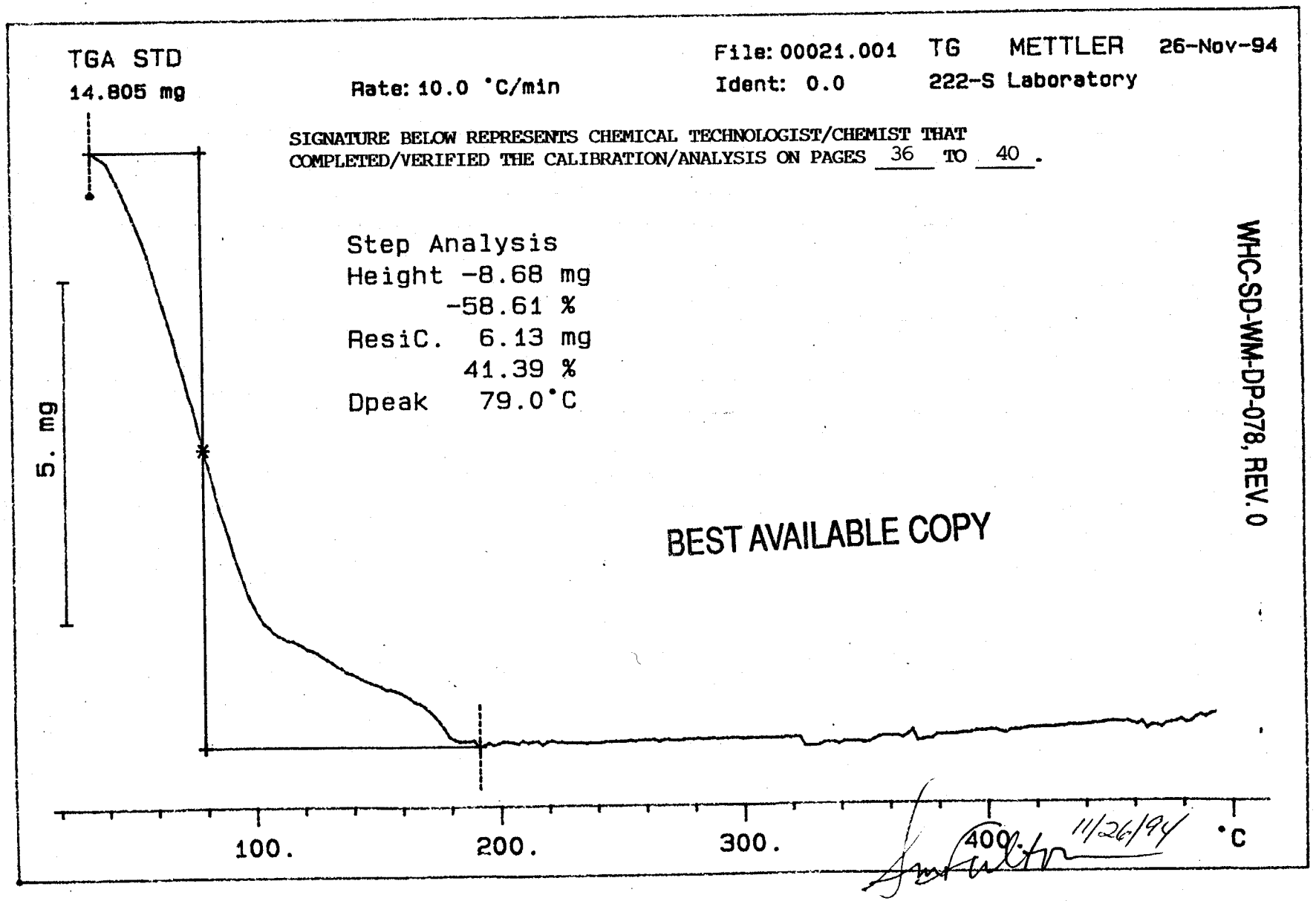
Remarks, Calculations, Results

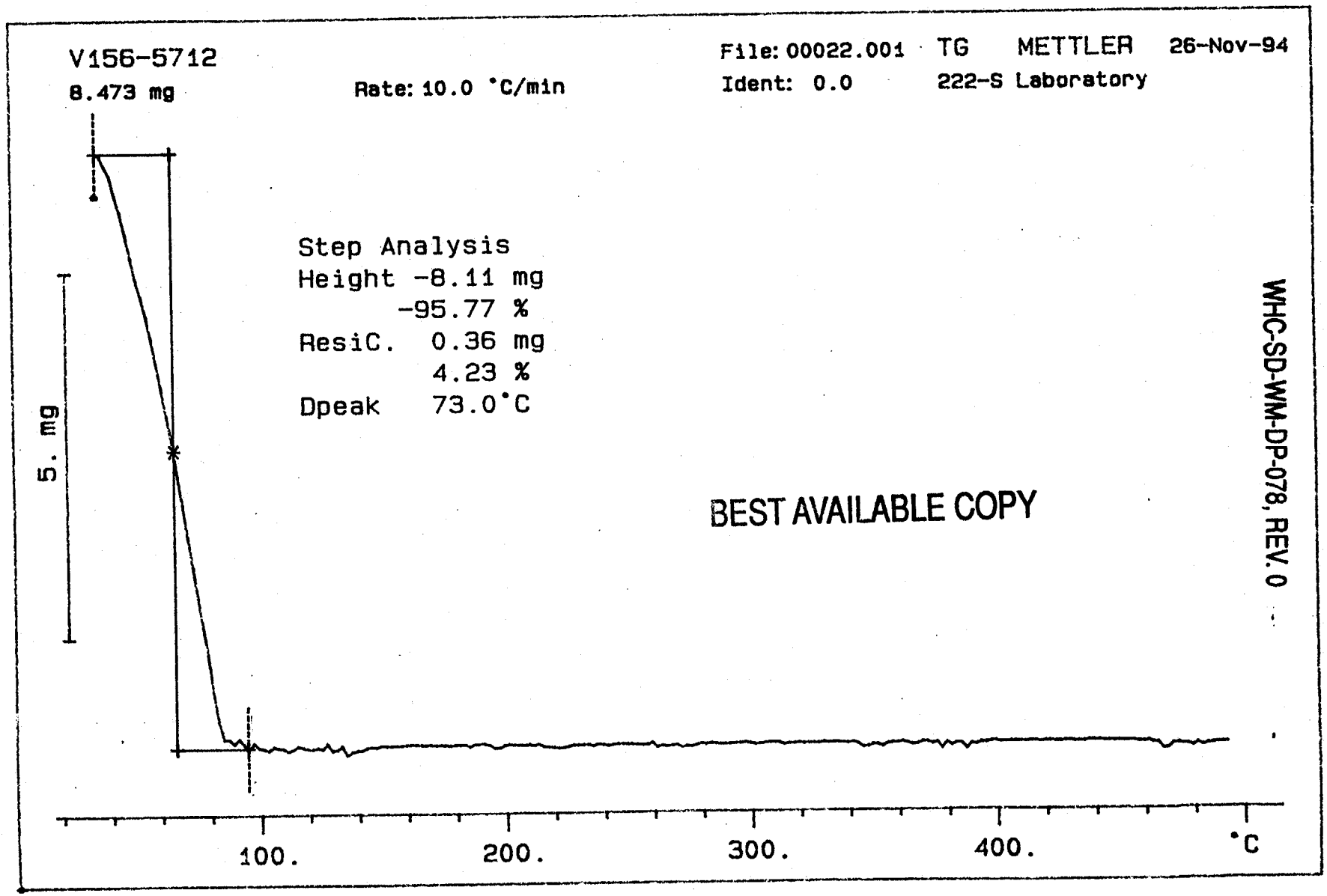
DUPLICATE SAMPLE 83.73% H_2O

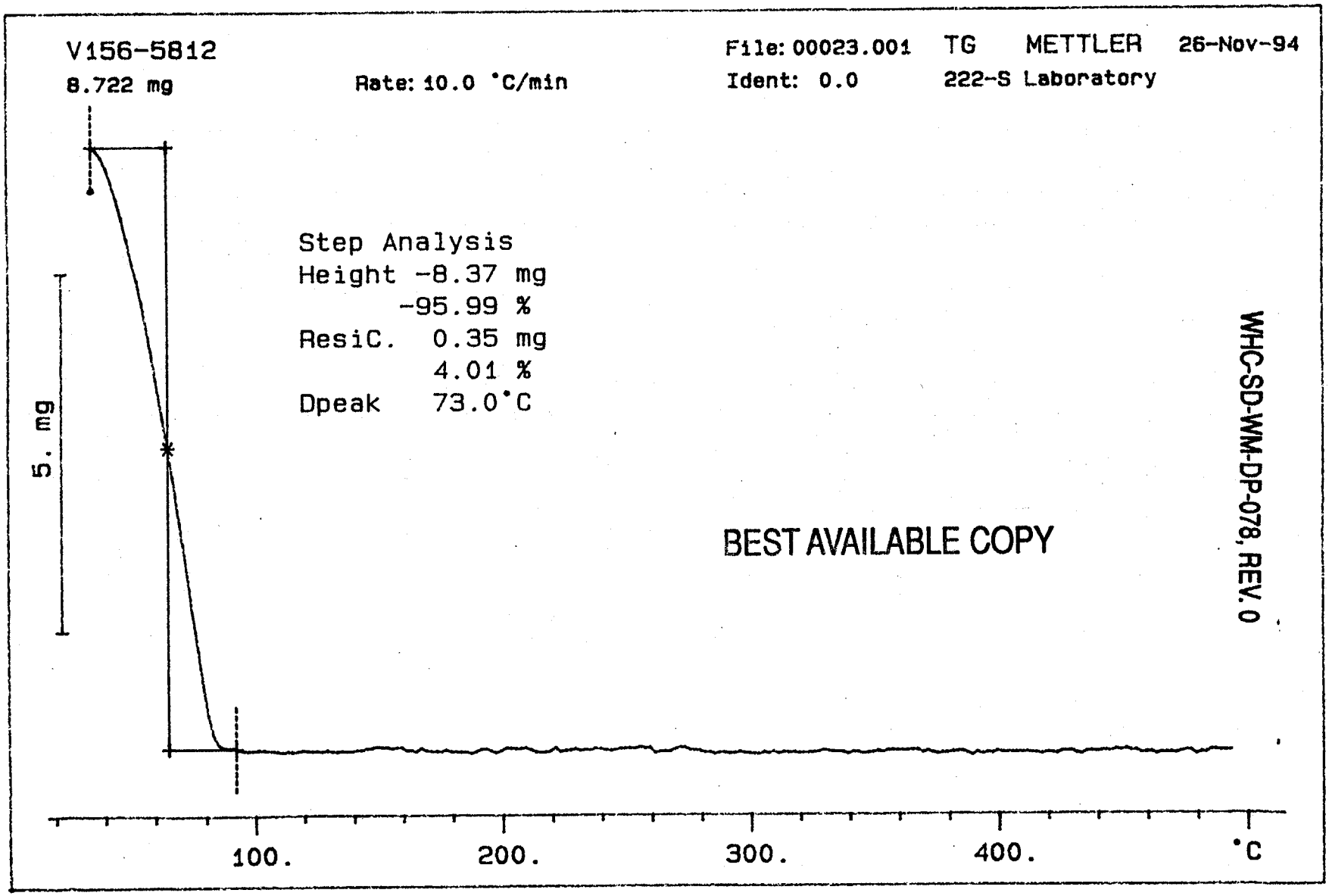
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs

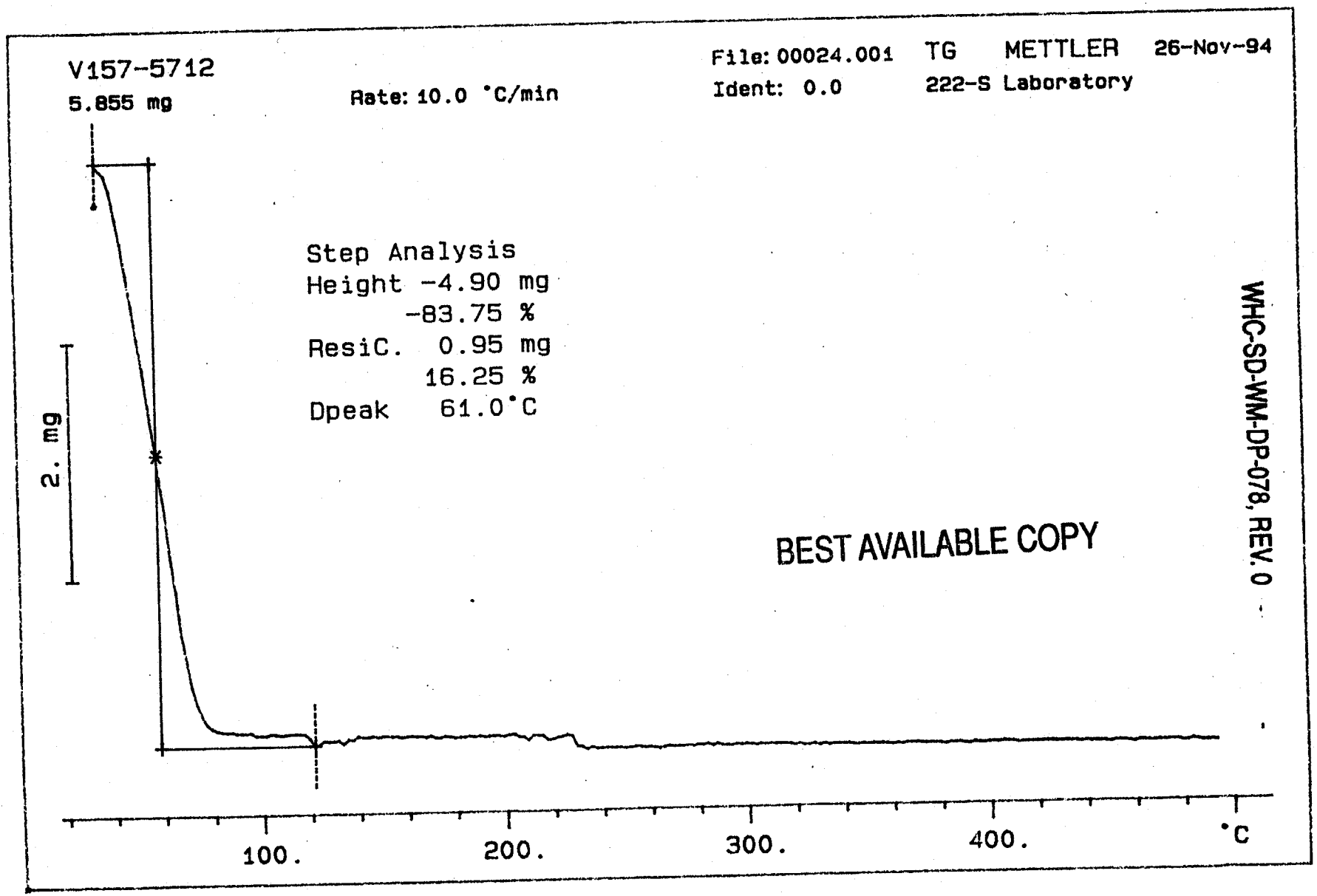
Date	Time Completed	Lab Unit Mgr
11-26-94	0730	

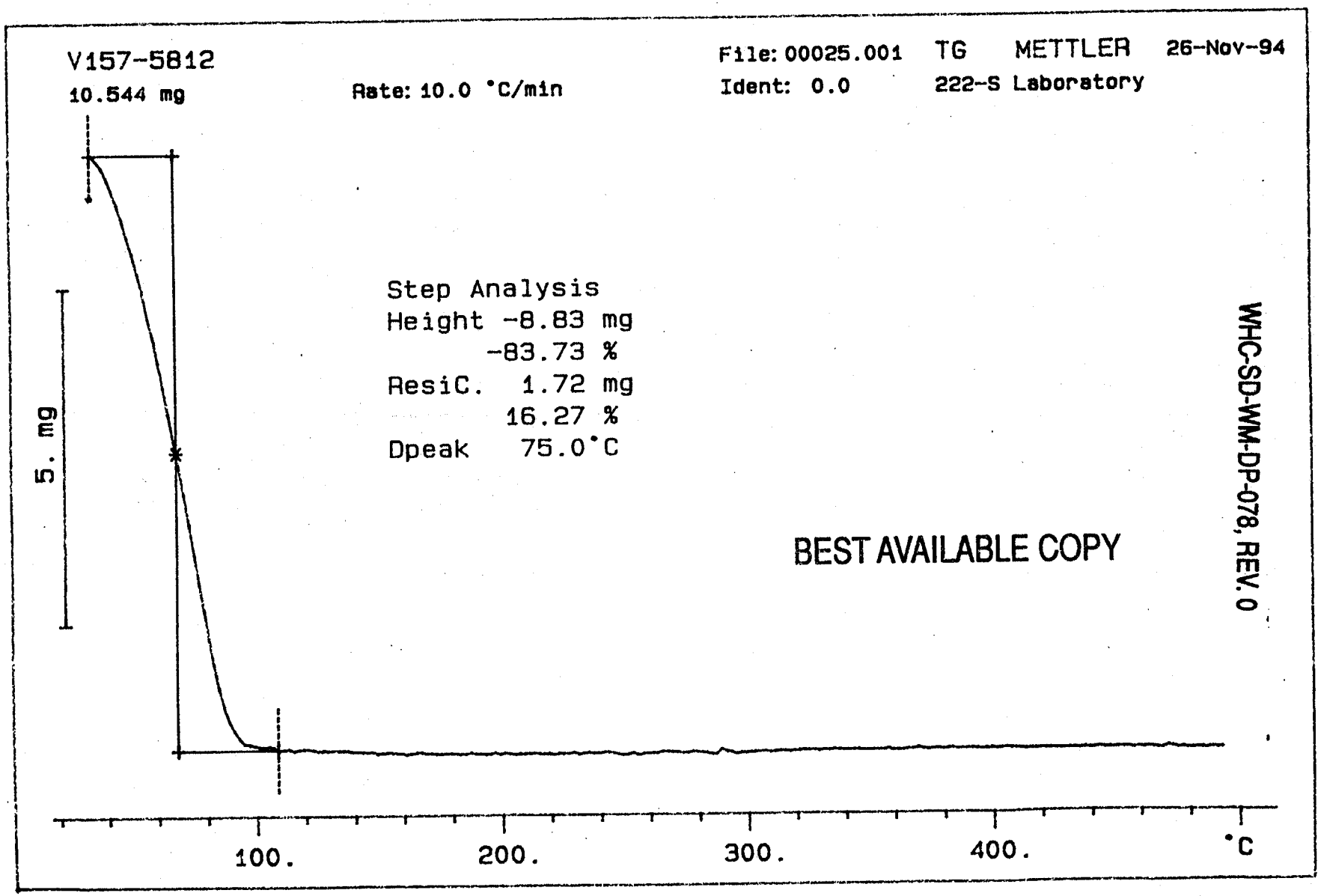
54-5800-061 (R-10-83)


TGA STD
14.805 mg
Rate: 10.0 °C/min
File: 00021.001 TG METTLER 26-Nov-94
Ident: 0.0 222-S Laboratory
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 36 TO 40.
Step Analysis
Height -8.68 mg
-58.61 %
ResiC. 6.13 mg
41.39 %
Dpeak 79.0°C
5. mg
100.
200.
300.
400.
°C
11/26/94
BEST AVAILABLE COPY
WHC-SD-WM-DP-078, REV. 0


V156-5712
8.473 mg
Rate: 10.0 °C/min
File: 00022.001 TG METTLER 26-Nov-94
Ident: 0.0 222-S Laboratory
Step Analysis
Height -8.11 mg
-95.77 %
ResiC. 0.36 mg
4.23 %
Dpeak 73.0°C
5. mg
100.
200.
300.
400.
°C
BEST AVAILABLE COPY
WHC-SD-WM-DP-078, REV. 0


V156-5812
8.722 mg
Rate: 10.0 °C/min
File: 00023.001 TG METTLER 26-Nov-94
Ident: 0.0 222-S Laboratory
Step Analysis
Height -8.37 mg
-95.99 %
ResiC. 0.35 mg
4.01 %
Dpeak 73.0°C
5. mg
100.
200.
300.
400.
°C
BEST AVAILABLE COPY
WHC-SD-WM-DP-078, REV.0


V157-5712
5.855 mg
Rate: 10.0 °C/min
File: 00024.001 TG METTLER 26-Nov-94
Ident: 0.0 222-S Laboratory
Step Analysis
Height -4.90 mg
-83.75 %
ResiC. 0.95 mg
16.25 %
Dpeak 61.0°C
2. mg
100.
200.
300.
400.
°C
BEST AVAILABLE COPY
WHC-SD-WM-DP-078, REV.0


V157-5812
10.544 mg
Rate: 10.0 °C/min
File: 00025.001 TG METTLER 26-Nov-94
Ident: 0.0 222-S Laboratory
Step Analysis
Height -8.83 mg
-83.73 %
ResiC. 1.72 mg
16.27 %
Dpeak 75.0°C
5. mg
100.
200.
300.
400.
°C
BEST AVAILABLE COPY
WHC-SD-WM-DP-078, REV. 0