This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

Document number: SD-WM-DP-103

Section 9 **of** 10

Title: Final Report for Tank 241BY106 Cores 64 & 65 & 121 [Pgs 2-1 Thru 2-182]

Date: 07/13/1996 **Revision:** R001

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References: ECN-629027

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WHC-SD-WM-DP-103, REV. 0B

WHC-SD-WM-DP-103, REV. 1

ANALYTICAL SERVICES

45-DAY SAFETY SCREENING RESULTS FOR TANK 241-BY-106, ROTARY MODE CORE 121

Project Coordinator: KEVIN E. BELL

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

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NARRATIVE

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45-DAY SAFETY SCREENING RESULTS FOR TANK BY-106, CORE 121

WHC-SD-WM-DP-103, REV. 1

SUMMARY

One core sample from tank 241-BY-106 (BY-106) was received at the 222-S Laboratories and underwent safety screening analyses - differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), total alpha activity, and bulk density measurements - in accordance with the BY-106 sampling and analysis plan (SAP) (Reference 1). Core 121 was taken in push mode using a rotary-mode sampling truck. Sample was obtained from segments 1 through 10. Hard waste precluded continued push-mode sampling to recover sample from approximately the bottom 145 cm of the tank.

None of the BY-106 samples exceeded the DSC notification limit with the upper limit of the one-sided 95% confidence interval. The upper limit of the one-sided 95% confidence intervals for total alpha activity results were below the notification limit. Tank headspace flammability was measured at 0 percent of the lower flammability limit (LFL) and no separable organic layer was observed on the one drainable liquid sample collected.

SCOPE

This is the 45-day safety screening report for tank BY-106 rotary-mode core number 121 taken from riser 5 from December 15 to December 29, 1995. The samples were received, extruded, and analyzed by the 222-S Laboratory in accordance with Reference 1.

Samples underwent analyses identified in *Tank Safety Screening Data Quality Objective* (Reference 2). This report includes results from the safety screening analyses: DSC, TGA, total alpha activity, and density. Analytical results associated with each subsample of this core sample are summarized in Table A-1 in Attachment A. In addition, statistical analysis (calculation of the 95% confidence limits for DSC, TGA, and total alpha analyses) is provided in Tables 4, 6, and 9 on a sample by sample basis.

VAPOR AND FLAMMABLE GAS DATA

Prior to intrusion into tank BY-106, the flammability of the tank headspace was measured to address the vapor flammability issue of the safety screening data quality objective. This measurement was conducted in the field and was recorded in the work package (Reference 3). The combustible gas meter reading was 0 percent of the LFL, indicating no flammability concerns with this tank.

SAMPLE RECEIPT AND EXTRUSION

Sample removal, receipt, and extrusion data are summarized for core 121 in Table 1. Table 2 provides the matrix for each subsegment from core 121, as well as each subsegment's associated sample numbers and analyses performed.

Table 1. Sample Receipt and Extrusion Information for BY-106, Core 121.

Seg.	Sample Date	Receive Date	Extrude Date	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
1	12/15/95	12/18/95	12/20/95	0.0	10.6 (upper half)	Extruded was approximately 2.5 cm of dry, crumbly saltcake, which was off white in color. The material was collected in a single jar as the upper half saltcake.
2	12/15/95	12/18/95	12/20/95	0.0	101.1 (upper half)	All sample was collected in the last 11-12 cm of the extrusion. The sample was damp saltcake with a fine texture, unlike most other saltcake observed. The color was off white except for the upper 2.5 cm, which was grey. All sample was collected in a single jar as the upper half saltcake.
3	12/15/95	12/18/95	12/20/95	0.0	209.8 (upper half) 88.9 (lower half)	No sample extruded for the first 17-18 cm. The remainder of the sampler was full of damp but crumbly saltcake that retained its shape. The sample was a medium color, however there were 3 bands of white material 1-2 cm wide that were 6-8 cm apart. The texture was roughly that of fine sand. The last 23 cm to extrude was taken as the upper half portion and the remainder was taken as the lower half portion.
4	12/15/95	12/18/95	12/20/95	0.0	220.2 (upper half) 135.4 (lower half)	No sample extruded for the first 13 cm while the rest of the sampler was full of damp, crumbly saltcake that retained its shape and had the texture of fine sand. The first 11-12 cm and the last 2.5 cm was medium grey in color. The remainder of the sample was striated with alternating rings of grey and white saltcake. The last 23 cm to extrude was taken as the upper half portion and the balance was taken as the lower half portion.

Table 1. Sample Receipt and Extrusion Information for BY-106, Core 121.

Seg.	Sample Date	Receive Date	Extrude Date	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
5	12/16/96	12/18/96	12/20/95	0.0	234.3 (upper half)	Extruded from the upper 23 cm of the sampler was damp saltcake, light to medium grey in color with the texture of fine sand. The upper 5-6 cm of sample was slightly darker than the remaining sample. The sample retained its shape in the extrusion tray. The entire sample was collected in one jar as the upper half saltcake.
6	12/16/95	12/18/95	12/20/95	0.0	286.1 (upper half)	No sample was recovered from the first 20 cm of the extrusion. The remainder of the sampler was full of grey, damp, saltcake that retained its shape in the tray. The sample had the texture of fine sand and it was collected in one jar as the upper half saltcake.
7	12/16/95	12/18/95	12/21/95	0.0	234.9	The upper 23 cm of the sampler was full of damp, grey, saltcake that retained its shape in the tray. The texture of this sample appeared to be slightly grainier than that from the previous segments. A 1 cm plug of sample found in the volume in front of the valve was discarded. The entire sample inside the sampler was taken as the upper half.
8	12/18/95	12/18/95	12/21/95	0.0	261.8 (upper half) 88.4 (lower half)	First to extrude was 5 cm of very wet saltcake of an off-white color. This was followed by a 2-3 cm gap then 8-9 cm of medium grey saltcake that was less moist (retained its shape). There was another gap of 7-8 cm followed by 27 cm of sample resembling the saltcake extruded immediately before it. The texture of this sample was grainier and appeared less homogenous than material in the preceding segments.
9	12/18/95	12/18/95	12/21/95	0.0	29.5 (upper half)	No sample was observed until the very end of the extrusion when approximately 2.5 cm of damp, dark grey, granular saltcake extruded. The sample was collected as the upper half.

Table 1. Sample Receipt and Extrusion Information for BY-106, Core 121.

Seg.	Sample Date	Receive Date	Extrude Date	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
10	12/18/95	12/22/95	1/5/96	0.0	158.6 (upper half)	The upper 18 cm of the sampler were filled with damp, medium grey saltcake that retained its shape. The upper 2-3 cm of sample was dark grey. The entire sample had the texture of fine sand and it was collected in one jar as the upper half saltcake.
10A	12/18/95	12/22/95	1/5/96	0.0	4.1 (upper half)	There was roughly 1 cm of sample bound to the sampler piston. The sample was damp and dark grey and appeared to be saltcake. The sample was collected as the upper half saltcake.
10B	12/29/95	1/3/96	1/27/96	241.5	46.8 (upper half) 161.1 (lower half)	Wet saltcake was collected from the upper and lower halves. It was moist and slush-like, appearing light gray to white in color. All of the sample was homogenized with a mortar and pestle.
FB	1/2/96	1/3/96	1/27/96	202.1	0.0	Collected clear, colorless, drainable liquid.

FB = field blank
Seg = segment

Table 2. Tank BY-106 Subsamples.

SAMPLE NUMBER	MATRIX	SEGMENT/SUBSEGMENT	ANALYSIS
S95T004167	saltcake	1/upper half	DSC, TGA
S95T004179	saltcake	1/upper half fusion	total alpha
S95T004145	saltcake	2/upper half	bulk density
S95T004168	saltcake	2/upper half	DSC, TGA
S95T004180	saltcake	2/upper half fusion	total alpha
S95T004146	saltcake	3/upper half	bulk density
S95T004169	saltcake	3/upper half	DSC, TGA
S95T004181	saltcake	3/upper half fusion	total alpha
S95T004147	saltcake	3/lower half	bulk density
S95T004170	saltcake	3/lower half	DSC, TGA
S95T004182	saltcake	3/lower half fusion	total alpha
S95T004148	saltcake	4/upper half	bulk density
S95T004171	saltcake	4/upper half	DSC, TGA
S95T004183	saltcake	4/upper half fusion	total alpha
S95T004149	saltcake	4/lower half	bulk density
S95T004172	saltcake	4/lower half	DSC, TGA
S95T004184	saltcake	4/lower half fusion	total alpha
S95T004150	saltcake	5/upper half	bulk density
S95T004173	saltcake	5/upper half	DSC, TGA
S95T004185	saltcake	5/upper half fusion	total alpha
S95T004151	saltcake	6/upper half	bulk density
S95T004174	saltcake	6/upper half	DSC, TGA
S95T004186	saltcake	6/upper half fusion	total alpha
S95T004152	saltcake	7/upper half	bulk density
S95T004175	saltcake	7/upper half	DSC, TGA
S95T004187	saltcake	7/upper half fusion	total alpha
S95T004153	saltcake	8/upper half	bulk density
S95T004176	saltcake	8/upper half	DSC, TGA

Table 2. Tank BY-106 Subsamples.

SAMPLE NUMBER	MATRIX	SEGMENT/SUBSEGMENT	ANALYSIS
S95T004188	saltcake	8/upper half fusion	total alpha
S95T004154	saltcake	8/lower half	bulk density
S95T004177	saltcake	8/lower half	DSC, TGA
S95T004189	saltcake	8/lower half fusion	total alpha
S95T004178	saltcake	9/upper half	DSC, TGA
S95T004190	saltcake	9/upper half fusion	total alpha
S96T000101	saltcake	10/upper half	bulk density
S96T000104	saltcake	10/upper half	DSC, TGA
S96T000106	saltcake	10/upper half fusion	total alpha
S96T000105	saltcake	10A/upper half	DSC, TGA
S96T000107	saltcake	10A/upper half fusion	total alpha
S96T000244	saltcake	10B/upper half	bulk density
S96T000248	saltcake	10B/upper half	DSC, TGA
S96T000250	saltcake	10B/upper half fusion	total alpha
S96T000245	saltcake	10B/lower half	bulk density
S96T000249	saltcake	10B/lower half	DSC, TGA
S96T000251	saltcake	10B/lower half fusion	total alpha
S96T000258	liquid	10B/liquid	DSC, TGA, total alpha, organic layer
S96T000279	liquid	field blank	TGA, organic layer

ANALYTICAL RESULTS

Differential Scanning Calorimetry

Analysis by DSC was performed on the 16 saltcake samples and the one liquid sample from tank BY-106. The analyses were performed under a nitrogen purge using procedures LA-514-113, Rev. C-1 (Mettler[1] instrument) and LA-514-114, Rev. C-1 (Perkin-Elmer[2] instrument). Reference 1 specifies only procedure LA-514-113, however procedure LA-514-114 is analytically equivalent and is used interchangeably with the specified procedure. Since both instruments were used during the DSC analyses, it must be noted that the two instruments produce raw data scans which present exotherms differently. On the Mettler instrument, an exotherm is represented by a peak, while the Perkin-Elmer instrument shows an exotherm as a valley.

Results are presented in Table A-1 and are summarized in Table 3 below. Two samples showed any exothermic behavior, and the highest result (102.4 J/g) was below the safety screening notification limit of 480 J/g (dry weight basis) specified in Reference 2. In addition, the sample did not exceeded 480 J/g (dry) at the 95% confidence level.

Table 3. Summary of DSC Results for Tank 241-BY-106.

Matrix	Differential Scanning Calorimetry Results		Average of All Runs (J/g dry)
	Lower Bound (J/g dry)	Upper Bound (J/g dry)	
Saltcake	0	102.4	11.2
Liquid	0	0	0

Reference 1 requires that the precision, as measured by the relative percent difference (RPD) between sample and duplicate runs, is within 10 percent. The RPD values for the DSC results were all within 10 percent, except for sample S95T004168. Only the duplicate result for that sample displayed an exotherm, therefore the RPD was 200% on that sample. No re-run was requested due to the low value of the exotherm and because the exotherm was most likely a result of sample inhomogeneity. Sample S95T004178 from the upper half of segment 9 was re-run on the Mettler instrument when examination of the DSC scans indicated that the sample may have displayed an exotherm. An exotherm was found on the re-run sample. The DSC accuracy is determined by the LMCS control standard recovery. All standard recoveries of tank BY-106 samples were within the specified accuracy requirements in Reference 1.

Statistical analyses were performed on the DSC data from tank BY-106 per the requirements of Reference 2, which requires comparison of sample data to the applicable notification limit (e.g. less than 480 J/g by DSC) with a 95% confidence level. For the samples that exhibited

[1] Mettler is a registered trademark of Mettler Electronics, Anaheim, California.

[2] Perkin-Elmer is a registered trademark of Perkins Research and Manufacturing Company, Inc., Canoga Park, California.

exotherms, the results, sample mean, and the upper limit (UL) to the 95% confidence interval are presented in Table 4. As shown, no sample exceeded the 480 J/g (dry) safety screening criterion at the 95 percent confidence limit.

Table 4. Statistical Analyses for Tank 241-BY-106 DSC Results.

Sample #	DSC Result (J/g dry)	DSC Duplicate (J/g dry)	DSC Average (J/g dry)	UL(mean) (J/g dry)
S95T004168	0	17.3	8.65	63.3
S95T004178	0	0	0	0
S95T004178 R	102.4	92.8	97.6	127.9

R = re-run.

Thermogravimetric Analysis (Percent Moisture)

Analyses for percent water by TGA were performed on the samples using procedures LA-560-112, Rev. B-1 (Mettler instrument) and LA-514-114, Rev. C-1 (Perkin-Elmer instrument). Reference 1 specifies only procedure LA-560-112, however procedure LA-514-113 is analytically equivalent and is used interchangeably with the specified procedure. All samples were run under a nitrogen atmosphere. The TGA results for the tank BY-106 samples are summarized in Table 5. For each matrix, the lower and upper bounds of the subsegments results and the average result are given.

Table 5. Summary of TGA Results for Tank 241-BY-106.

Matrix	Thermogravimetric Results		Average (wt %)
	Lower Bound (wt %)	Upper Bound (wt %)	
Saltcake	6.31	48.93	23.97
Liquid	49.56	51.38	50.47

There is no notification limit for TGA results, however Reference 2 requires comparison of the one-sided 95% confidence limit to 17 weight percent water. Statistical analyses for the 95% confidence interval were performed on the TGA data from tank BY-106, comparing the lower limit (LL) of the interval to the value of 17% water. For each sample submitted for TGA analysis, the sample and duplicate results, the mean, and the lower limit to the 95% confidence interval are presented in Table 6.

Table 6. Statistical Analyses of Tank 241-BY-106 TGA Results.

Sample #	TGA Result (% wt. loss)	TGA Duplicate (% wt. loss)	TGA Average (% wt. loss)	LL(mean) (% wt. loss)
S95T004167	17.45	15.06	16.26	8.71
S95T004168	30.84	30.50	30.67	29.60

S95T004169	21.57	17.91	19.74	8.19
S95T004170	27.47	19.02	23.25	0
S95T004171	12.70	12.05	12.38	10.32
S95T004172	15.58	12.74	14.16	5.19
S95T004173	19.45	20.58	20.02	16.45
S95T004174	14.91	14.60	14.76	13.78
S95T004175	17.37	16.08	16.73	12.65
S95T004176	26.58	30.19	28.39	16.99
S95T004177	36.63	37.00	---	---
S95T004177[1]	38.64	33.85	36.53	34.19
S95T004178	29.53	21.02	---	---
S95T004178[1]	30.42	24.54	26.38	21.19
S96T000104	10.49	6.31	8.40	0
S96T000105	18.47	18.35	18.41	18.03
S96T000248	45.28	36.81	N/A	N/A
S96T000248 R	48.82	48.86	48.84	48.71
S96T000249	48.24	48.93	48.59	46.41
S96T000258	49.56	51.38	50.47	44.87

[1] A TGA analysis was also performed on a second instrument for comparison purposes. All four data points were used in calculation of the mean and lower 95% confidence limit.

R = re-run values. % wt. loss = percent weight loss from original sample weight.

Out of the 16 saltcake samples and one liquid sample analyzed, 6 samples yielded average percent water results below 17%. In addition to these 6 samples, 10 samples have the lower limit (LL) to the 95% confidence interval below 17 weight percent water. None of the 10 samples with low percent water displayed exotherms in their corresponding DSC scans.

The maximum acceptable precision for the TGA analysis per Reference 1 is an RPD of 10% between the primary and duplicate sample results. For TGA results, the RPD values ranged from 0.08 to 49.8, with 7 of the samples having RPD values which exceeded the precision allowance. Sample S96T000248, from the upper half of segment 10B, was re-run with satisfactory results. Additional reruns were not requested since there were no exotherms associated with these samples. The TGA accuracy is determined by the LMCS control standard recovery. All standard recoveries of tank BY-106 subsegments were within the specified accuracy requirements in Reference 1.

Examination of the raw TGA data showed that the percent moisture was calculated on samples 4169 and 4170 based on weight loss past 300° C, even though there is an inflection point at approximately 190° C. Recalculation of the percent moisture values based on weight loss to 190° was not possible due to loss of the digital data. Visual examination of the scans indicate that the correction would amount to less than 5 percent of the reported values.

Bulk Density

Bulk density was determined on solid subsamples according to procedure LO-160-103, Rev. B-0.

Table 7. Summary of Bulk Density and Results for Tank 241-BY-106.

Matrix	Bulk Density Results		Average
	Lower Bound	Upper Bound	
Saltcake	1.43 g/mL	1.89 g/mL	1.7 g/mL

Density measurements were not made on 4 of the subsegments due to insufficient sample recovery. In this situation, the density analysis was not performed in order to have sufficient material with which to run the chemical, physical, and radiological analyses. No duplicate analyses were performed as part of the bulk density measurements, so no estimate of precision can be made. Further, no standard or spike is run with this analysis, so there is no accuracy evaluation possible.

Total Alpha

Analysis for total alpha activity was performed on saltcake and drainable liquid samples using procedure LA-508-101, Rev. D-2. Saltcake samples were prepared by fusion digestion per procedure LA-549-141, Rev. D-0 prior to analysis. Since tank BY-106 is on the Ferrocyanide Watch List, a zirconium crucible rather than a nickel crucible was used to perform the fusion preparation, and is identified by a "Z" in the aliquot or "A" column of data summary Table A-1.

In order to determine the notification limit for this analysis, the limit of 1 g/L specified in References 1 and 2 was converted to units of microcuries per gram using the density of the BY-106 waste material. The highest density result obtained for any subsegment (1.89 g/mL) was used in this calculation, which yielded a conservative notification limit of 32.5 uCi/g.

All 16 saltcake samples and the one liquid sample analyzed from tank BY-106 were analyzed for total alpha activity. None of the samples produced results which exceeded the notification limit. The lower and upper bound results and the average total alpha activity for each matrix is summarized in Table 8.

Table 8. Summary of Total Alpha Analysis Results for Tank 241-BY-106.

Matrix	Total Alpha Analysis Results		Average[1]
	Lower Bound	Upper Bound	
Saltcake (μCi/g)	<1.62E-03	3.19E-02	8.50E-03
Liquid (μCi/mL)	<4.86E-03	<1.97E-02	1.23E-02

[1] Results below the detection limit were taken at their nominal values.

Calculation of the 95% confidence intervals were performed on the total alpha data from tank BY-106 per the requirements of Reference 1. The UL of the interval was compared to the notification limit of 32.5 uCi/g. For each subsegment submitted for total alpha analysis, the sample and duplicate results, mean, and the UL to the 95% confidence interval are shown in Table 9. None of the 17 subsamples analyzed for total alpha activity produced upper limit results which exceeded the notification criteria, indicating that tank BY-106 may be considered "safe" from a criticality perspective.

The range of RPD values for the 15 samples with results greater than the detection limit was from 2.85E-03 to 3.19E-02 μCi/g, with 9 of the samples above the acceptable precision requirement of 10% RPD. The high RPD values are attributed to low sample activity. All spike recoveries were below the 90-110% recovery specified in Reference 1. Samples S96T000106, 107, 250, and 251 were re-run due to the low spike recovery and/or high RPD. Values for RPD improved for samples 107 and 251, but worsened for sample 106.

Samples 250 and 251, two of the four samples that were spiked, did show improvement in the spike recoveries, although they were still below 90%. The low spike recovery is most likely due to a high solids content in the sample, which attenuates alpha detection. Additional re-runs were not performed since the sample with the most activity was more than 1000 times lower than the notification limit.

Table 9. Statistical Analyses for Tank 241-BY-106 Total Alpha Results.

Sample #	Total Alpha Result (μCi/g)	Total Alpha Duplicate (μCi/g)	Total Alpha Average[1] (μCi/g)	UL(mean) (μCi/g)
S95T004179	<1.73E-03	<2.29E-03	2.10E-03	3.78E-03
S95T004180	5.09E-03	5.59E-03	5.34E-03	6.92E-03
S95T004181	8.74E-03	6.28E-03	7.51E-03	1.53E-02
S95T004182	7.86E-03	7.45E-03	7.66E-03	8.95E-03
S95T004183	1.28E-02	1.20E-02	1.24E-02	1.49E-02
S95T004184	1.78E-02	1.19E-02	1.49E-02	3.35E-02
S95T004185	1.46E-03	1.70E-02	1.58E-02	2.34E-02
S95T004186	9.62E-03	1.20E-02	1.08E-02	1.83E-02
S95T004187	<3.40E-03	5.65E-03	2.83E-03	2.07E-02
S95T004188	1.05E-02	9.34E-03	9.92E-03	1.36E-02
S95T004189	1.14E-02	1.49E-02	1.32E-02	2.42E-02
S95T004190	1.00E-02	6.74E-03	8.37E-03	1.87E-02
S96T000106	4.98E-03	5.61E-03	N/A	N/A
S96T000106 R	2.85E-03	4.74E-03	3.80E-03	9.26E-03
S96T000107	3.13E-02	2.97E-02	N/A	N/A
S96T000107 R	3.16E-02	3.19E-02	3.18E-02	3.27E-02
S96T000250	5.34E-03	4.67E-03	N/A	N/A
S96T000250 R	<1.62E-03	<3.35E-03	2.49E-03	7.95E-03
S96T000251	9.73E-03	3.91E-03	N/A	N/A
S96T000251 R	4.93E-03	5.49E-03	5.21E-03	6.98E-03
S96T000258	<4.86E-03	<1.97E-02	1.23E-02	5.91E-02

[1] Results below the detection limit were taken at their nominal values.
R = re-run.

Presence of an Organic Layer

The drainable liquid present in segment 10B and the field blank were visually examined for the presence of a separable organic layer according to procedure LA-519-151, Rev. E-2. There were no indications of any separable organic layer present in either sample.

Project Coordinator: Kevin E. Bell

References:

(1) Bell, K. E., *Tank 241-BY-106 Rotary Core Sampling and Analysis Plan*, WHC-SD-WM-TSAP-050, Rev. 1A, Westinghouse Hanford Company, Richland, Washington.

(2) Babad, H., J. W. Hunt, and K. S. Redus, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, dated August 31, 1995, Westinghouse Hanford Company, Richland, Washington.

(3) Tank Farms Operations, work package ES-95-00508, Westinghouse Hanford Company, Richland, Washington.

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SAMPLE DATA SUMMARY

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INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004167			% Water by TGA using Mettler	%	100.2	n/a	17.45	1.506e1	1.625e1	14.7	n/a	n/a	n/a
S95T004167			DSC Exotherm using Mettler	Joules/g	101.6	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004179		Z	Alpha of Digested Solid	uCi/g	86.75	<2.260e-3	<1.73e-03	<2.29E-3	n/a	n/a	69.90	4.000e-3	5.00E+02

INTERIM

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INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004145			Bulk Density of Sample	g/mL	n/a	n/a	1.800	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004168			% Water by TGA using Mettler	%	100.2	n/a	30.84	3.050e1	3.067e1	1.11	n/a	n/a	n/a
S95T004168			DSC Exotherm using Mettler	Joules/g	106.5	n/a	0.00e+00	1.200e1	6.000e0	200	n/a	n/a	n/a
S95T004180		Z	Alpha of Digested Solid	uCi/g	83.72	<3.620e-3	5.09e-03	5.590e-3	5.340e-3	9.36	73.98	5.000e-3	8.73E+01

INTERIM

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INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004146			Bulk Density of Sample	g/mL	n/a	n/a	1.870	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004169			% Water by TGA using Mettler	%	101.8	n/a	21.57	1.791e1	1.974e1	18.5	n/a	n/a	n/a
S95T004169			DSC Exotherm on Perkin Elmer	Joules/g	97.89	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004181		Z	Alpha of Digested Solid	uCi/g	83.72	<3.620e-3	8.74e-03	6.280e-3	7.510e-3	32.8	68.11	5.000e-3	5.92E+01

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004147			Bulk Density of Sample	g/mL	n/a	n/a	1.680	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004170			% Water by TGA using Mettler	%	101.8	n/a	27.47	1.902e1	2.324e1	36.4	n/a	n/a	n/a
S95T004170			DSC Exotherm on Perkin Elmer	Joules/g	97.89	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004182		Z	Alpha of Digested Solid	uCi/g	83.72	<3.620e-3	7.86e-03	7.450e-3	7.660e-3	5.36	n/a	5.000e-3	6.39E+01

INTERIM

INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004148			Bulk Density of Sample	g/mL	n/a	n/a	1.790	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004171			% Water by TGA using Mettler	%	101.7	n/a	12.70	1.205e1	1.238e1	5.25	n/a	n/a	n/a
S95T004171			DSC Exotherm on Perkin Elmer	Joules/g	97.75	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004183		Z	Alpha of Digested Solid	uCi/g	102.0	4.00e-03	1.28e-02	1.200e-2	1.240e-2	6.45	n/a	5.000e-3	3.80E+01

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004149			Bulk Density of Sample	g/mL	n/a	n/a	1.760	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004172			% Water by TGA using Mettler	%	101.6	n/a	15.58	1.274e1	1.416e1	20.1	n/a	n/a	n/a
S95T004172			DSC Exotherm on Perkin Elmer	Joules/g	97.75	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004184		Z	Alpha of Digested Solid	uCi/g	102.0	4.00e-03	1.78e-02	1.190e-2	1.490e-2	39.7	n/a	5.000e-3	3.41E+01

INTERIM

INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 5

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004150			Bulk Density of Sample	g/mL	n/a	n/a	1.640	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004173			% Water by TGA using Mettler	%	101.6	n/a	19.45	2.058e1	2.002e1	5.65	n/a	n/a	n/a
S95T004173	1		DSC Exotherm on Perkin Elmer	Joules/g	98.59	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004173			DSC Exotherm on Perkin Elmer	Joules/g	96.34	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004185		Z	Alpha of Digested Solid	uCi/g	99.40	<1.420e-3	1.46e-02	1.700e-2	1.580e-2	15.2	88.70	4.000e-3	3.12E+01

INTERIM

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Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 6

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004151			Bulk Density of Sample	g/mL	n/a	n/a	1.700	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004174			% Water by TGA using Mettler	%	101.6	n/a	14.91	1.460e1	1.475e1	2.10	n/a	n/a	n/a
S95T004174	1		DSC Exotherm on Perkin Elmer	Joules/g	99.54	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004174			DSC Exotherm on Perkin Elmer	Joules/g	96.34	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004186		Z	Alpha of Digested Solid	uCi/g	102.0	4.00e-03	9.62e-03	1.200e-2	1.080e-2	22.0	n/a	6.000e-3	5.05E+01

INTERIM

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INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 7

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004152			Bulk Density of Sample	g/mL	n/a	n/a	1.810	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004175			% Water by TGA using Mettler	%	101.9	n/a	17.37	1.608e1	1.673e1	7.71	n/a	n/a	n/a
S95T004175			DSC Exotherm on Perkin Elmer	Joules/g	98.03	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004187	Z		Alpha of Digested Solid	uCi/g	90.00	<3.400e-3	<3.40e-03	5.650e-3	n/a	n/a	n/a	8.000e-3	5.00E+02

INTERIM

INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 8

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004153			Bulk Density of Sample	g/mL	n/a	n/a	1.470	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004176			% Water by TGA using Mettler	%	101.9	n/a	26.58	3.019e1	2.838e1	12.7	n/a	n/a	n/a
S95T004176			DSC Exotherm on Perkin Elmer	Joules/g	98.03	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004188		Z	Alpha of Digested Solid	uCi/g	90.00	<3.400e-3	1.05e-02	9.340e-3	9.920e-3	11.7	80.10	7.000e-3	5.19E+01

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004154			Bulk Density of Sample	g/mL	n/a	n/a	1.430	n/a	n/a	n/a	n/a	5.000e-1	n/a
S95T004177			% Water by TGA on Perkin Elmer	%	102.2	n/a	38.64	3.385e1	3.625e1	13.2	n/a	n/a	n/a
S95T004177			% Water by TGA using Mettler	%	101.7	n/a	36.63	3.700e1	3.681e1	1.01	n/a	n/a	n/a
S95T004177			DSC Exotherm on Perkin Elmer	Joules/g	97.05	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004189		Z	Alpha of Digested Solid	uCi/g	90.00	<3.400e-3	1.14e-02	1.490e-2	1.320e-2	26.6	75.77	8.000e-3	6.09E+01

INTERIM

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INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 9

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004178			% Water by TGA on Perkin Elmer	%	102.2	n/a	30.42	2.454e1	2.748e1	21.4	n/a	n/a	n/a
S95T004178			% Water by TGA using Mettler	%	101.7	n/a	29.53	2.102e1	2.527e1	33.7	n/a	n/a	n/a
S95T004178			DSC Exotherm on Perkin Elmer	Joules/g	97.05	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S95T004178			DSC Exotherm using Mettler	Joules/g	109.7	n/a	75.40	6.830e1	7.185e1	4.94	n/a	n/a	n/a
S95T004190		Z	Alpha of Digested Solid	uCi/g	90.00	<3.400e-3	1.00e-02	6.740e-3	8.370e-3	38.9	76.53	9.000e-3	6.70E+01

INTERIM

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Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 10

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000101			Bulk Density of Sample	g/mL	n/a	n/a	1.660	n/a	n/a	n/a	n/a	5.000e-1	n/a
S96T000104			% Water by TGA using Mettler	%	101.5	n/a	10.49	6.310e0	8.400e0	49.8	n/a	n/a	n/a
S96T000104			DSC Exotherm on Perkin Elmer	Joules/g	96.80	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T000106		Z	Alpha of Digested Solid	uCi/g	98.80	<3.670e-3	2.85e-03	4.740e-3	3.800e-3	49.8	n/a	4.000e-3	1.20E+02

INTERIM

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INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 10A

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000105			% Water by TGA using Mettler	%	101.5	n/a	18.47	1.835e1	1.841e1	0.65	n/a	n/a	n/a
S96T000105			DSC Exotherm on Perkin Elmer	Joules/g	96.80	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T000107		Z	Alpha of Digested Solid	uCi/g	98.80	<3.670e-3	3.16e-02	3.190e-2	3.180e-2	0.94	n/a	5.000e-3	2.33E+01

INTERIM

INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: 10B

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000248	1		% Water by TGA on Perkin Elmer	%	102.2	n/a	48.82	4.886e1	4.884e1	0.08	n/a	n/a	n/a
S96T000248			% Water by TGA on Perkin Elmer	%	101.9	n/a	45.28	3.681e1	4.105e1	20.6	n/a	n/a	n/a
S96T000248			DSC Exotherm on Perkin Elmer	Joules/g	95.04	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T000250		Z	Alpha of Digested Solid	uCi/g	98.80	<3.670e-3	<1.62e-03	<3.35E-3	n/a	n/a	87.50	4.000e-3	5.00E+02

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000245			Bulk Density of Sample	g/mL	n/a	n/a	1.890	n/a	n/a	n/a	n/a	5.000e-1	n/a
S96T000249			% Water by TGA on Perkin Elmer	%	101.6	n/a	48.24	4.893e1	4.859e1	1.42	n/a	n/a	n/a
S96T000249			DSC Exotherm on Perkin Elmer	Joules/g	95.04	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T000251		Z	Alpha of Digested Solid	uCi/g	98.80	<3.670e-3	4.93e-03	5.490e-3	5.210e-3	10.7	83.67	5.000e-3	7.68E+01

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000258			% Water by TGA using Mettler	%	100.7	n/a	49.56	5.138e1	5.047e1	3.61	n/a	n/a	n/a
S96T000258			DSC Exotherm using Mettler	Joules/g	103.0	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T000258			Alpha in Liquid Samples	uCi/mL	96.08	<5.650e-3	<4.86e-03	<1.97e-2	n/a	n/a	n/a	1.200e-2	500.0

INTERIM

INTERIM

Table A-1. Analytical Summary Table for BY-106, Core 121.
BY-106

CORE NUMBER: 121
SEGMENT #: n/a

SEGMENT PORTION: Field Blank

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000279			% Water by TGA on Perkin Elmer	%	101.2	n/a	99.88	9.904e1	9.946e1	0.84	n/a	n/a	n/a

INTERIM

WHC-SD-WM-DP-103, REV. 0-B

INORGANIC ANALYSES

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LABCORE Data Entry Template for Worklist# 4926

Analyst: ADP Instrument: DSC0 1 Book # 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

WHC-SD-WM-DP-103, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	28.9*	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004167	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S95T004167	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
		4	STD				DSC-01	SOLID	28.45	30.3*	N/A	Joules/g
95000229	BY-106	5	SAMPLE	S95T004168	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000229	BY-106	6	DUP	S95T004168	0		DSC-01	SOLID	Ø	12.0	N/A	Joules/g

Final page for worklist# 4926

See attached for signatures
Analyst Signature Date 1/25/96

Linda Conlin 1/29/96
Analyst Signature Date

Verified by Blandina Valenzuela BDV 1/29/96

Data Entry Comments: S95T004167 produced two endotherms one at 136.0°C with a delta H of 354.4J/g and the second at 296.0°C with a delta H of 74.0J/g
S95T004168 produced two endotherms one at 129.5°C with a delta H of 823.8J/g and second at 264.1°C with a delta H of 69.6J/g.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 4926

Analyst: ADP **Instrument:** DSC0 1 **Book #** 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

WHC-SD-WM-DP-103, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	28.9*	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004167	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004167	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004168	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004168	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 4926

1-20-96

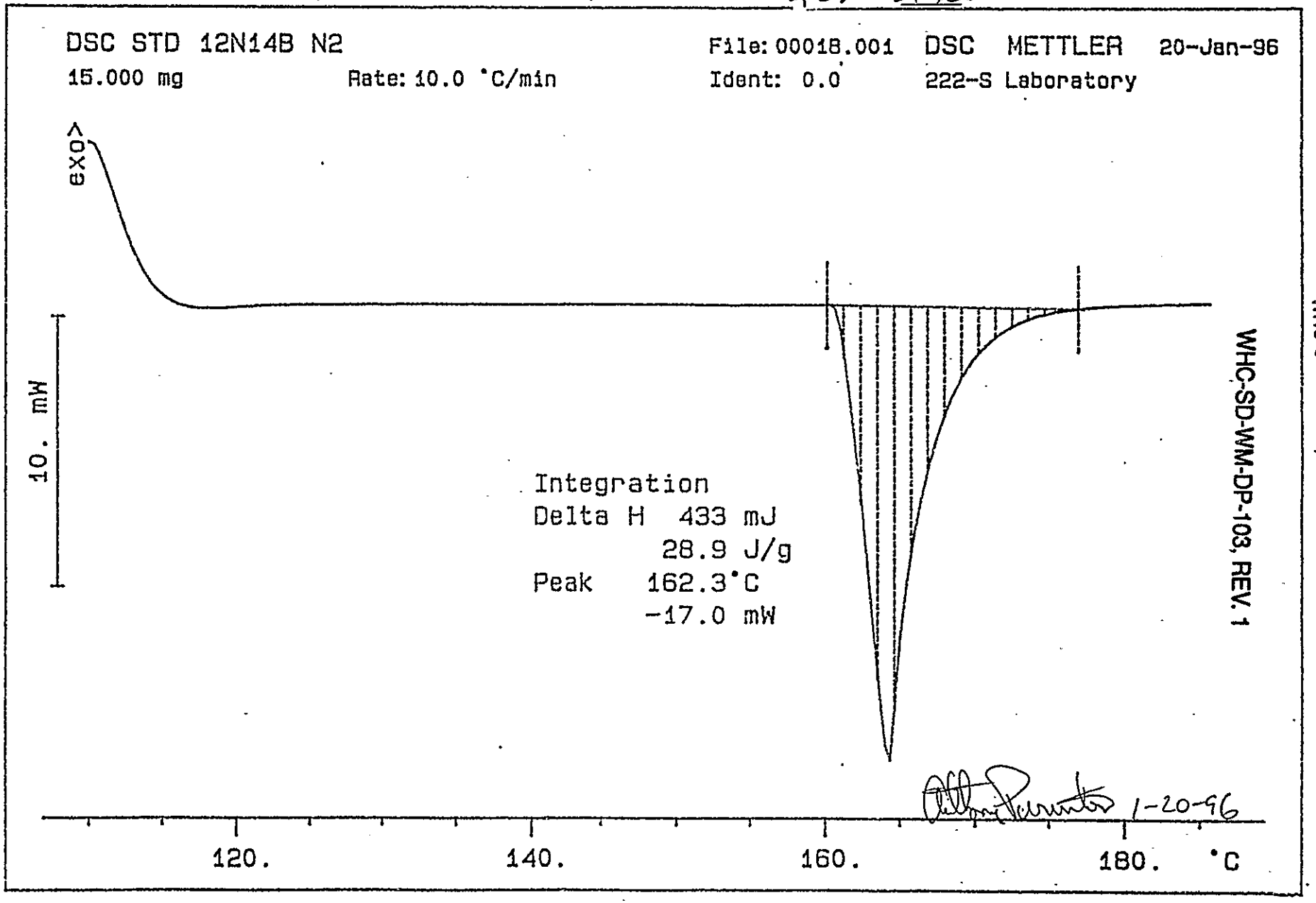
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-37 TO 2-42

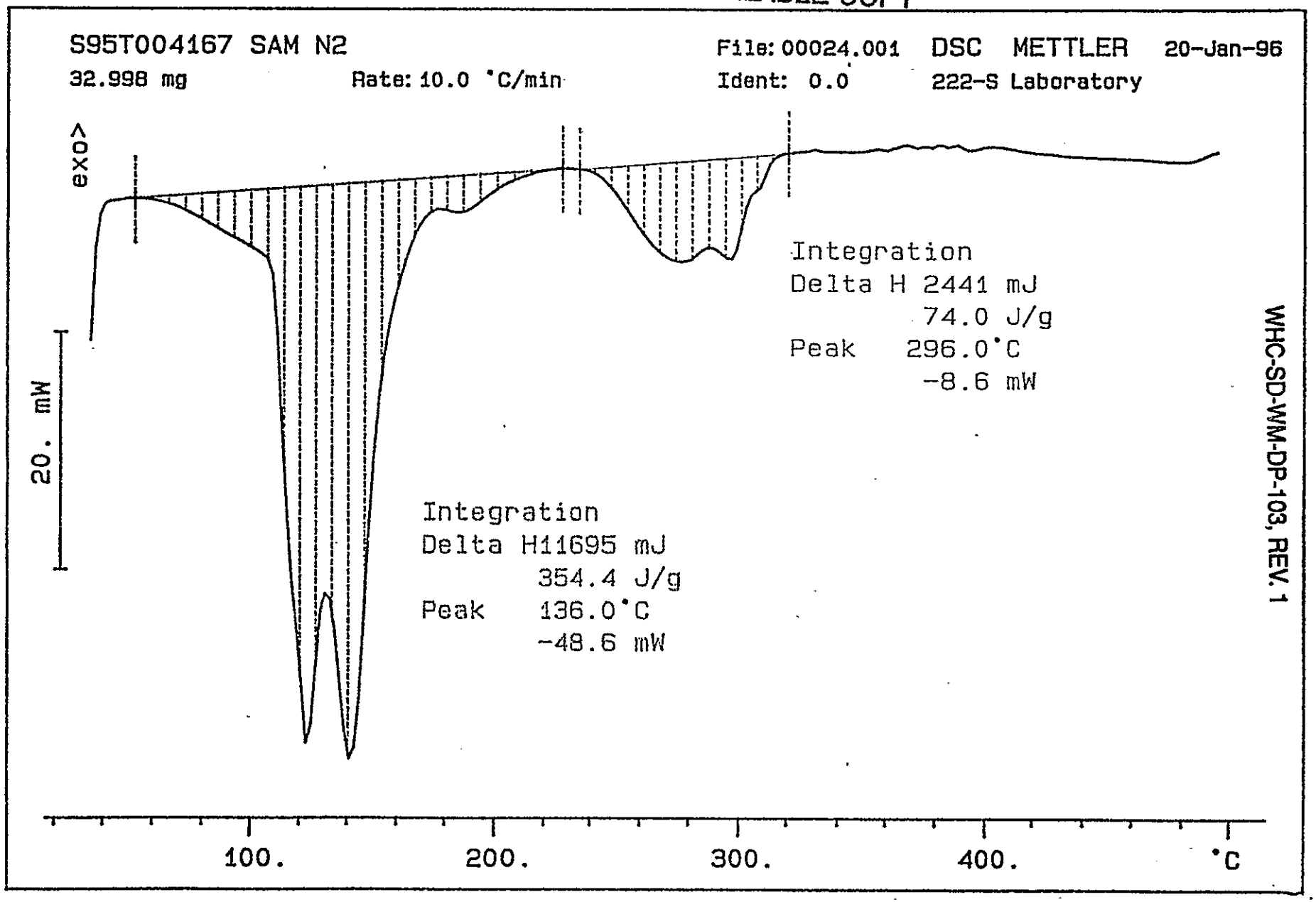


1-20-96

WHC-SD-WM-DP-103, REV. 1

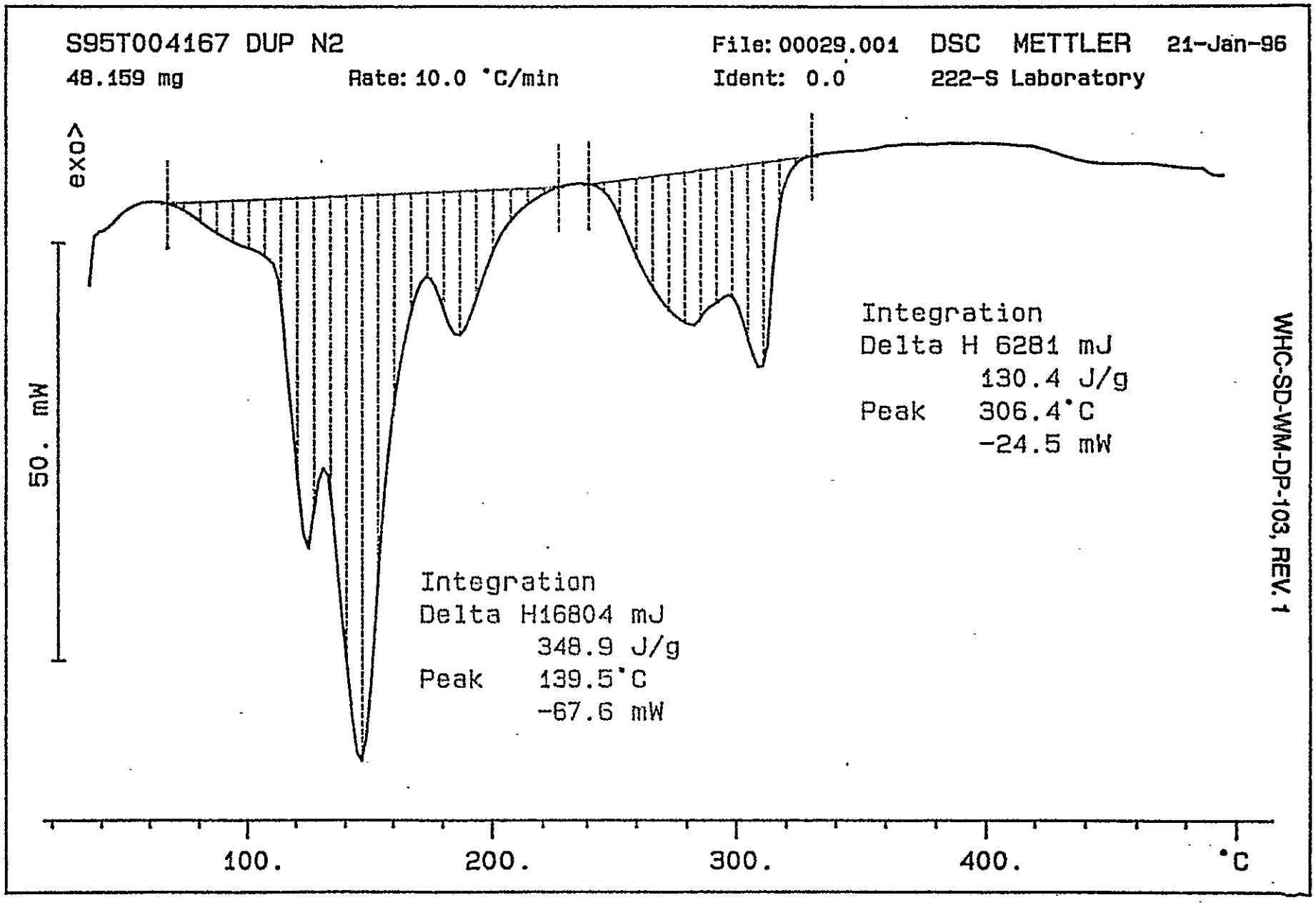
WHC-SD-WM-DP-103, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 1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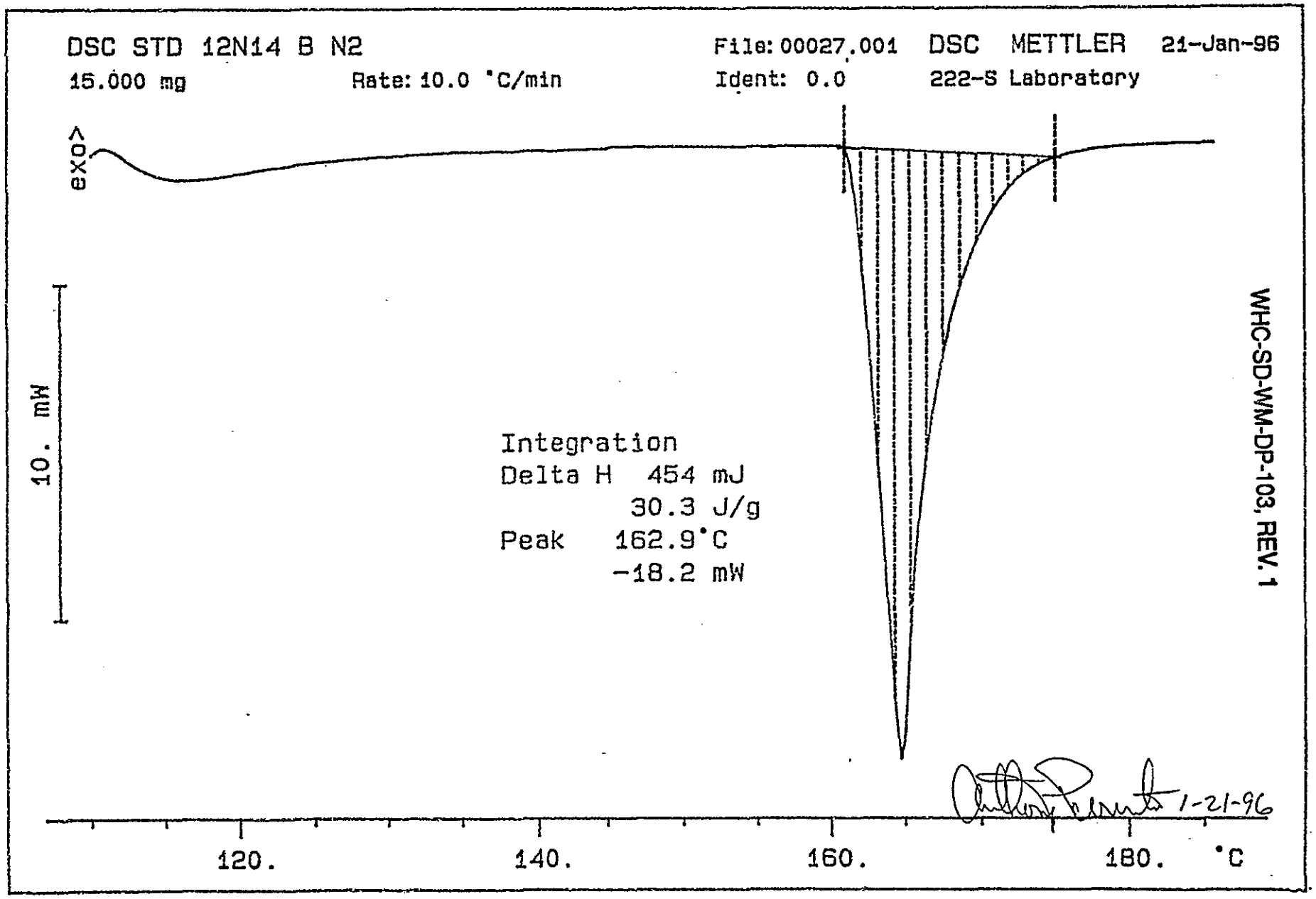
Rate: 10.0 °C/min
File: 00029.001
Ident: 0.0
DSC METTLER
222-S Laboratory
21-Jan-96
exo>
50. mW
Integration
Delta H 6281 mJ
130.4 J/g
Peak 306.4°C
-24.5 mW
Integration
Delta H16804 mJ
348.9 J/g
Peak 139.5°C
-67.6 mW
100.
200.
300.
400.
°C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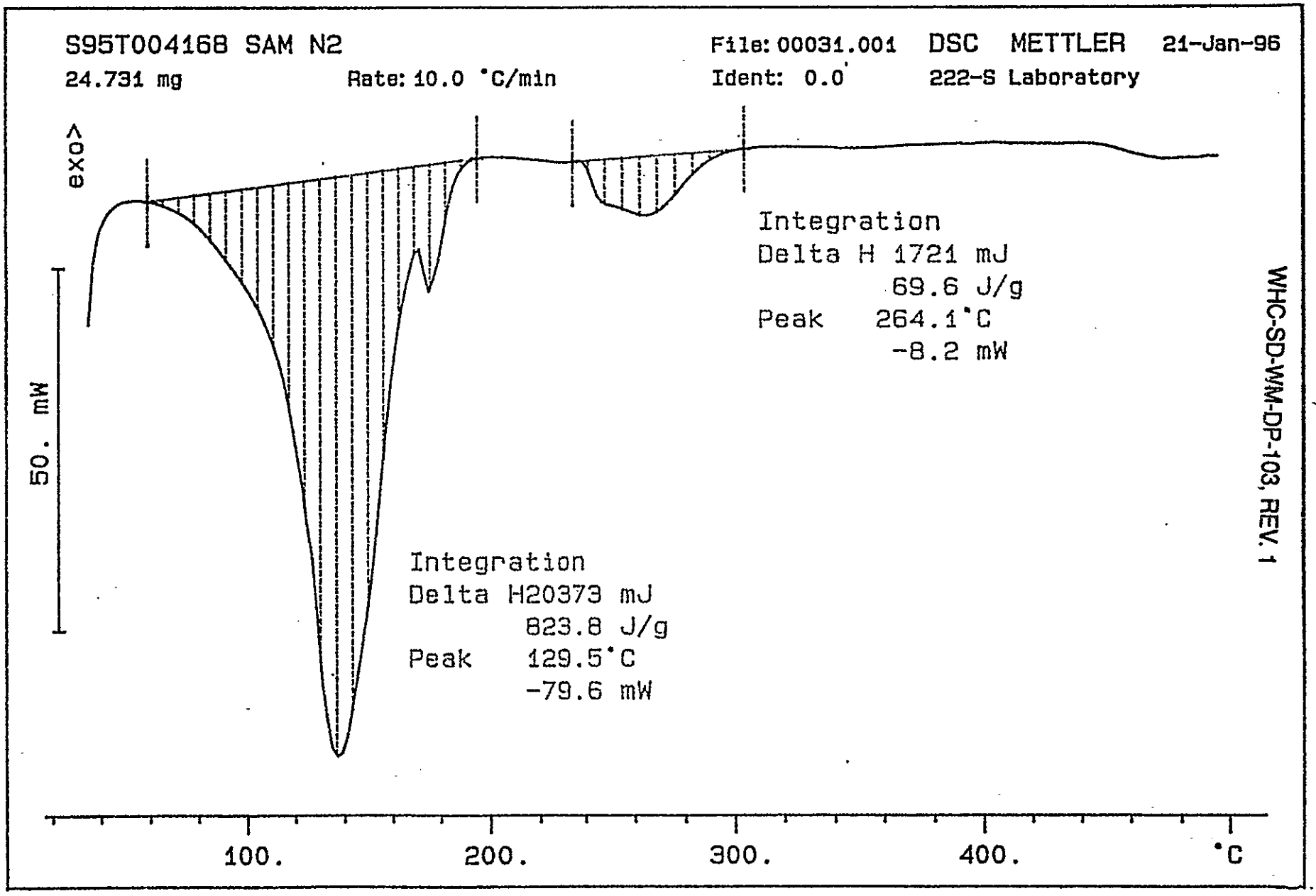
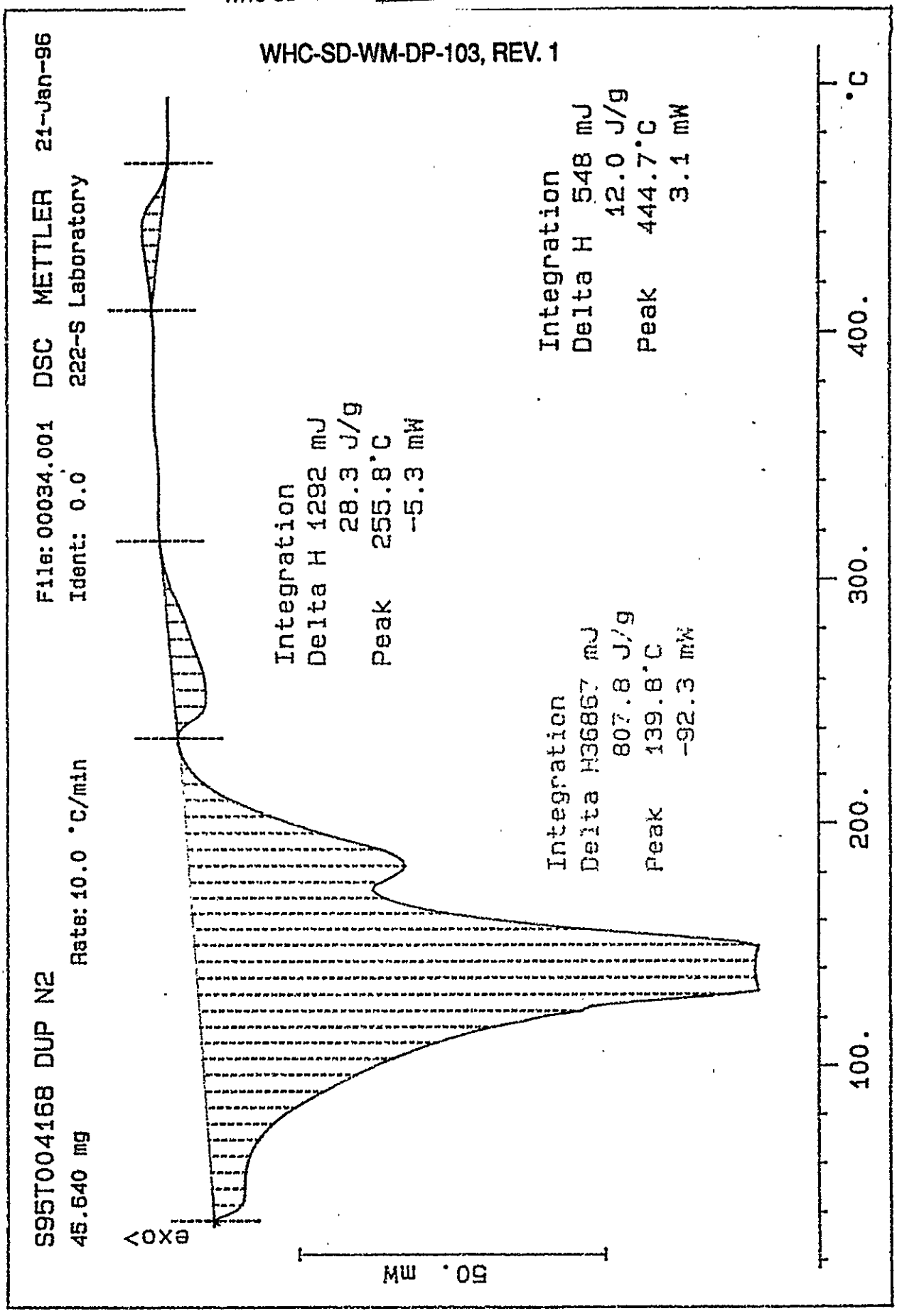
15.000 mg
Rate: 10.0 °C/min
File: 00027.001
Ident: 0.0
DSC METTLER
222-S Laboratory
21-Jan-96
exo>
10. mW
Integration
Delta H 454 mJ
30.3 J/g
Peak 162.9°C
-18.2 mW
120.
140.
160.
180.
°C
1-21-96


S95T004168 SAM N2
24.731 mg
Rate: 10.0 °C/min
File: 00031.001
Ident: 0.0
DSC METTLER
222-S Laboratory
21-Jan-96
<exo
50. mW
Integration
Delta H 1721 mJ
69.6 J/g
Peak 264.1°C
-8.2 mW
Integration
Delta H20373 mJ
823.8 J/g
Peak 129.5°C
-79.6 mW
100.
200.
300.
400.
°C

WHC-SD-WM-DP-103, REV. 1

BEST AVAILABLE COPY



LABCORE Data Entry Template for Worklist# 4927

Analyst: PJM **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod C-1 **WHC-SD-WM-DP-103, REV. 1**

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	SOLID	28.45	27.85	N/A	Joules/g
95000229	BY-106	2 SAMPLE	S95T004169	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3 DUP	S95T004169	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4 TRIPL	S95T004169	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	5 SAMPLE	S95T004170	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	6 DUP	S95T004170	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	7 TRIPL	S95T004170	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4927

See attached for signatures
Analyst Signature Date 2/28/96 BDV

Verified by Blandina Valenzuela 2/29/96

[illegible signature] 2-28-96
Analyst Signature Date

S95T004169 produced one large endotherm that ranged from 40°C – 300°C without coming back down to baseline.

Data Entry Comments: S95T004170 produced two endotherms, one at 133.86°C with a delta H of 869.33 J/g and second at 275.35°C with a delta H of 13.1 J/g.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 4927

Analyst: BHL Instrument: DSC0 Book # 12N14B

Method: LA-514-~~113~~ 114 Rev/Mod C-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ Run 2/1/96

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004169	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004169	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004170	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004170	0		DSC-01	SOLID			N/A	Joules/g

TrD

Final page for worklist # 4927

RJMcCann 2/1/96
Analyst Signature Date

Analyst Signature Date

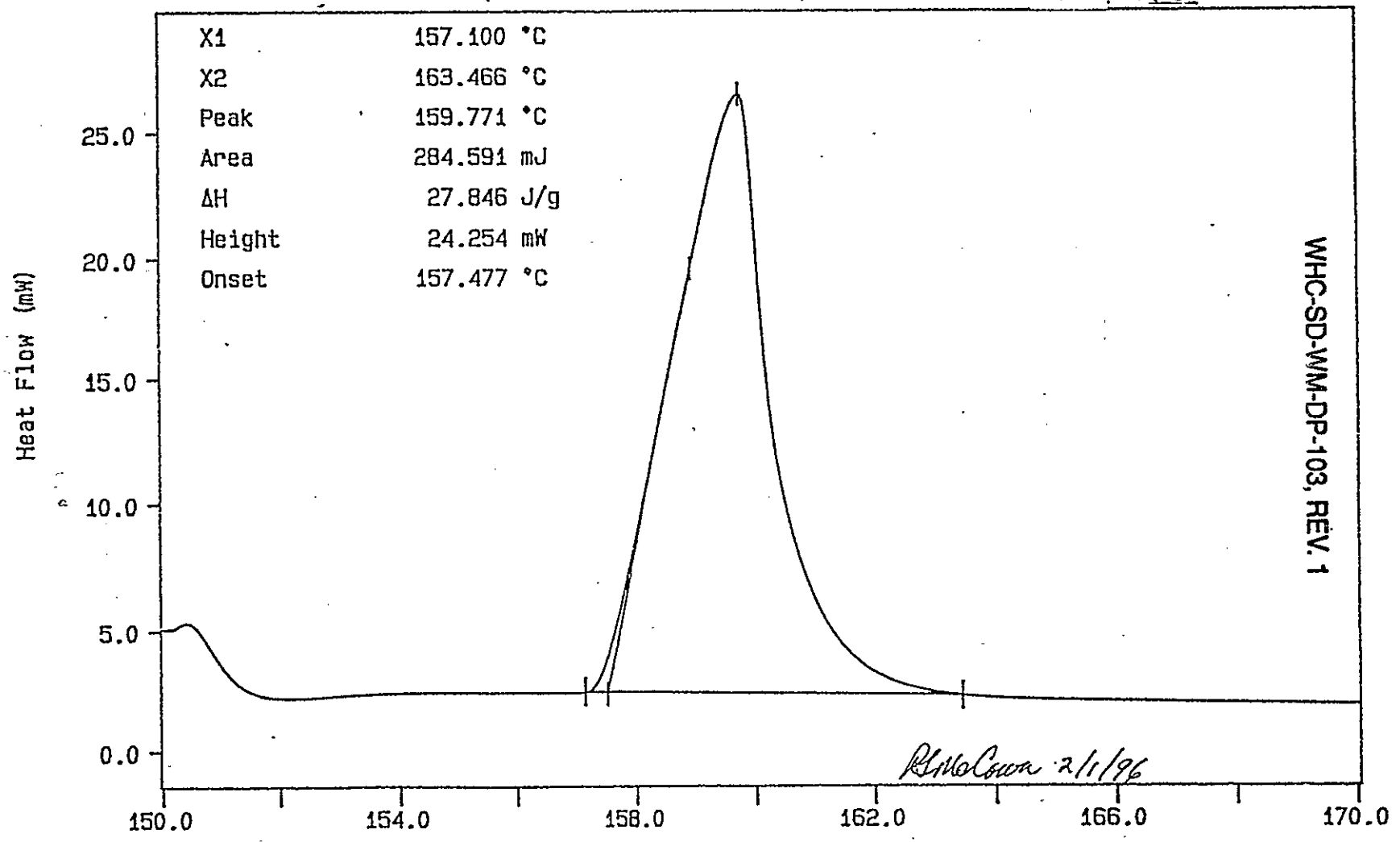
Other instrument was used. 2/29/96 BDV

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND020101 Thu Feb 1 00:06:02 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 245 TO 251



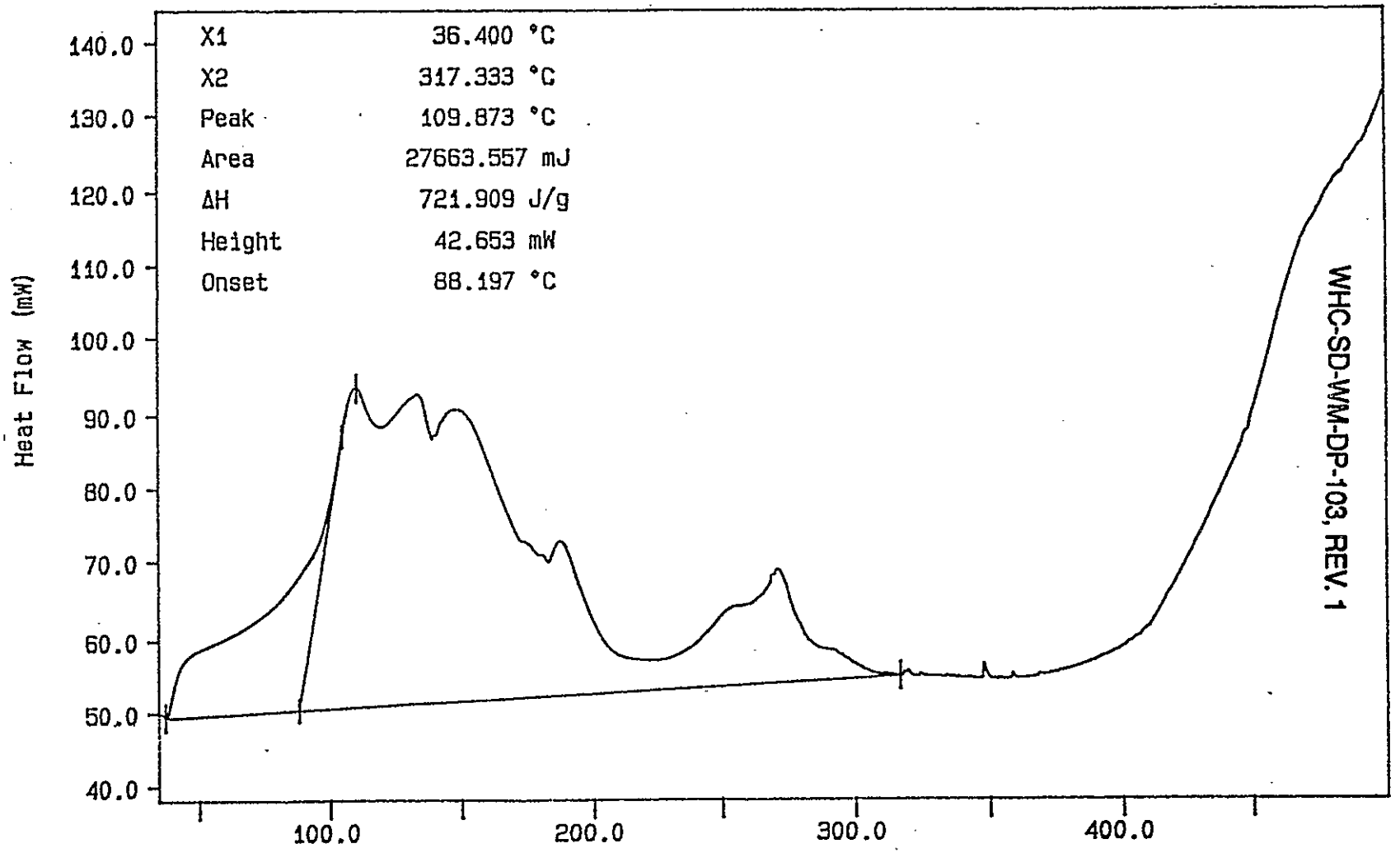
N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 00:10:07 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 28

Curve 1: DSC
File info: SAM020101 Thu Feb 1 01:55:01 1996
Sample Weight: 38.320 mg
S95T004169 SAM

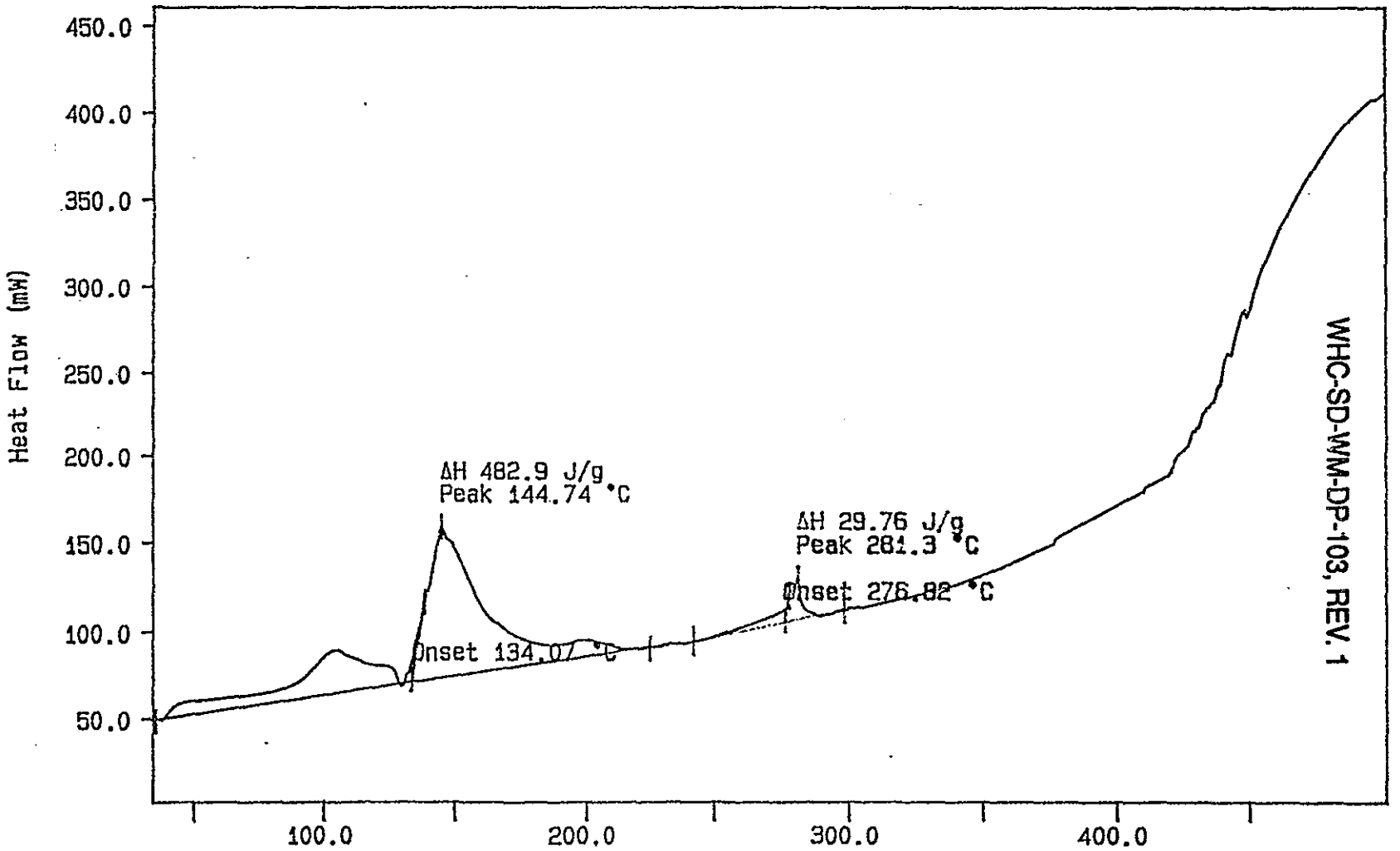


exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 02:32:28 1996

WHC-SD-WM-DP-103, REV. 0

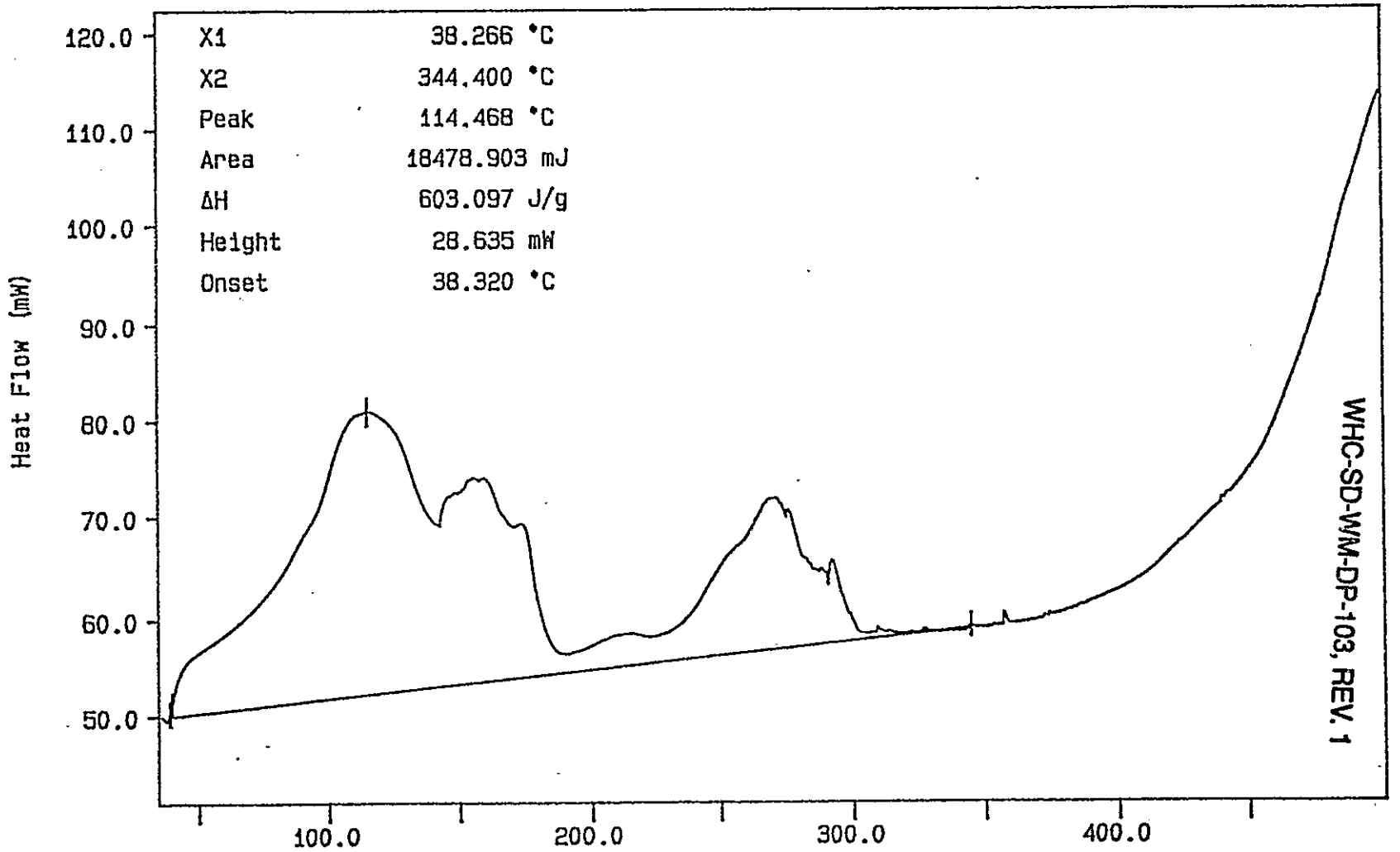
Curve 1: DSC
File info: SAM020102 Thu Feb 1 03:31:27 1996
Sample Weight: 40.870 mg
S95T004169 DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 03:36:41 1996

Curve 1: DSC
File info: SAM020103 Thu Feb 1 04:40:41 1996
Sample Weight: 30.640 mg
S95T004169 TRIP

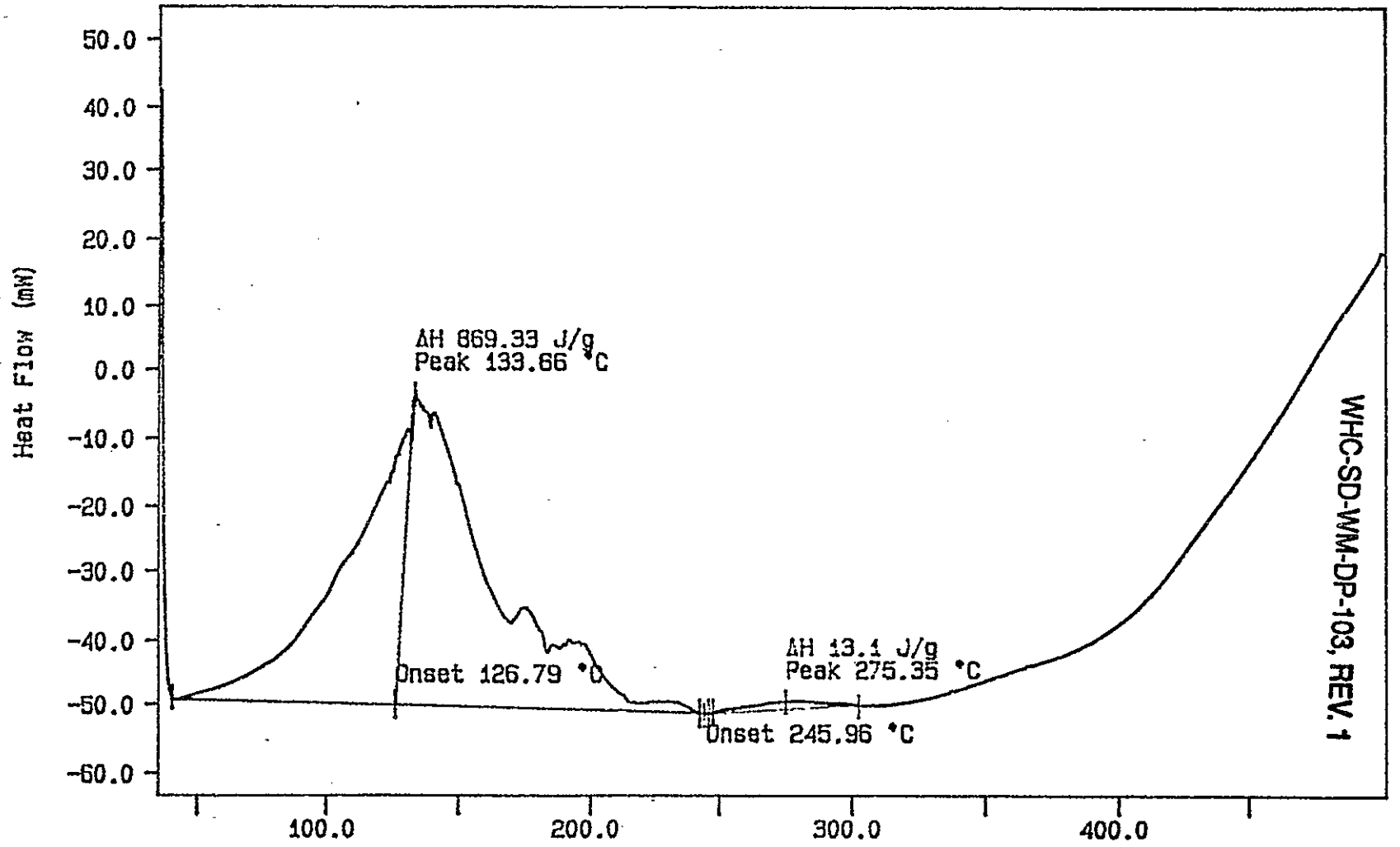


exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 04:41:48 1996

WHC-SD-WM-DP-123, REV. 23

Curve 1: DSC
File info: SAM010106 Thu Feb 1 12:02:42 1996
Sample Weight: 19.240 mg
S95T004170 DUP



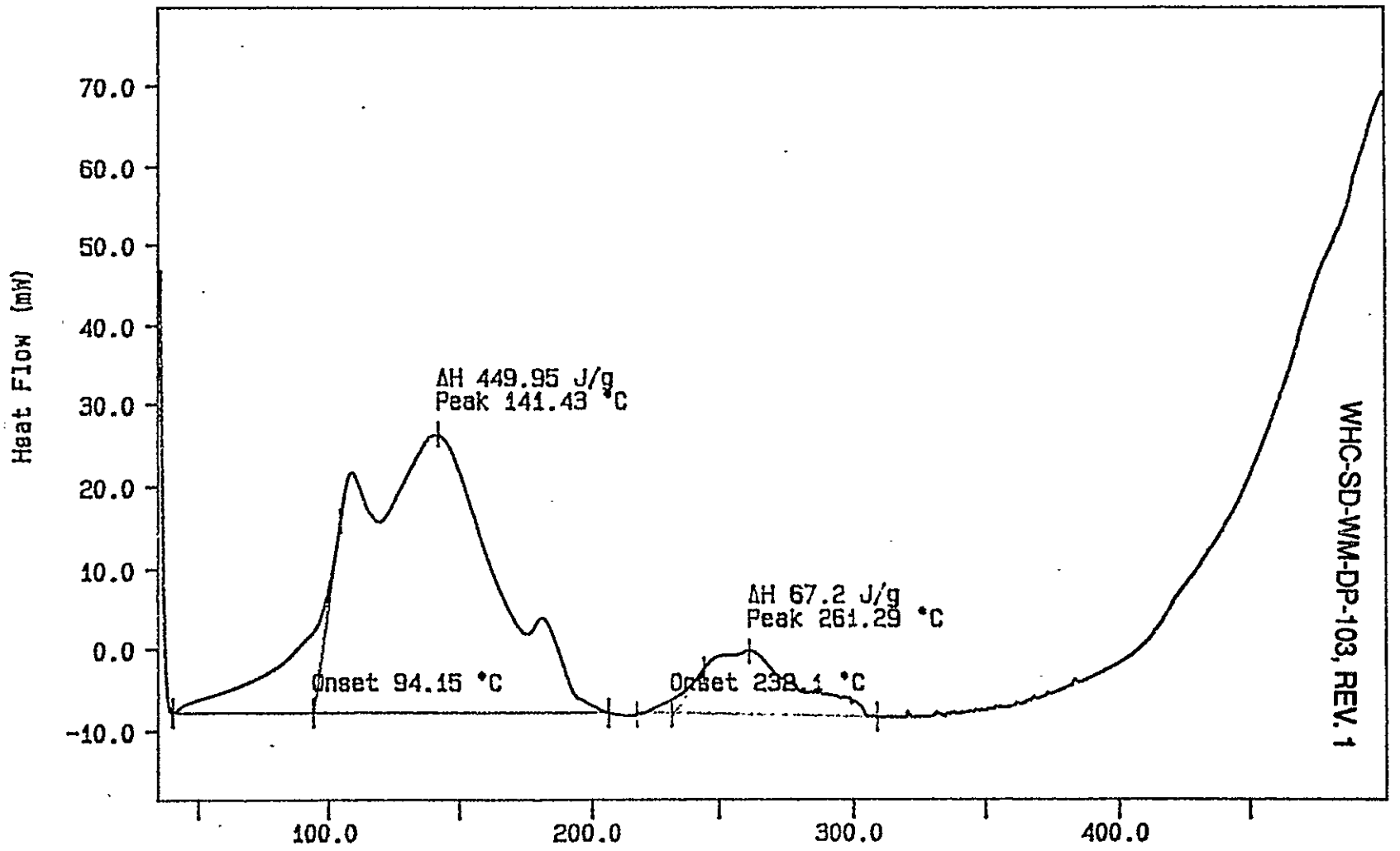
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 12:37:03 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV 1

Curve 1: DSC
File info: SAM020105 Thu Feb 1 10:04:08 1996
Sample Weight: 31.050 mg
S95T004~~172 DUP~~ 4170 SAM



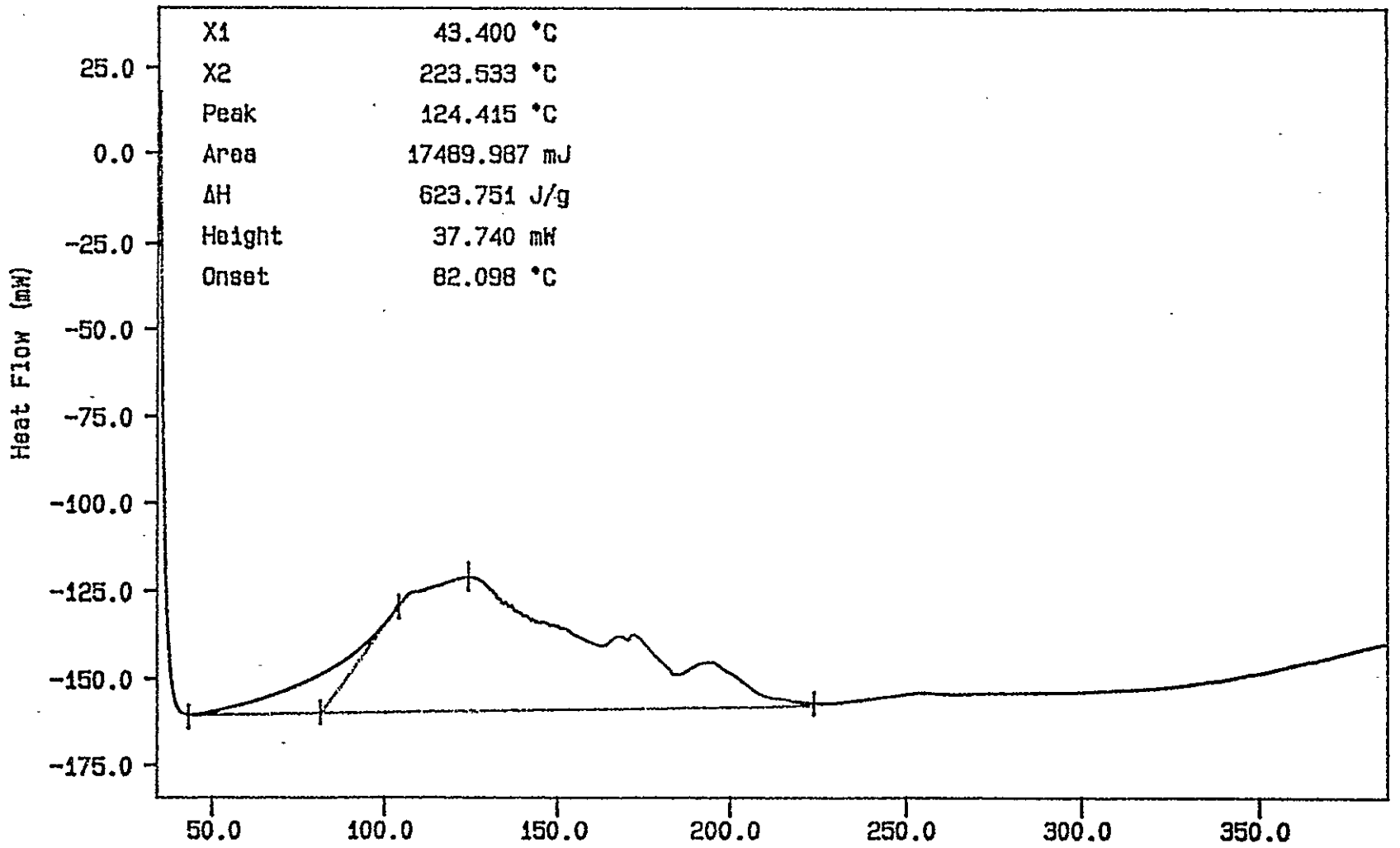
exotherm down, N2 purge gas
TEMP1: 50.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 10:30:59 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0B

Curve 1: DSC
File info: SAM020107 Thu Feb 1 13:23:40 1996
Sample Weight: 28.040 mg
S95T004170 TRP



exotherm down, N2 purge gas
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 15:44:26 1996

LABCORE Data Entry Template for Worklist# 4928

Analyst: ADP Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod C-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	28.45	27.81 *	N/A	Joules/g
95000229	BY-106	2 SAMPLE	S95T004171	0	DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3 DUP	S95T004171	0	DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4 SAMPLE	S95T004172	0	DSC-03	SOLID	N/A	Ø		Joules/g
		5 STD			DSC-03	SOLID	28.45	28.02	N/A	Joules/g
95000229	BY-106	6 DUP	S95T004172	0	DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4928

See attached for signatures

Analyst Signature Date 2-1-96 Analyst Signature Date

Verified by Blandina Valenzuela ~~5/2/96~~ BGV 2/5/96 2/5/96

Data Entry Comments: S95T004171 produced two endotherms one at 124.55°C with a delta H of 315.68 J/g and second at 274.79°C with a delta H of 135.33 J/g.
S95T004172 produced two endotherms one at 107.7°C with a delta H of 366.94 J/g and second at 275.64°C with a delta H of 112.57

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 4928

Analyst: ADP **Instrument:** DSC0 **Book #** 12N14B

Method: LA-514-113 Rev/Mod C-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004171	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004171	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004172	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004172	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 4928

Anthony Pennuto 1-31-96
Analyst Signature Date

Anthony Pennuto 2-1-96

R C Wright 2/2/96
Analyst Signature Date

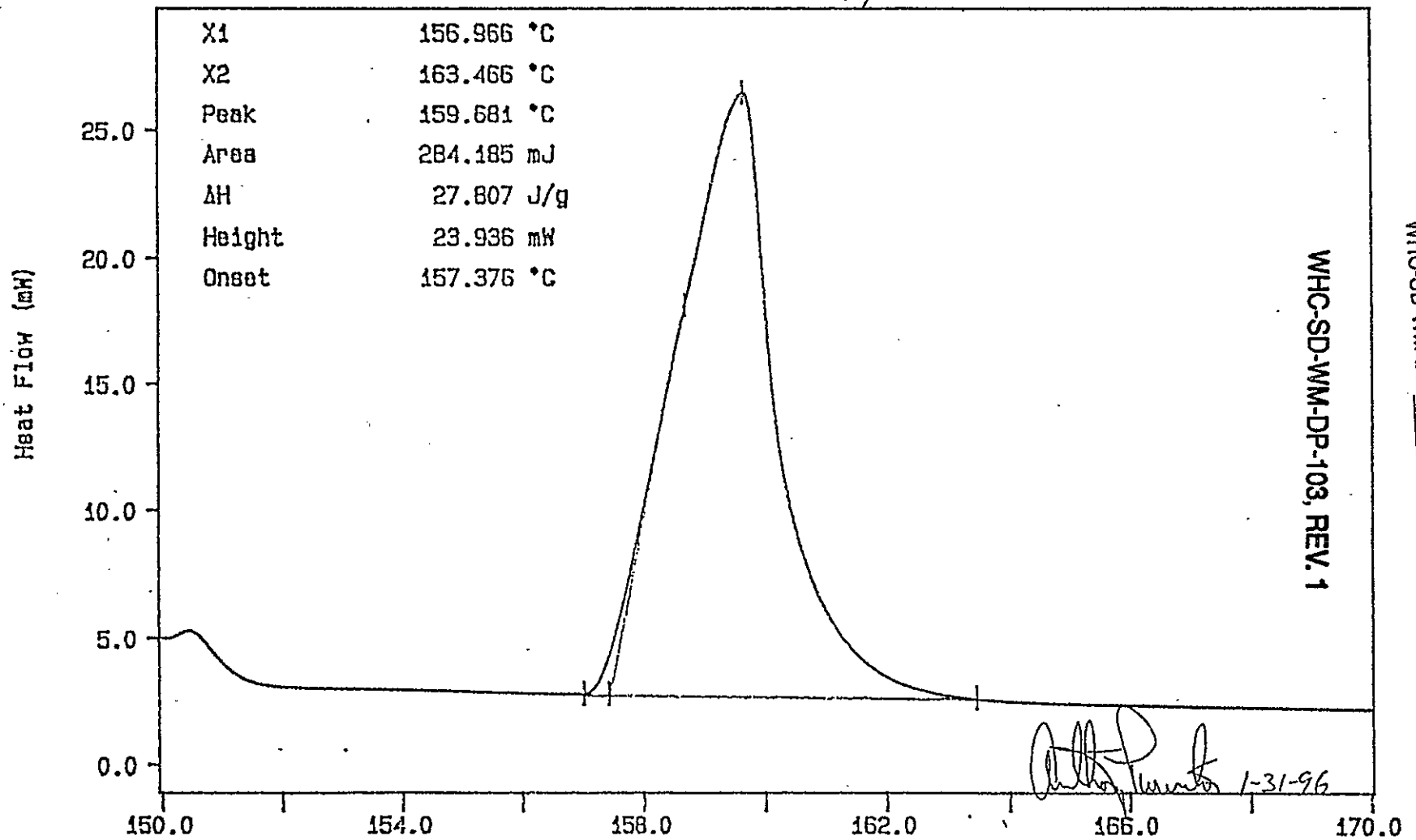
Other instrument was used
2-1-96
BBV

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND013101 Wed Jan 31 06:33:22 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 254 TO 259.

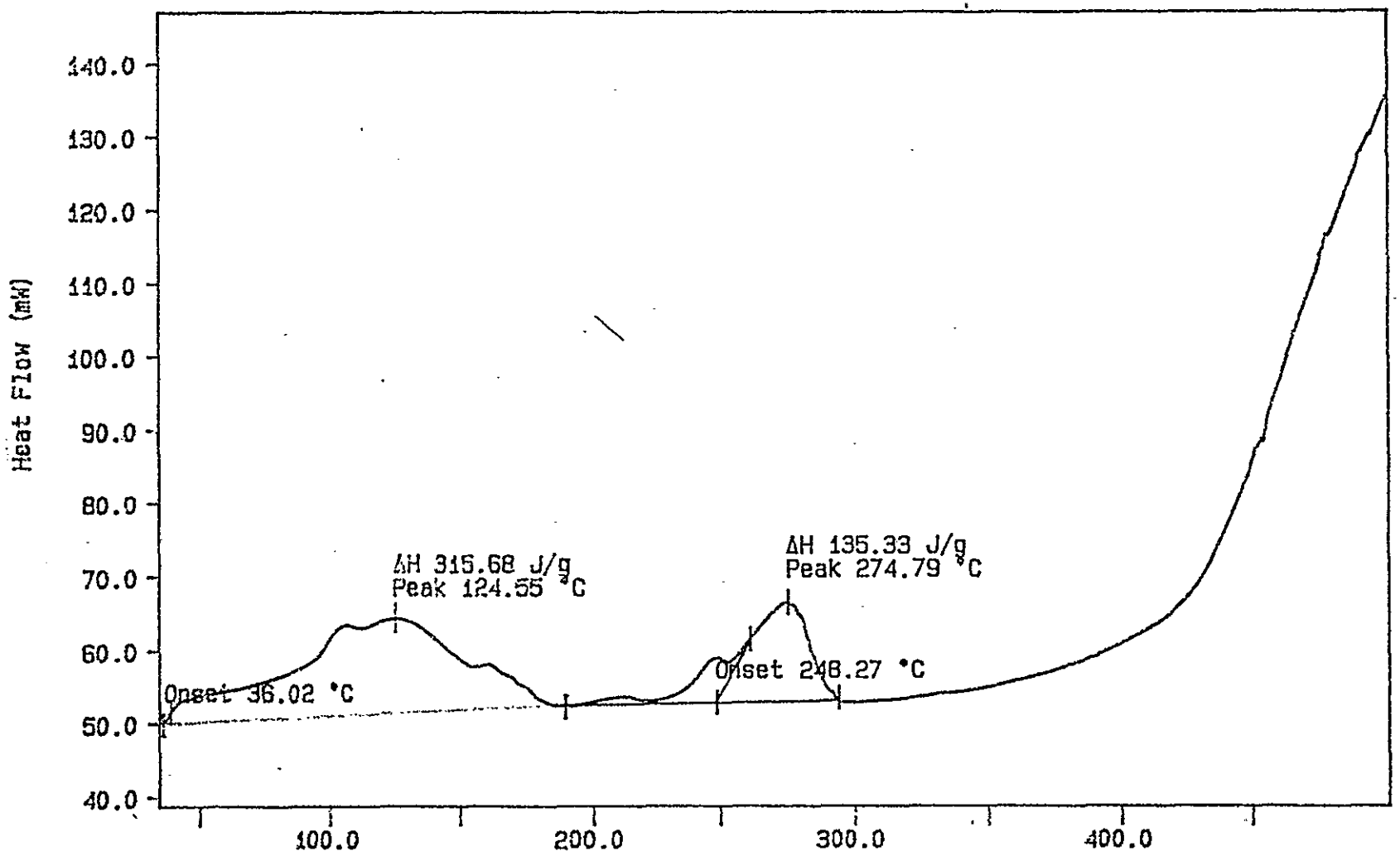


N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 31 06:41:48 1996

WHC-SD-WM-DP-103, REV. 0

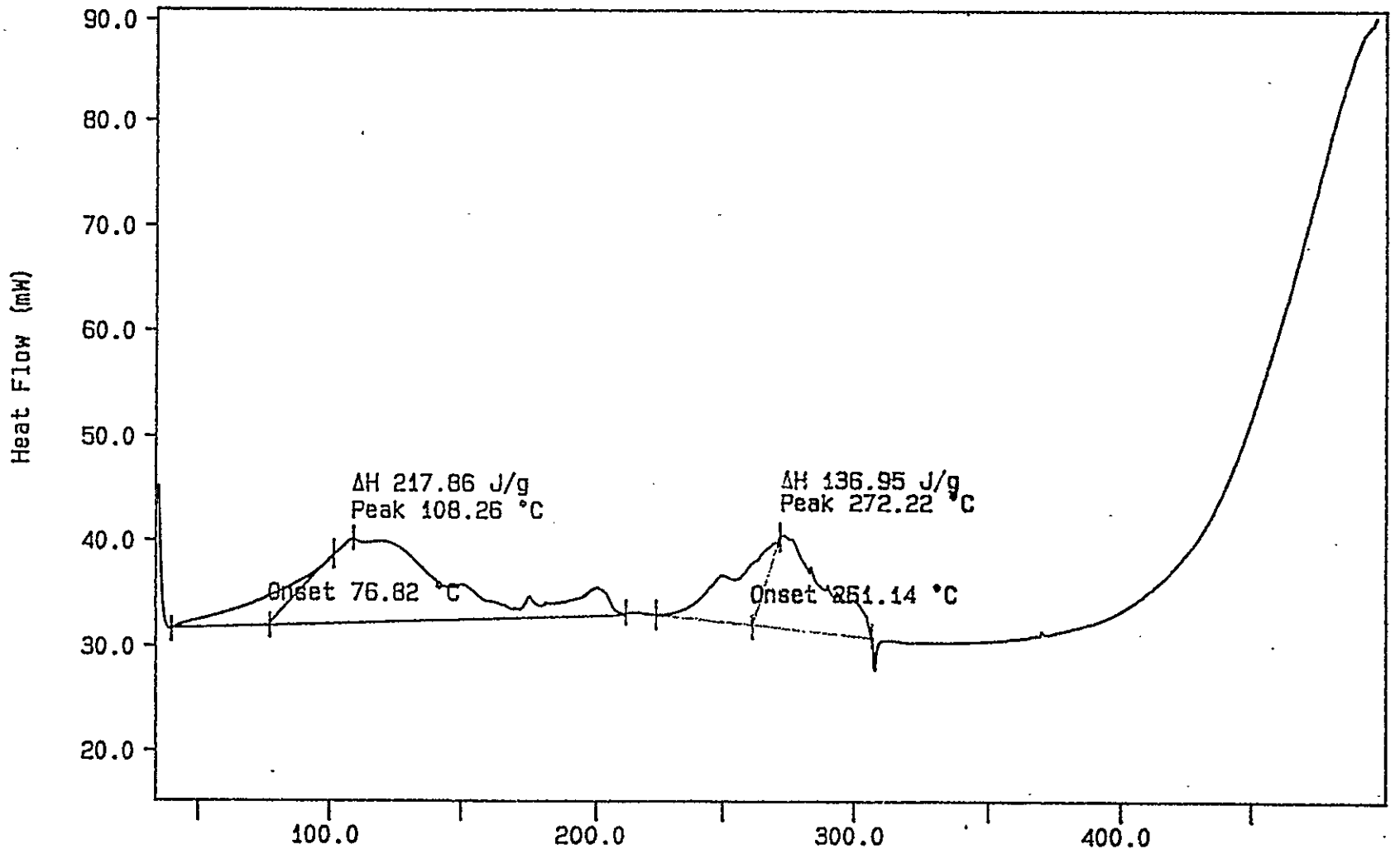
Curve 1: DSC
File info: SAM013103 Wed Jan 31 12:19:44 1996
Sample Weight: 19.940 mg
S95T004171 SAM



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 31 13:26:05 1996

Curve 1: DSC
File info: SAM013104 Wed Jan 31 14:27:05 1996
Sample Weight: 14.680 mg
S95T0045171 DUP
2-1-96



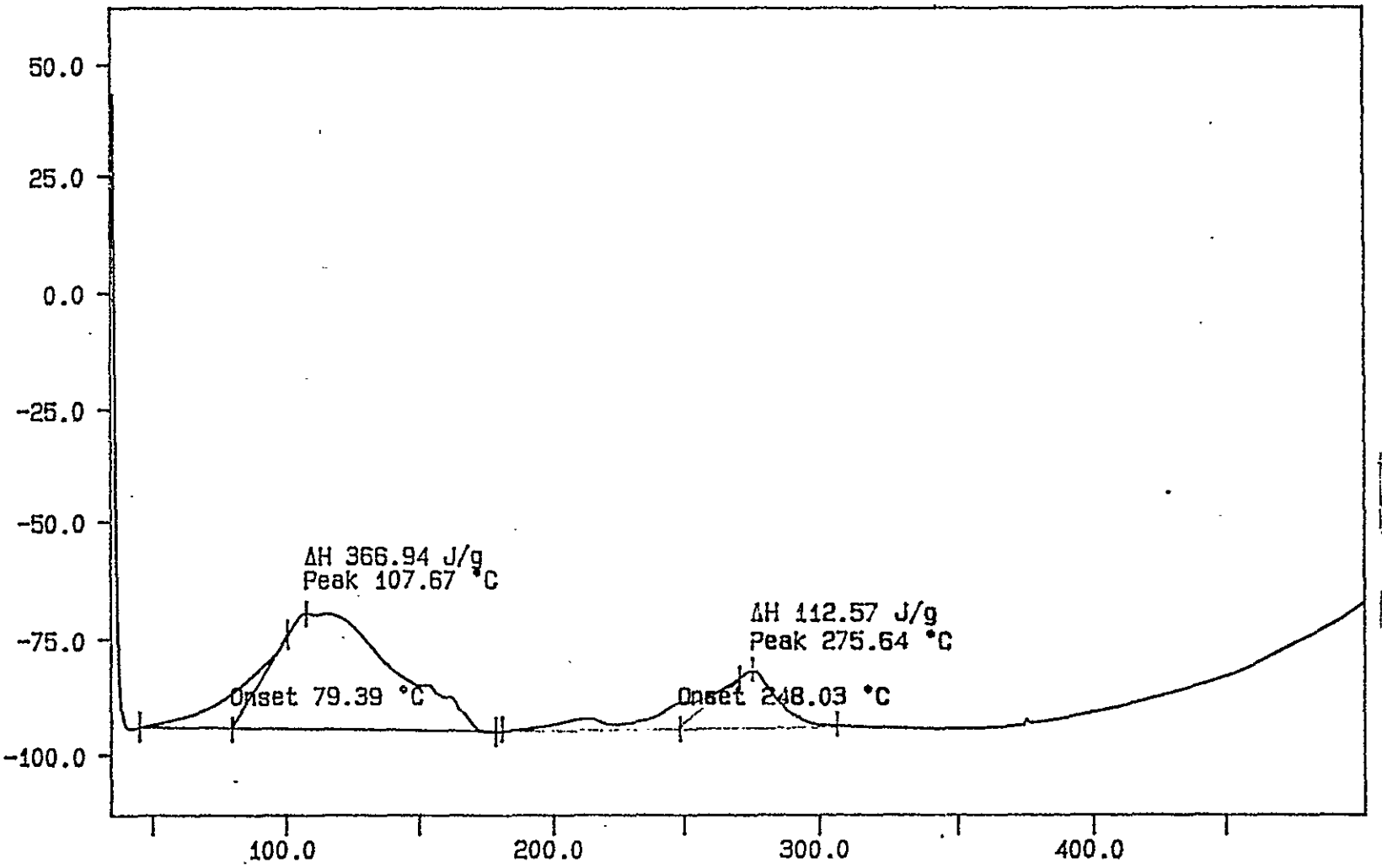
exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 31 15:06:40 1996

WHC-SD-WM-DP-103, REV. 1
WHC-SD-WM-DP-103, REV 0/3

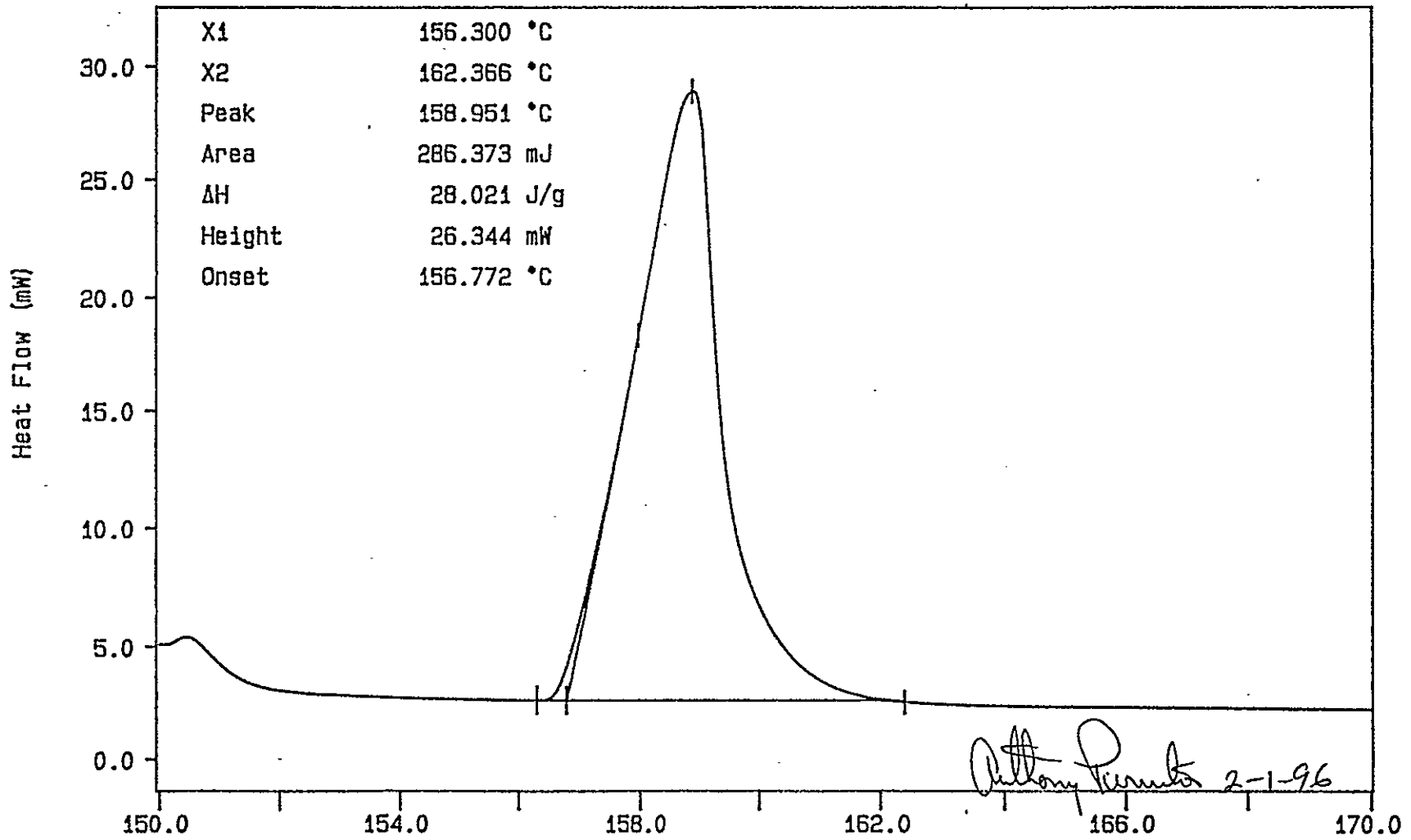
Curve 1: DSC
File info: SAM013105 Wed Jan 31 16:26:59 1996
Sample Weight: 24.740 mg
S95T004172 SAM



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 31 23:50:18 1996

Curve 1: DSC
File info: IND020102 Thu Feb 1 06:05:17 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min

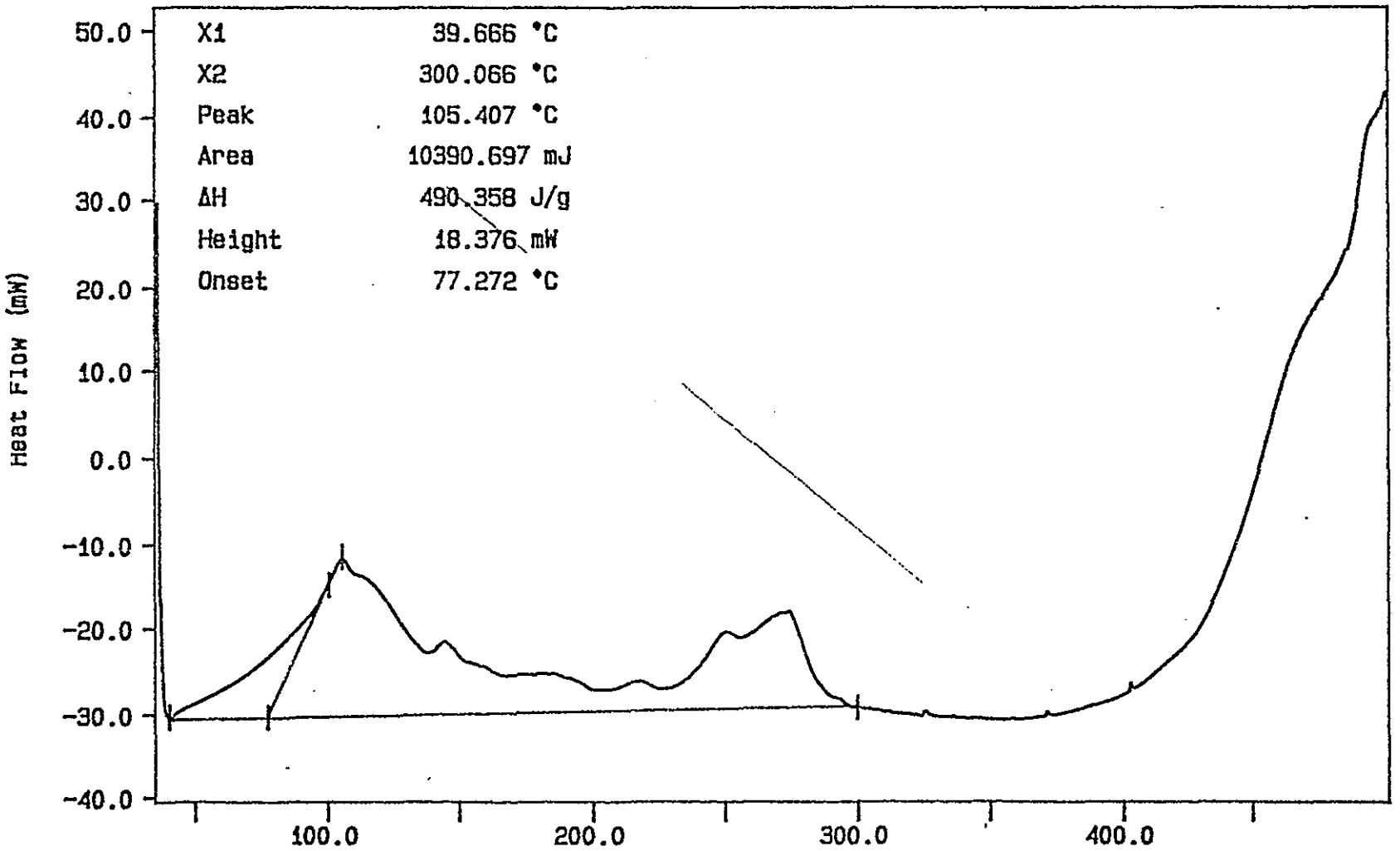


Anthony Purinton 2-1-96

N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 06:06:41 1996

Curve 1: DSC
File info: SAM020104 Thu Feb 1 07:39:31 1996
Sample Weight: 21.190 mg
S95T004172 DUP.



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 08:38:52 1996

LABCORE Data Entry Template for Worklist# 4930

Analyst: RDM **Instrument:** DSC0 3 **Book #** ~~75N8A~~ 12N143 RTlab 2,7-96

Method: LA-514-114 Rev/Mod B-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.89	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004175	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S95T004175	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004176	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	5	DUP	S95T004176	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4930

See attached for signatures
Analyst Signature Date 2/6/96

RTlab 2,7,96
Analyst Signature Date

Verified by Blandina Valenzuela 2/8/96

Data Entry Comments: S95T004175 produced two endotherms one at 132.46°C with a delta H of 485.9 J/g and second at 270.8°C with a delta H of 82.06 J/g. The upswing begin at 400°C appears to be characteristic of BY-106 samples, it is not an exotherm.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code. S95T004176 produced an endotherm at 190.6°C with a delta H of 570.6 J/g

LABCORE Data Entry Template for Worklist# 4930

Analyst: RCJ **Instrument:** DSC0 _____ **Book #** 75N-84

Method: LA-514-113 Rev/Mod B)

WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004175	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004175	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004176	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004176	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 4930

RCJ 2/3/96
Analyst Signature Date

Analyst Signature Date

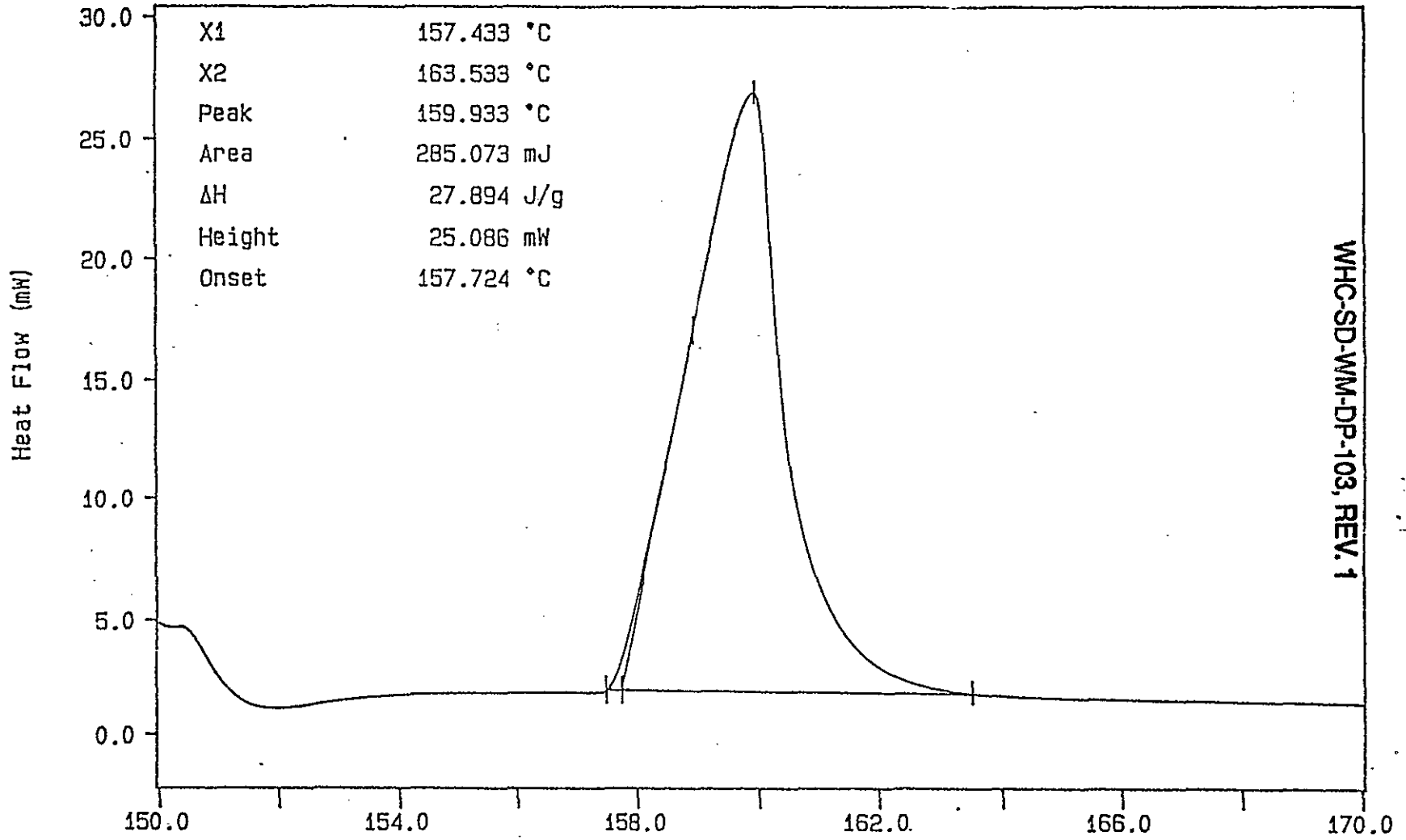
SMFulton 2-3-96 2130

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: ind020301 Sat Feb 3 06:41:10 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-62 TO 2-66



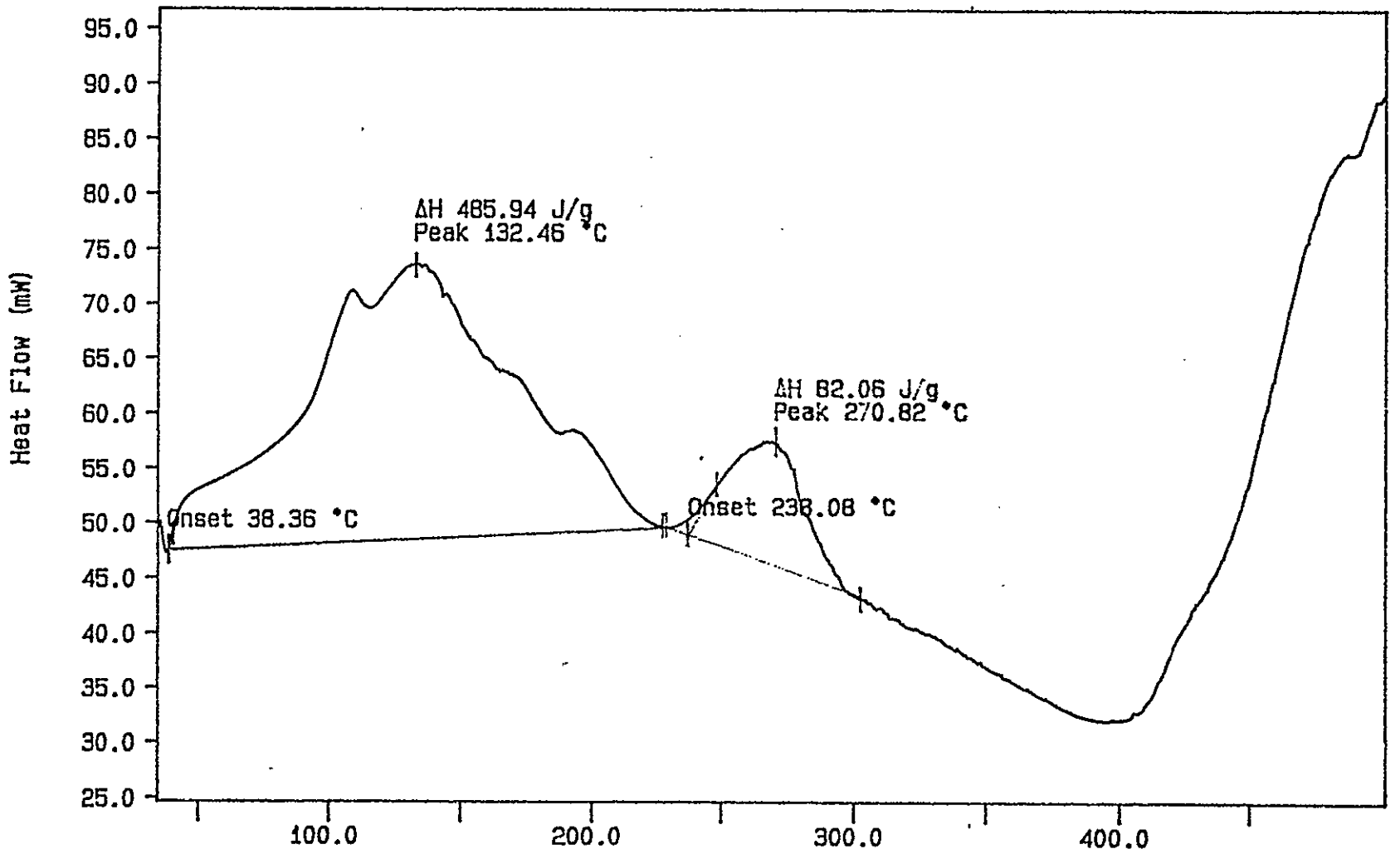
N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Feb 3 06:53:57 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 03

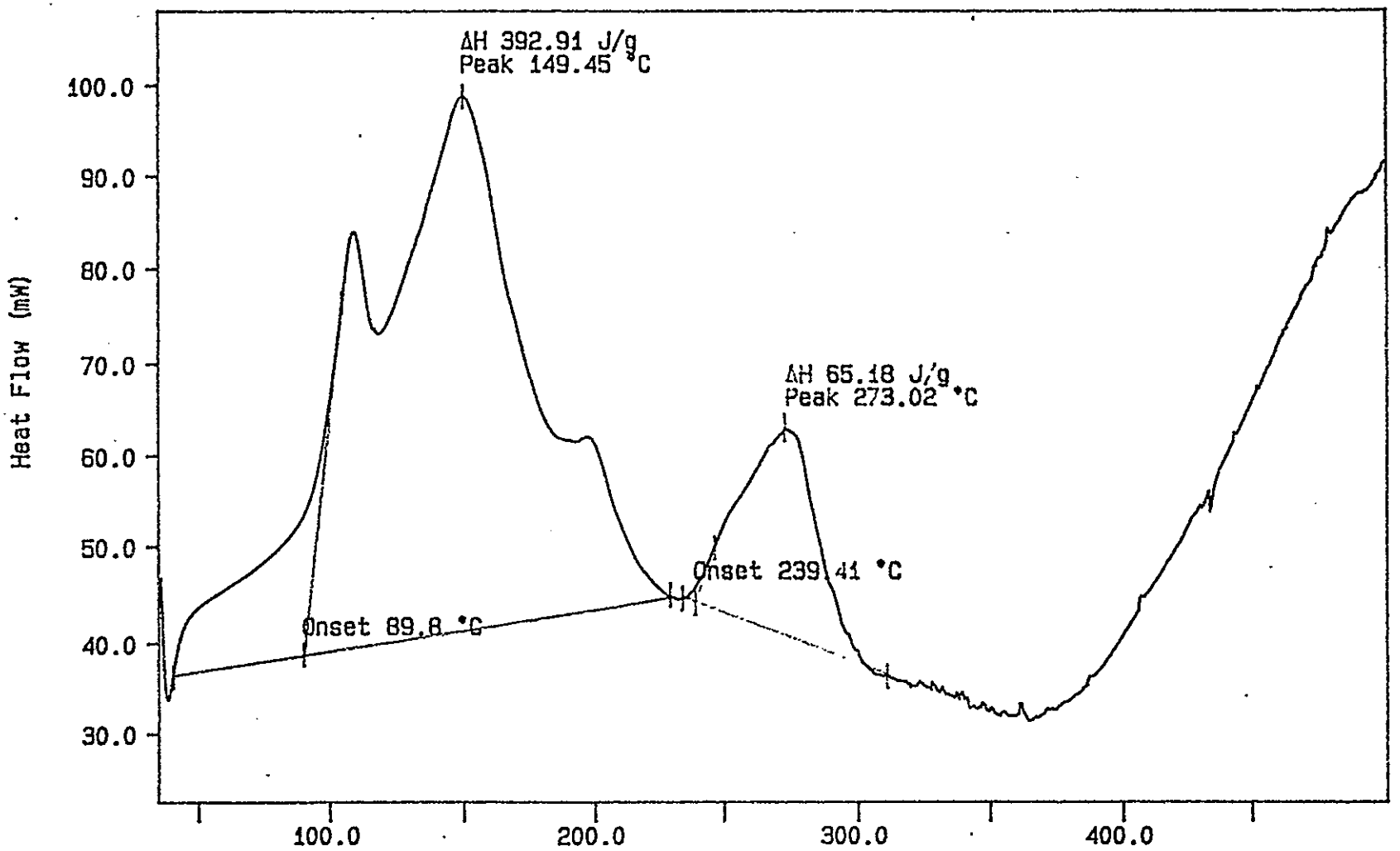
Curve 1: DSC
File info: sam020301 Sat Feb 3 09:07:41 1996
Sample Weight: 29.160 mg
S95T004175



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 6 13:29:55 1996

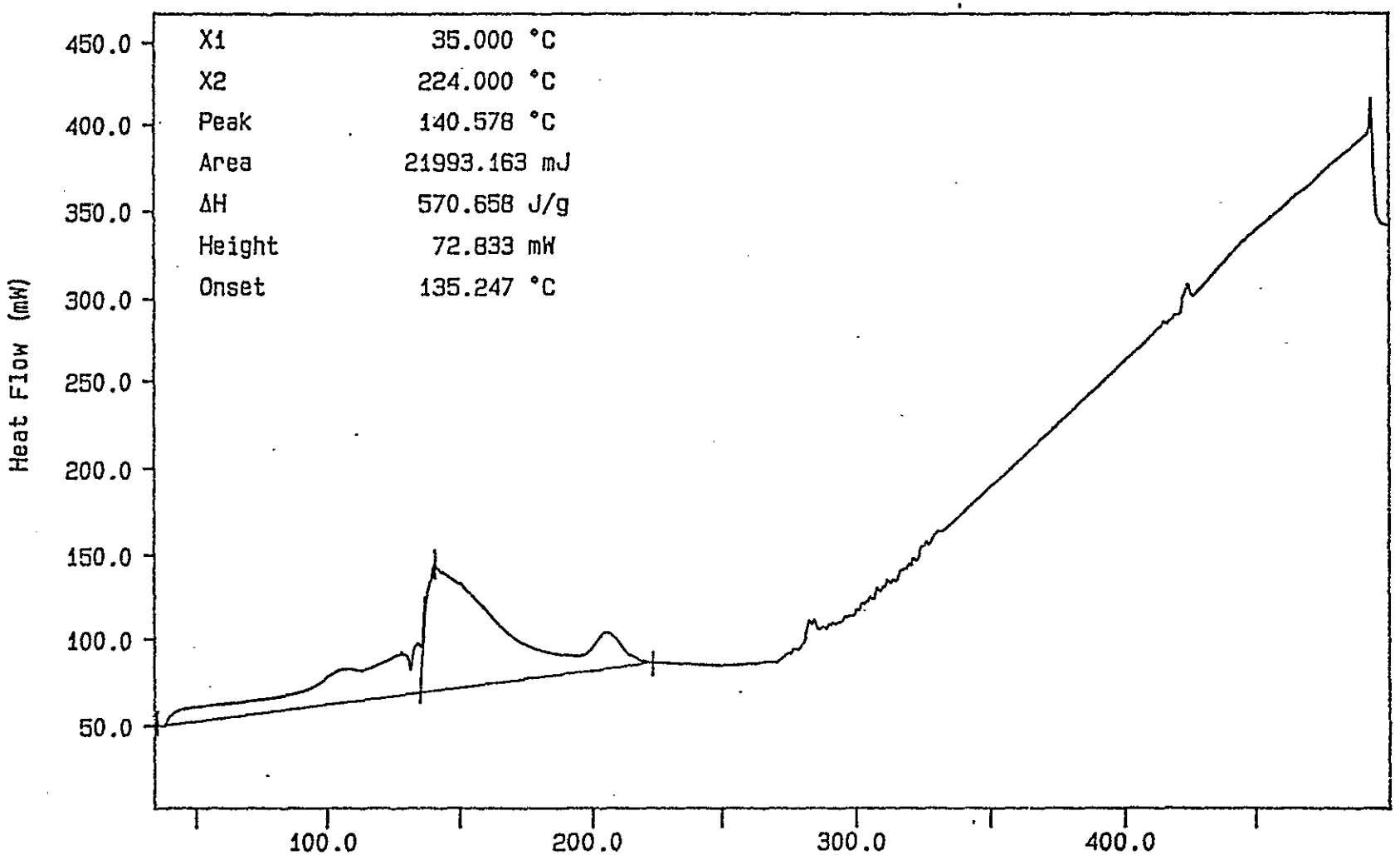
Curve 1: DSC
File info: sam020302 Sat Feb 3 11:57:43 1996
Sample Weight: 69.220 mg
S95T004175DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 6 13:38:02 1996

Curve 1: DSC
File info: sam020303 Sat Feb 3 14:43:30 1996
Sample Weight: 38.540 mg
S95T004176



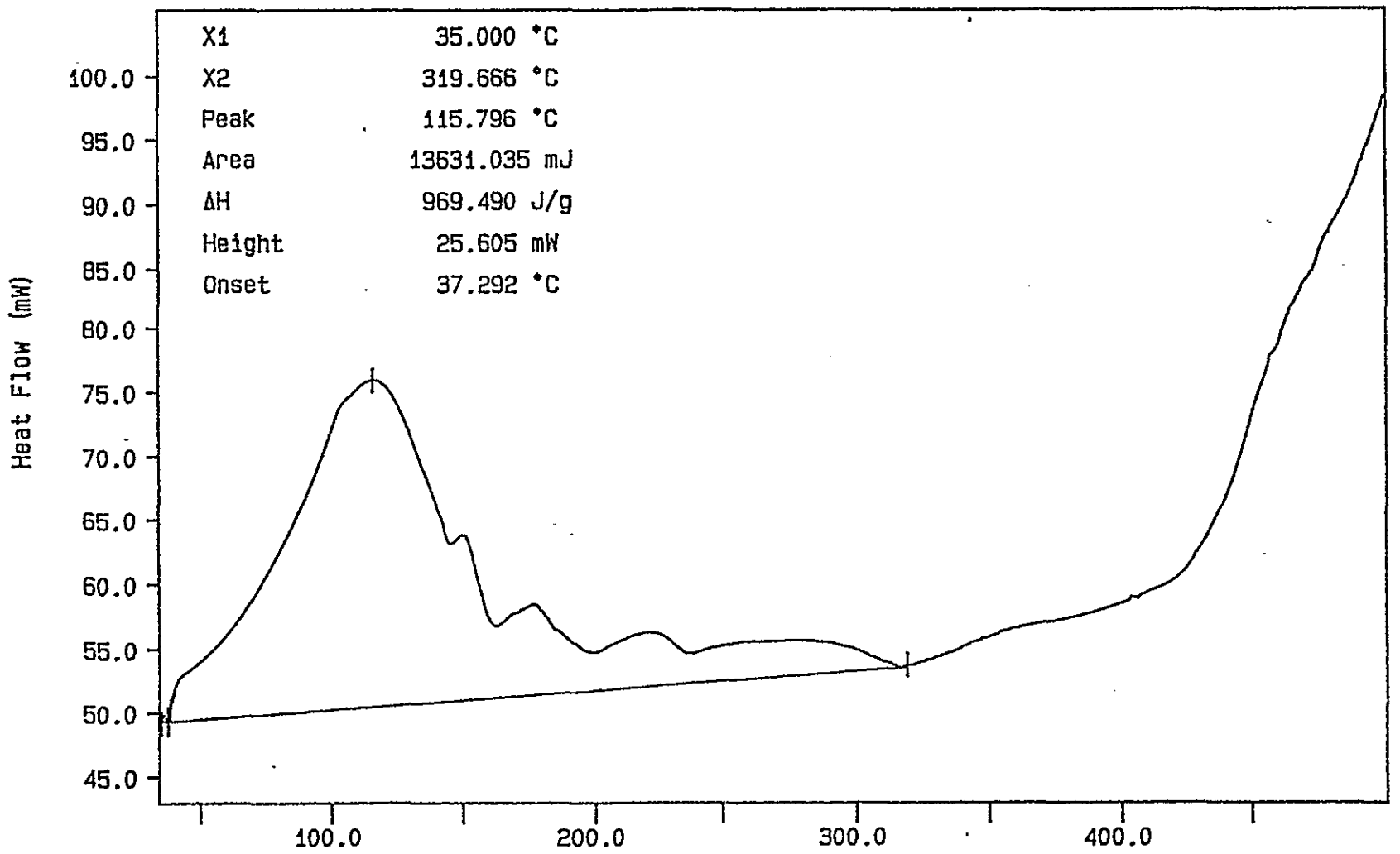
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Feb 3 16:50:06 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0B

Curve 1: DSC
File info: SAM020304 Sat Feb 3 19:56:07 1996
Sample Weight: 14.060 mg
S95T004176 DUP SMF 2-3-96



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Feb 3 20:57:30 1996

LABCORE Data Entry Template for Worklist# 4931

Analyst: RDM Instrument: DSC0 3 Book # ~~12N14A~~ 2/14/96 EBV 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

WHC-SD-WM-DP-103, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.61	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004177	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S95T004177	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004178	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	5	DUP	S95T004178	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4931

See attached for signatures
Analyst Signature Date 2/13/96 EBV

Verified by Blandina Valenzuela 2/23/96

[signature] 2-14-96
Analyst Signature Date

S95T004177 produced two endotherms one at 120.86°C with a delta H of 1263.3(second at 365.43°C with delta H of 49.87 J/g.

Data Entry Comments: S95T004178 produced three endotherms, one at 101.09°C with a delta H of 819.54 J/g, two endotherms one at 261.89°C with a delta H of 48.53 J/g, and ~~the~~ third at 350.52°C with a delta H of 32.76 J/g.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 4931

Analyst: [illegible] Instrument: DSC0 Book # 12N148

Method: LA-514-113 Rev/Mod G)

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ WHC-SD-WM-DP-103, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004177	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004177	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004178	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004178	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 4931

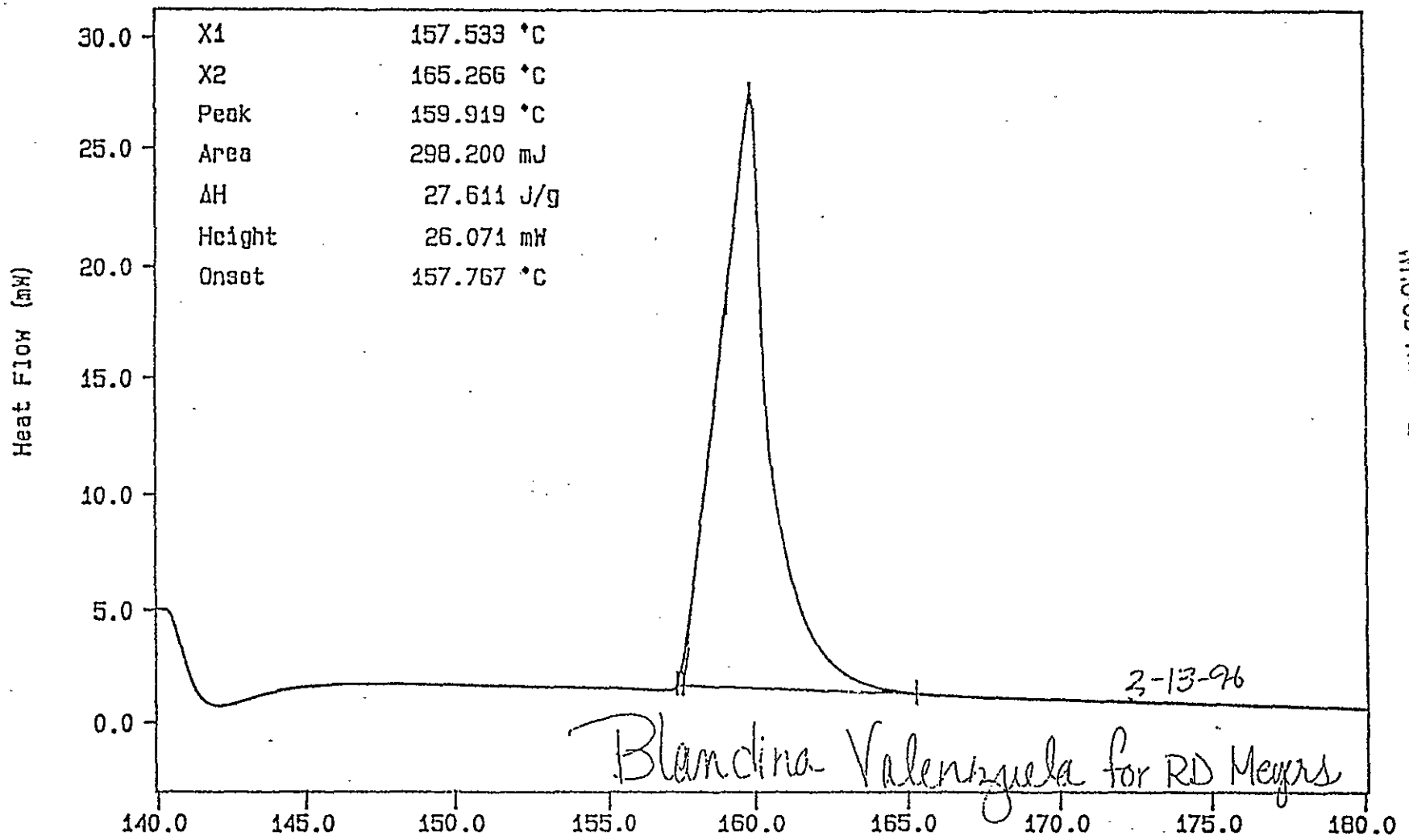
[illegible] 2/12/96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

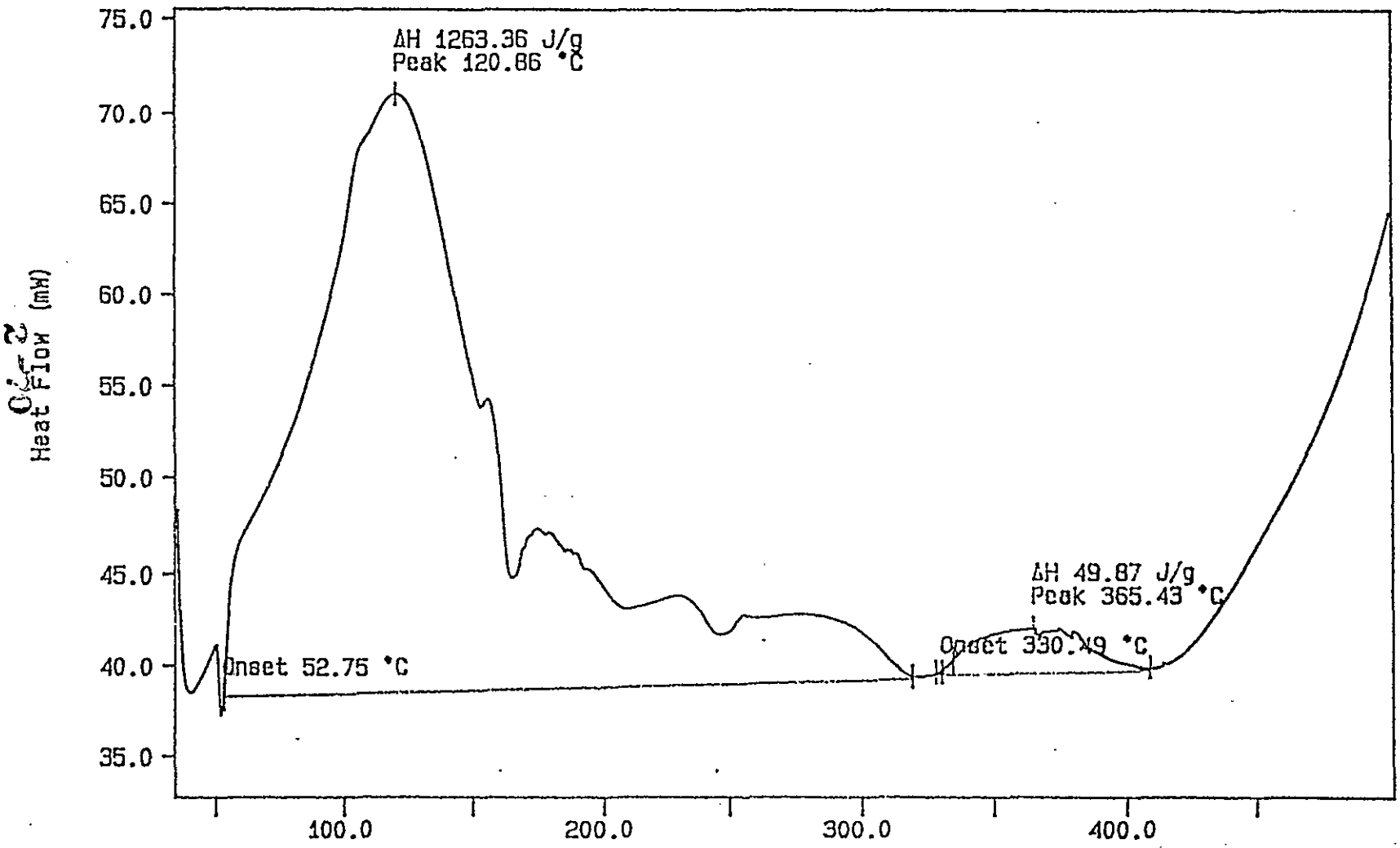
Curve 1: DSC
File info: ind021203 Mon Feb 12 09:34:26 1996
Sample Weight: 10.800 mg
12N14-B INDIUM AT 10C\MIN
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-69 TO 2-73



N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 12 09:46:37 1996

Curve 1: DSC
File info: sam021201 Mon Feb 12 10:52:40 1996
Sample Weight: 13.800 mg
S95T004177

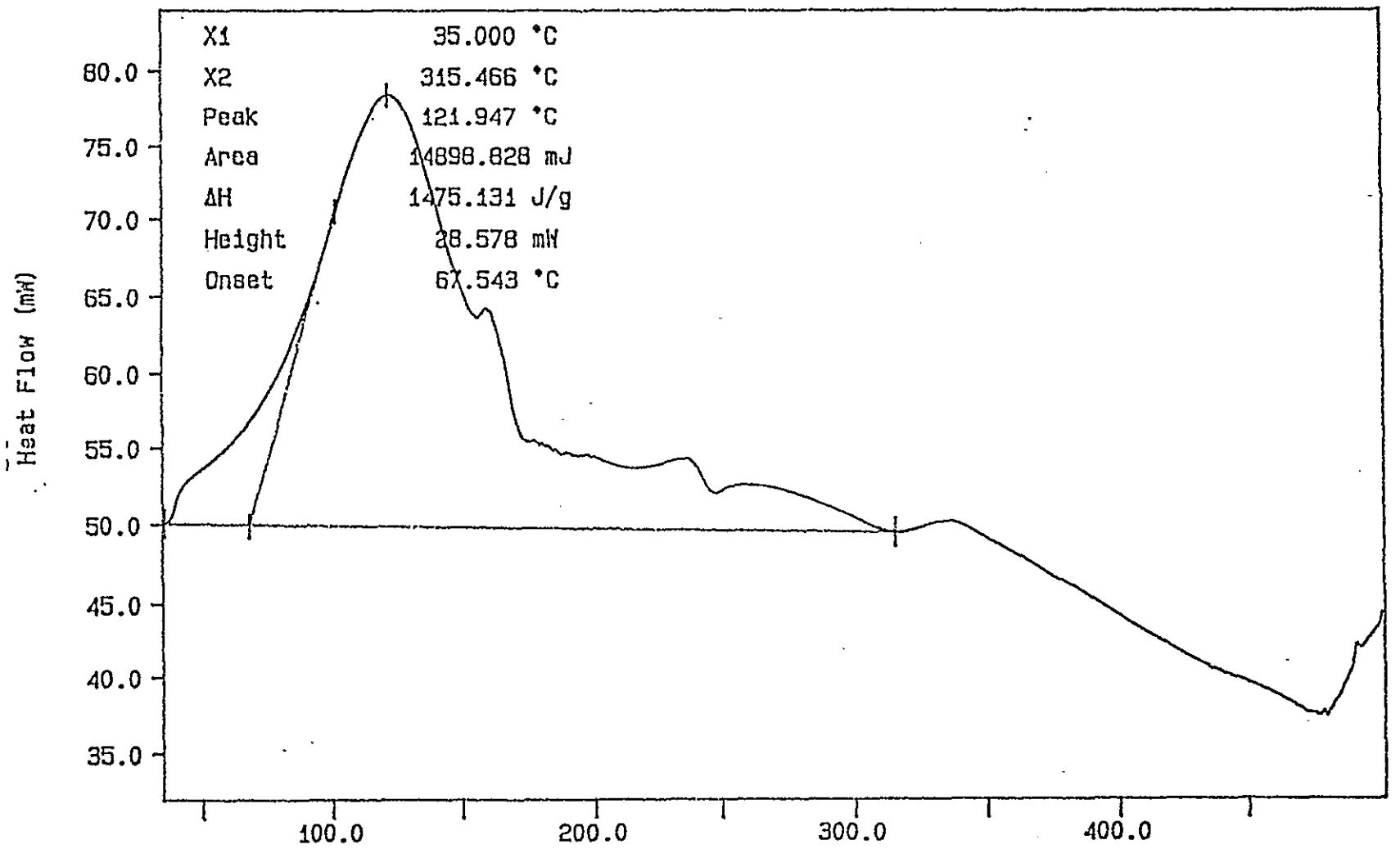


exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 12 11:07:11 1996

Fig. 2

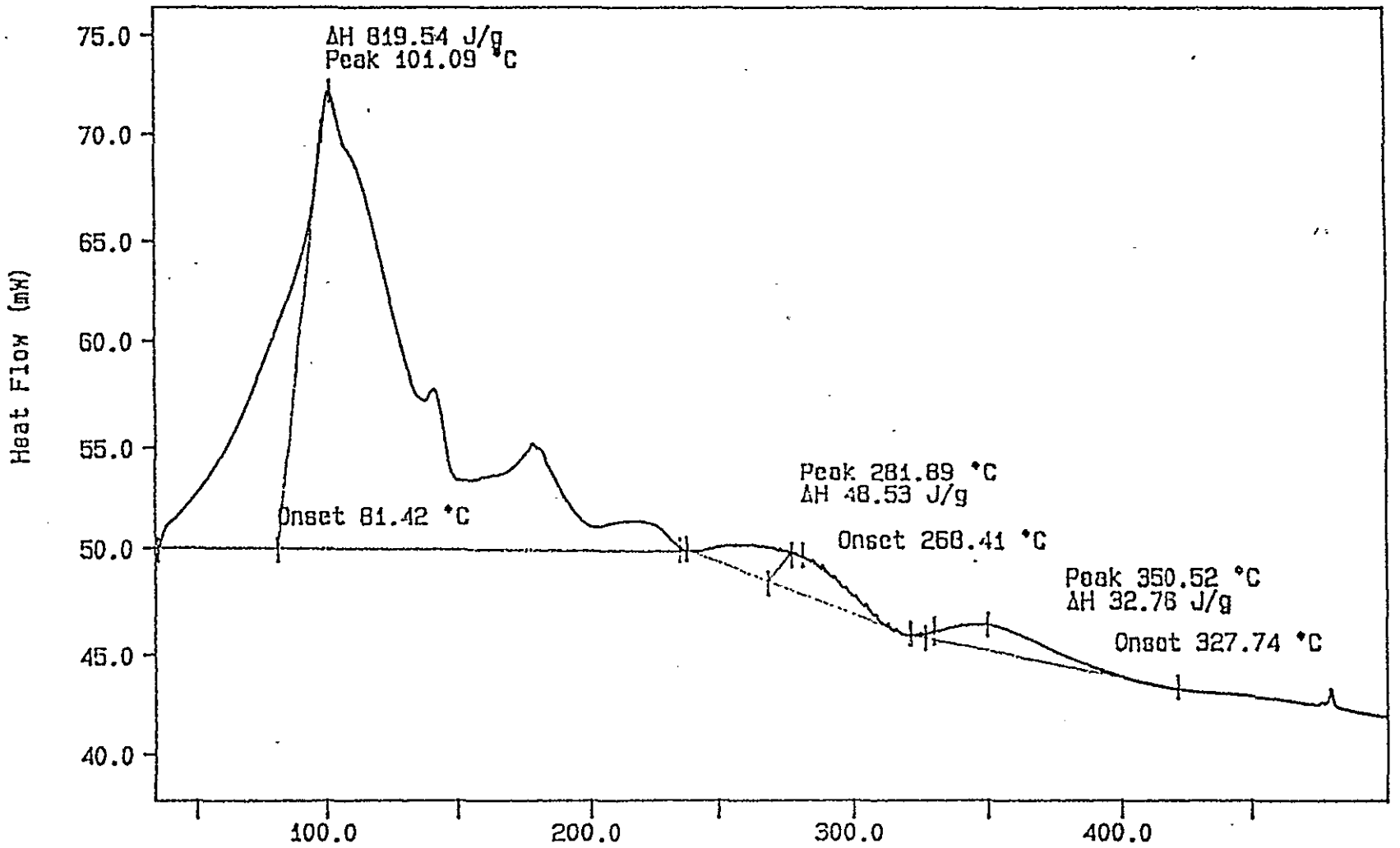
Curve 1: DSC
File info: sam021202 Mon Feb 12 12:11:48 1996
Sample Weight: 10.100 mg
S95T004177DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 12 12:52:07 1996

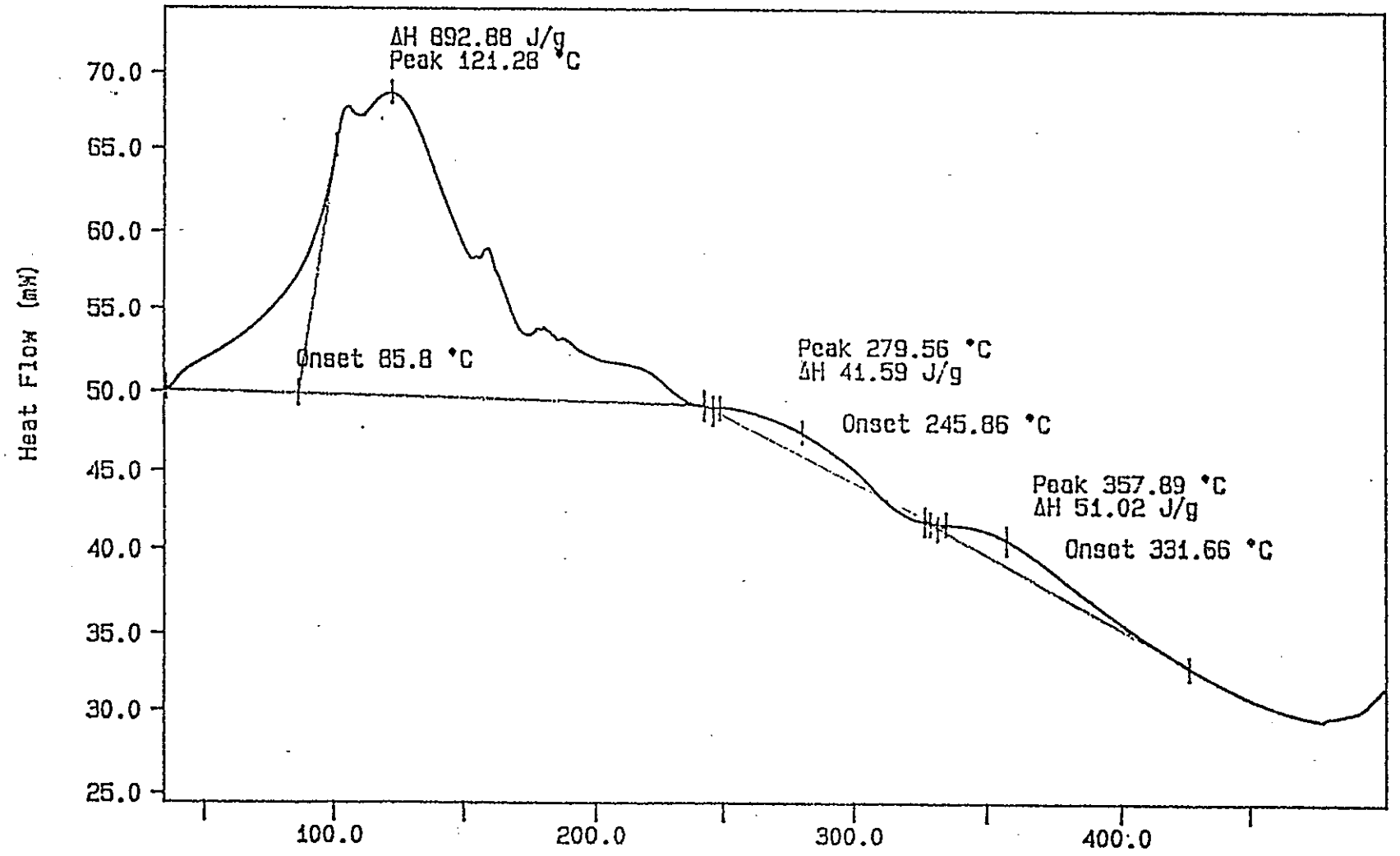
Curve 1: DSC
File info: sam021203 Mon Feb 12 13:47:06 1996
Sample Weight: 9.800 mg
S95T004178



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 13 14:21:07 1996

Curve 1: DSC
File info: sam021204 Mon Feb 12 16:54:05 1996
Sample Weight: 9.900 mg
S95T004178DUP



exotherm down, N2 purge gas
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 400.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 13 14:03:38 1996

LABCORE Data Entry Template for Worklist# 6524

Analyst: SPF Instrument: DSC0 1 Book # 12-N14B

Method: LA-514-113 Rev/Mod C-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: Rerun. Please run this on the Mettler under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	28.45	31.2	N/A	Joules/g
95000229	BY-106	2 SAMPLE	S95T004178	0	DSC-01	SOLID	N/A	75.4		Joules/g
95000229	BY-106	3 DUP	S95T004173	0	DSC-01	SOLID	75.4	~~77.5~~ 68.3 LRD 3/15/96	N/A	Joules/g

Final page for worklist # 6524

Susie M. Dutton 3-14-96 7100
Analyst Signature Date

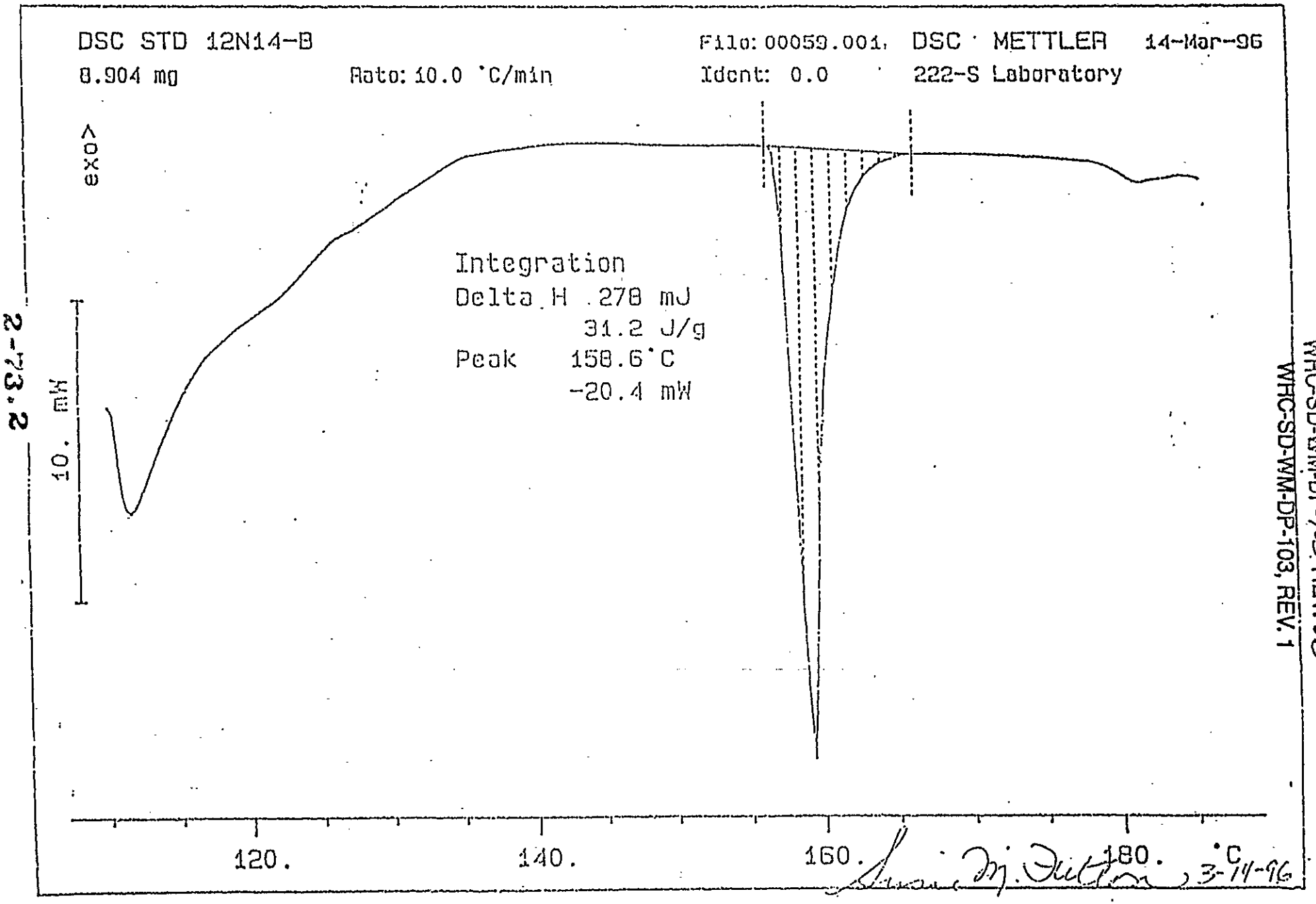
Analyst Signature Date

Entered 3/15/96 JMFuge
Verified 3/15/96 JMF

Data Entry Comments: The duplicate has two extremes and the values were summed and reported. J M Fuge 3/15/96

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-213.2 TO 2-213.4



3-14-96

2-213.2

WHC-SD-WM-DP-103, REV. 0B
WHC-SD-WM-DP-103, REV. 1

BEST AVAILABLE COPY

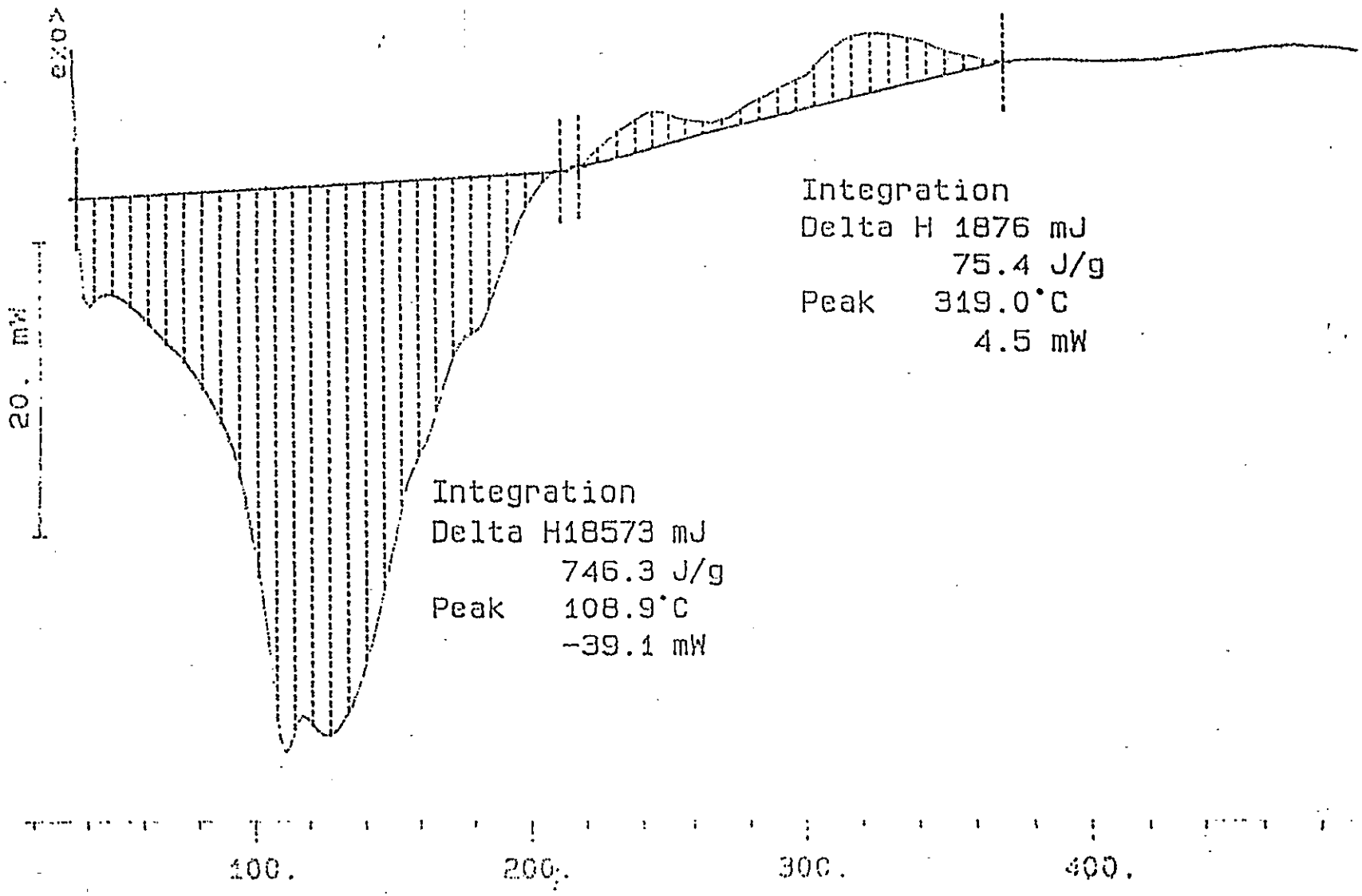
S95T004178 N2

24.886 mg

Rate: 10.0 °C/min

File: 00061.001 DSC METTLER 14-Mar-96

Ident: 0.0 222-S Laboratory

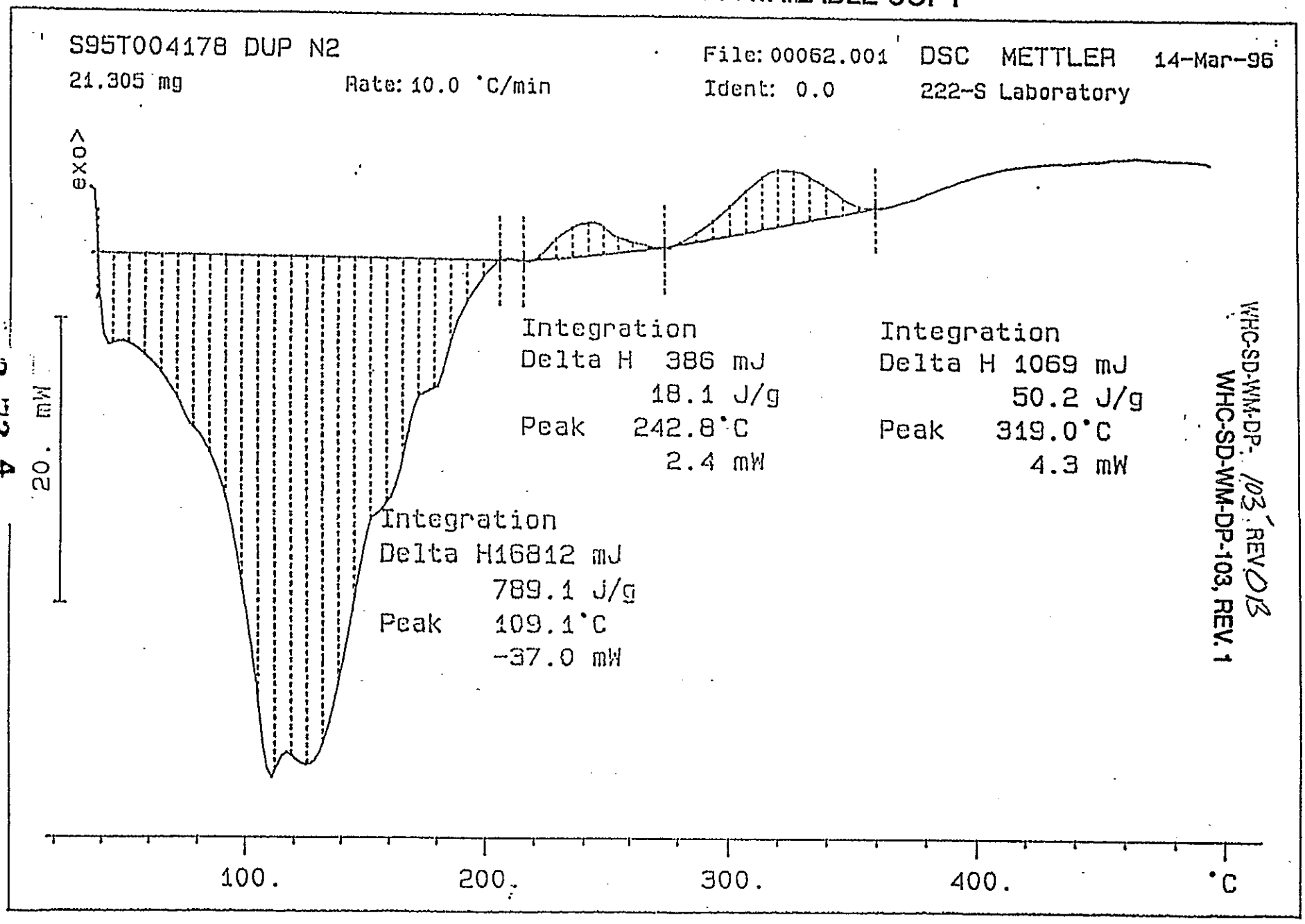


WHC-SD-WM-DP-103, REV. 0

WHC-SD-WM-DP-103, REV. 1

2-23.3

BEST AVAILABLE COPY



WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV 0B

2-23.4

worklistrpt Version 2.1 05/15/95
02/06/96 14:31

WHC-SD-WM-DP-103, REV. 0-B

LABCORE Data Entry Template for Worklist# 5217

Analyst: RDM **Instrument:** DSC0 1 **Book #** 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: Please run BY-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.54	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S96T000104	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S96T000104	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4	SAMPLE	S96T000105	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	5	DUP	S96T000105	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 5217

See attached for signatures
Analyst Signature Date 2/6/96 BDV

Analyst Signature Date 2-5-96

Verified by Blandina Valenzuela 2/12/96

Data Entry Comments: S96T000104 produced ~~on~~ 2/6/96 BDV two endotherms one at 111.1°C with a delta H of 296.69J/g and second at 279.43°C with a delta H of 119.7J/g S96T000105 produced two endotherms one at 155.26°C with a delta H of 523.05J/g and second at 271.06°C with a delta H of 67.51J/g

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrpt Version 2.1 05/15/95
01/26/96 14:59

LABCORE Data Entry Template for Worklist# 5217

Analyst: RDM **Instrument:** DSC0 **Book #** 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: Please run BY-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S96T000104	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S96T000104	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S96T000105	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S96T000105	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 5217

R D Mynn 2/4/96
Analyst Signature Date

Analyst Signature Date

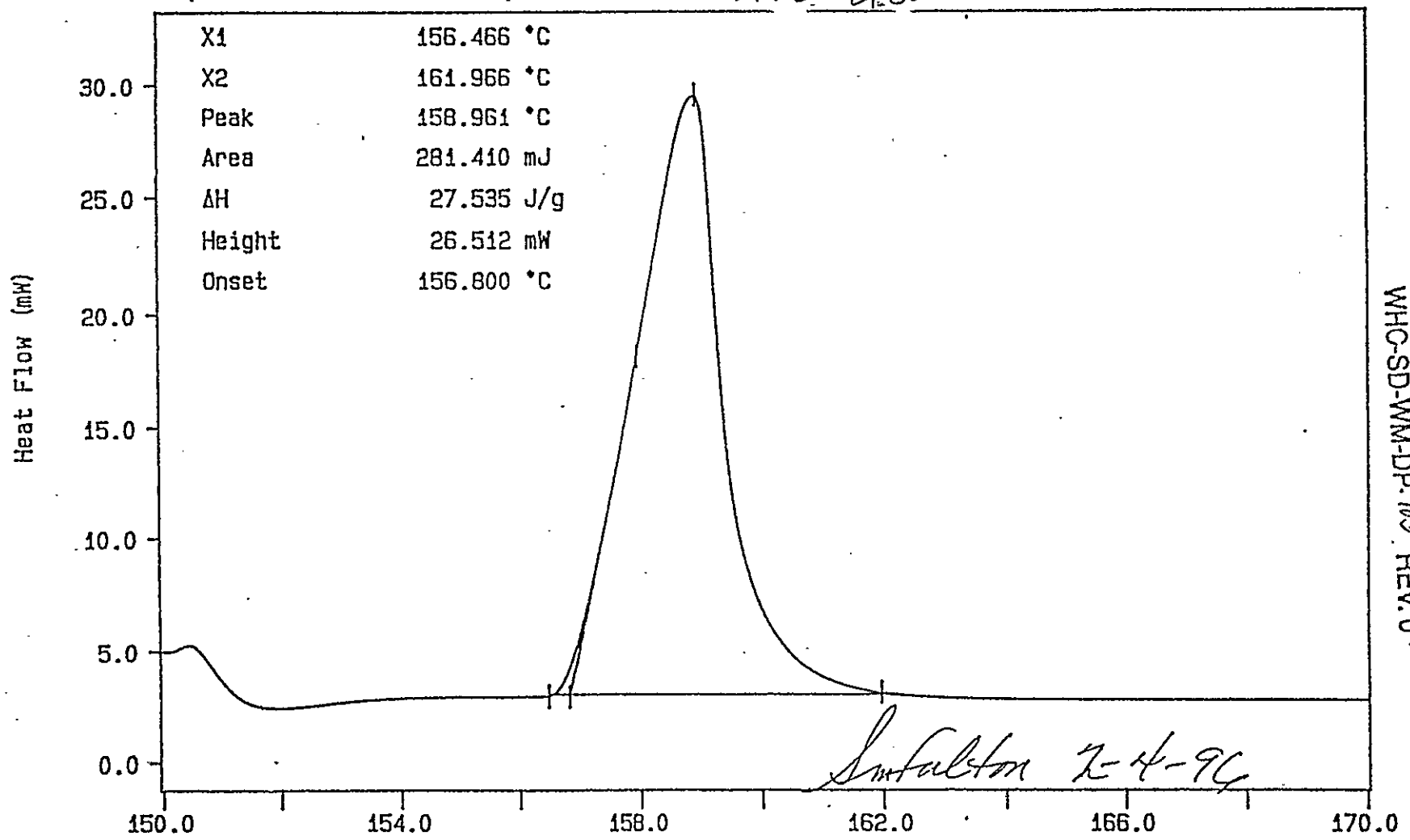
Susie M. Dalton 2/4/96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND020401 Sun Feb 4 21:54:16 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min

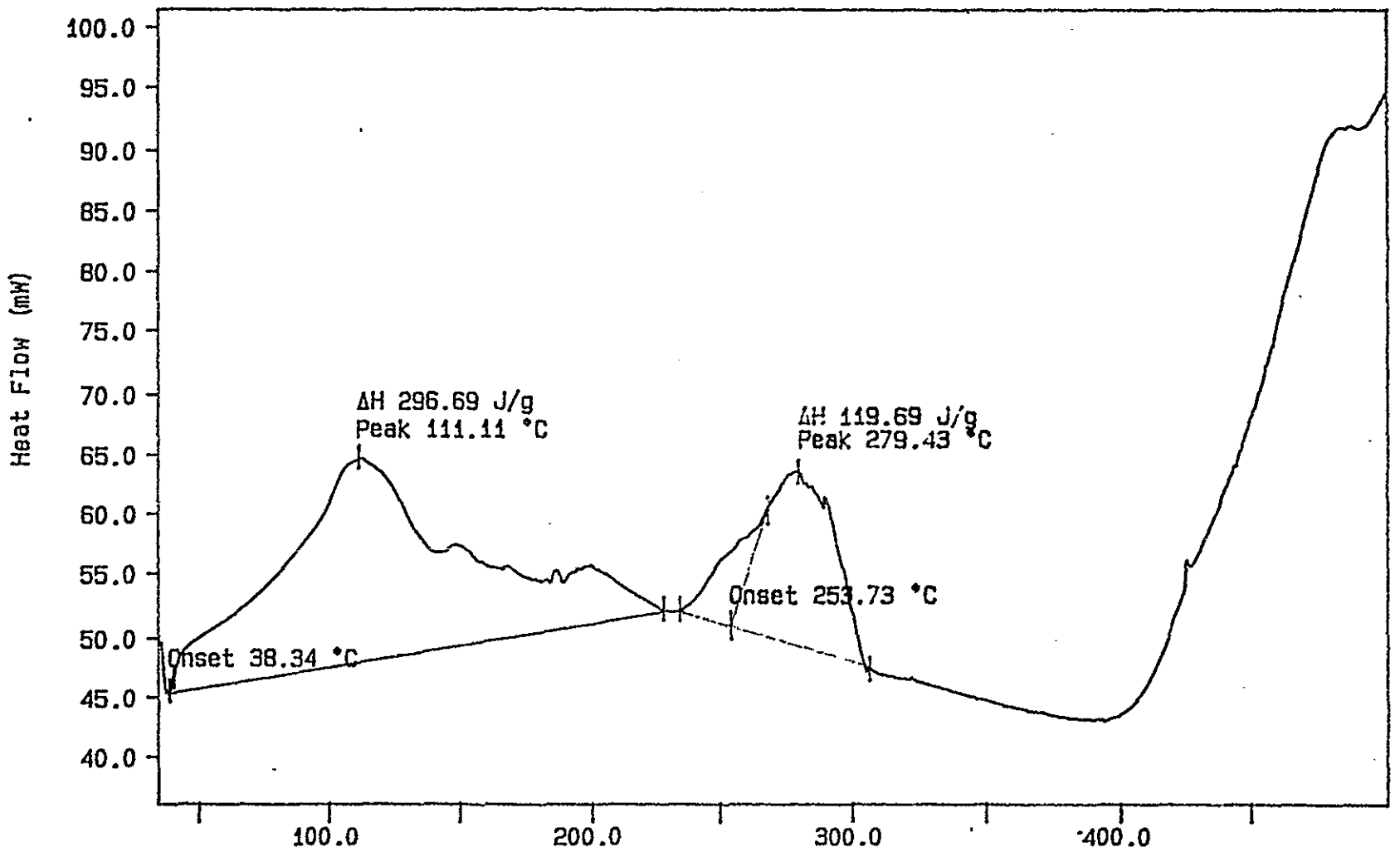
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-76 TO 2-80.



N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 21:59:16 1996

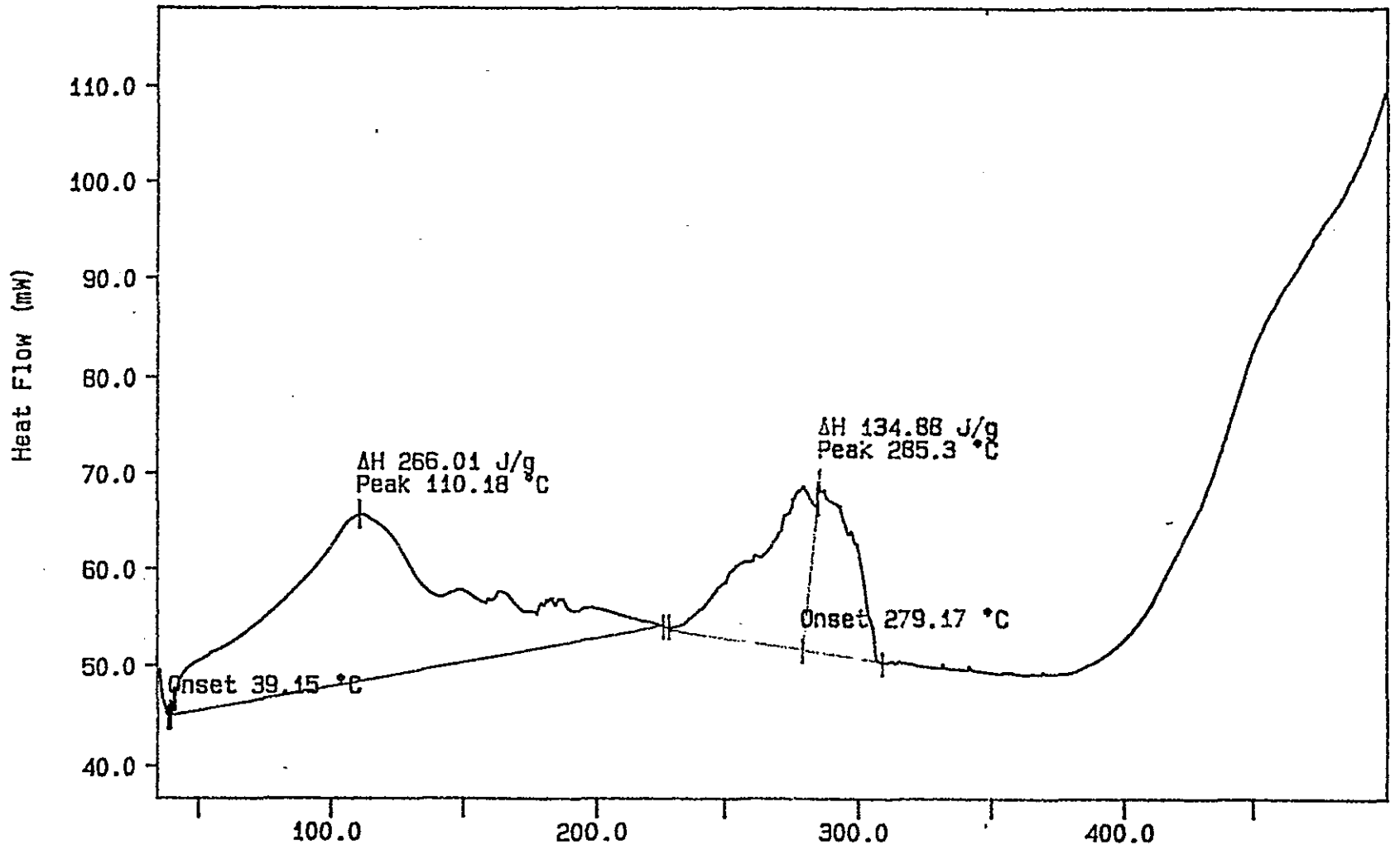
Curve 1: DSC
File info: SAM020405 Sun Feb 4 21:42:59 1996
Sample Weight: 27.470 mg
S96T000104



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 21:44:56 1996

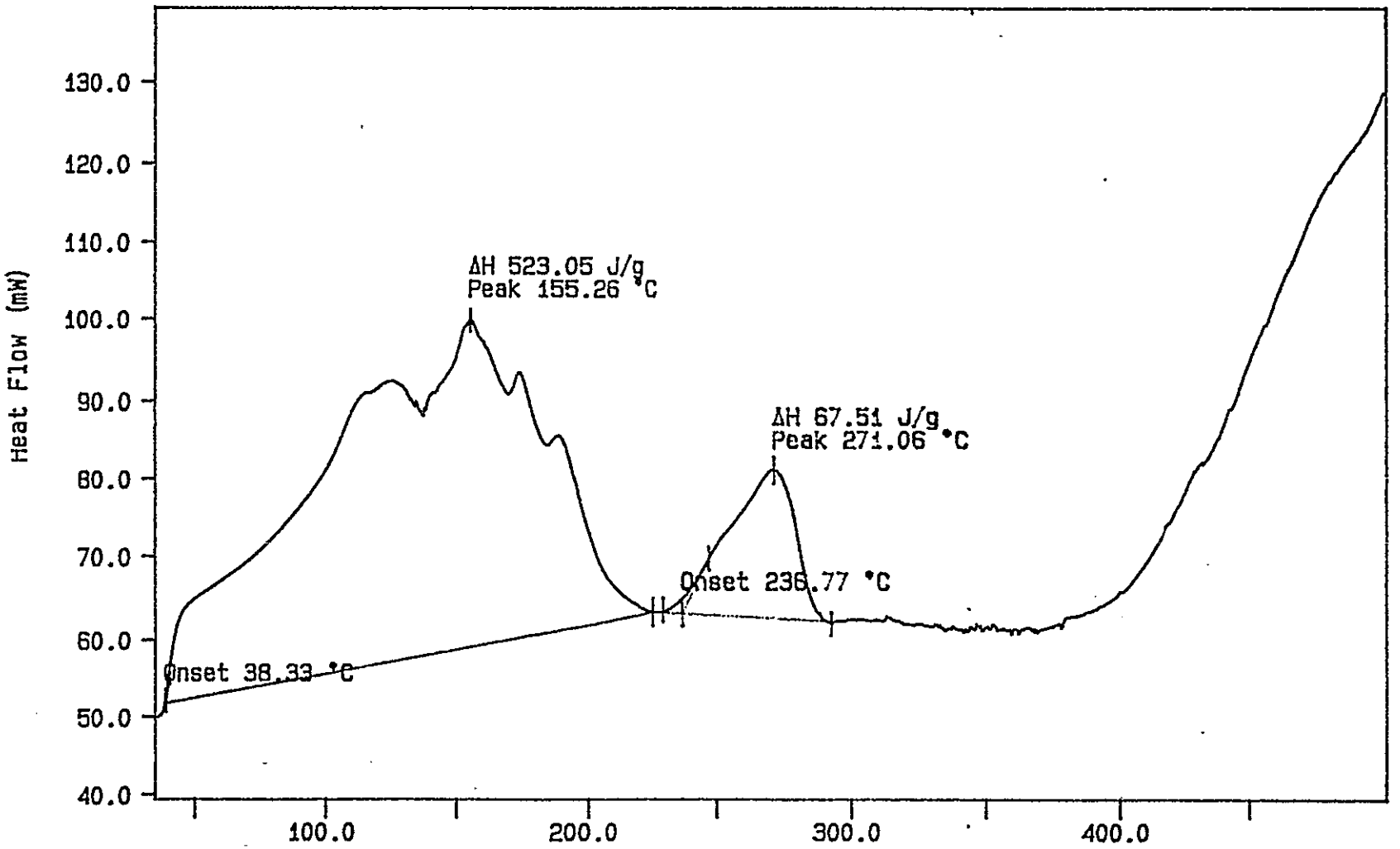
Curve 1: DSC
File info: SAM020406 Sun Feb 4 22:52:04 1996
Sample Weight: 31.270 mg
S96T000104 DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 22:55:20 1996

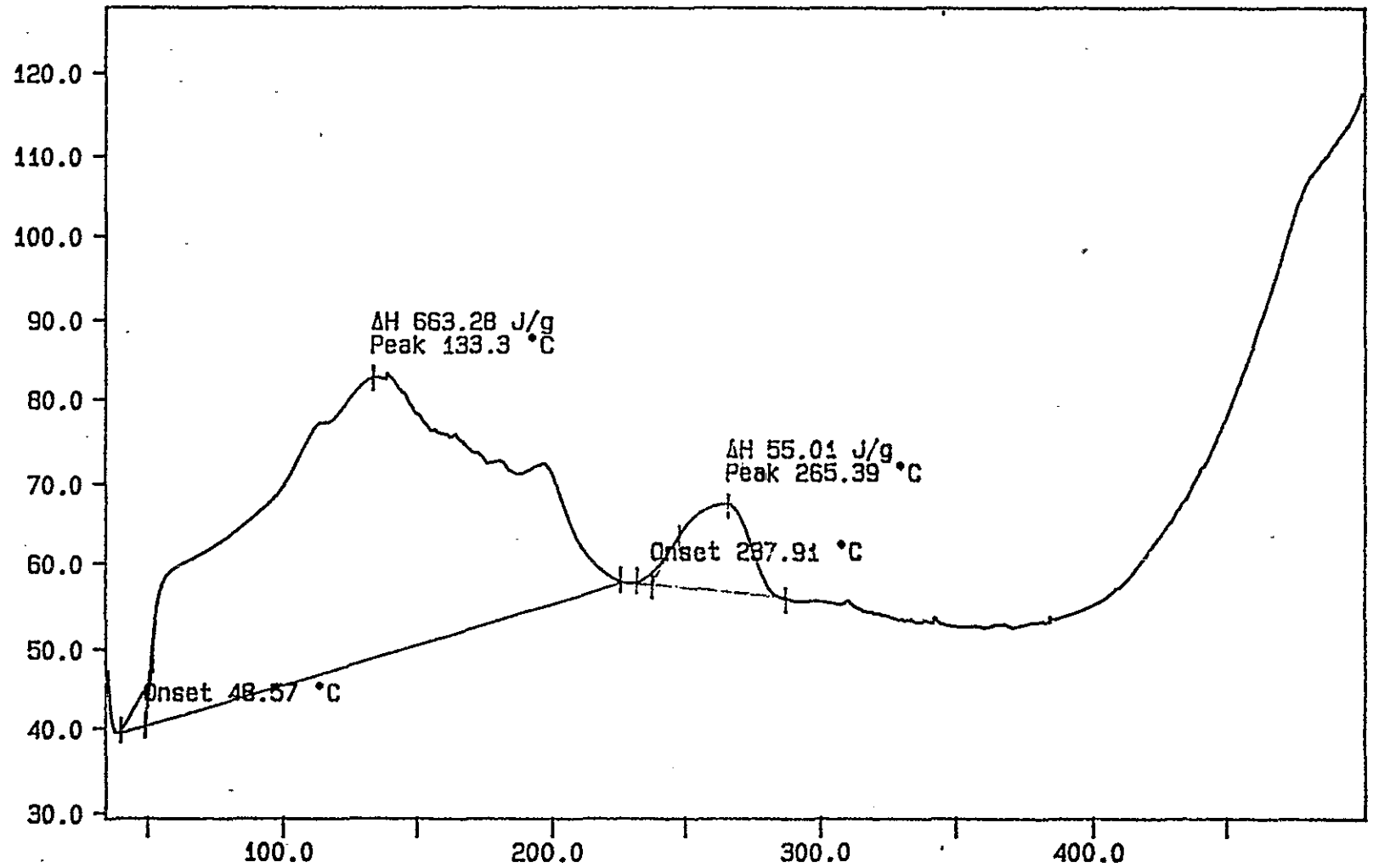
Curve 1: DSC
File info: SAM020402 Sun Feb 4 19:22:57 1996
Sample Weight: 48.110 mg
S96T000105



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 19:23:49 1996

Curve 1: DSC
File info: SAM020403 Sun Feb 4 20:13:52 1996
Sample Weight: 33.430 mg
S96T000105 DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 20:54:05 1996

worklistrpt Version 2.1 05/15/95
02/06/96 14:50

LABCORE Data Entry Template for Worklist# 5218

Analyst: RDM Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: Please run BY-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.04	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S96T000248	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S96T000248	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4	SAMPLE	S96T000249	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	5	DUP	S96T000249	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 5218

See attached for signatures
Analyst Signature Date 2/6/96 BDV

Analyst Signature 2-7-95 Date

Verified by Blanding Valenzuela 2/8/96

S96T000248 had an error on the integration the ΔH = 1497.98 is not correct, there are no exotherms on the thermogram 6-26-96 BDV

Data Entry Comments: S96T000248 produced two endotherms one at 135.5°C with a delta H of 1558.23J/g and second at 241.7°C with a delta H of 79.57J/g. S96T000249 produced an endotherm at 153.69°C with a delta H of 965.77J/g.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrpt Version 2.1 05/15/95
01/26/96 15:00

WHC-SD-WM-DP-103, REV. 0-B

LABCORE Data Entry Template for Worklist# 5218

Analyst: RDM Instrument: DSC0 Book # 12B/14-B

Method: LA-514-113 Rev/Mod ~~B-1~~ C-1 (4 RDM 2/4/96; RDM 2/4/96)

Worklist Comment: Please run BY-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S96T000248	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S96T000248	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S96T000249	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S96T000249	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 5218

RDM 2/4/96

Analyst Signature Date

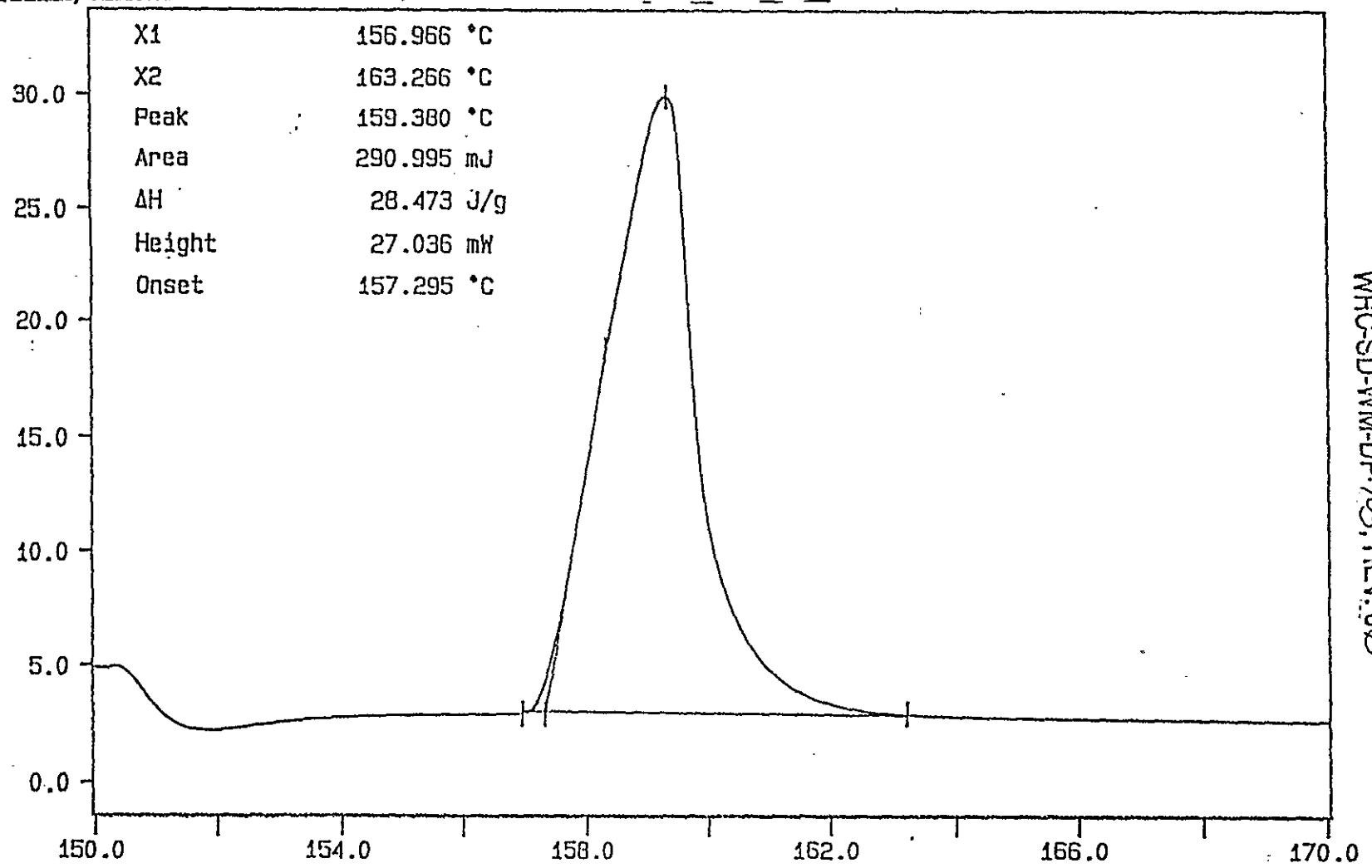
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: qsav2 Sun Feb 4 06:33:25 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 283 TO 287.



N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

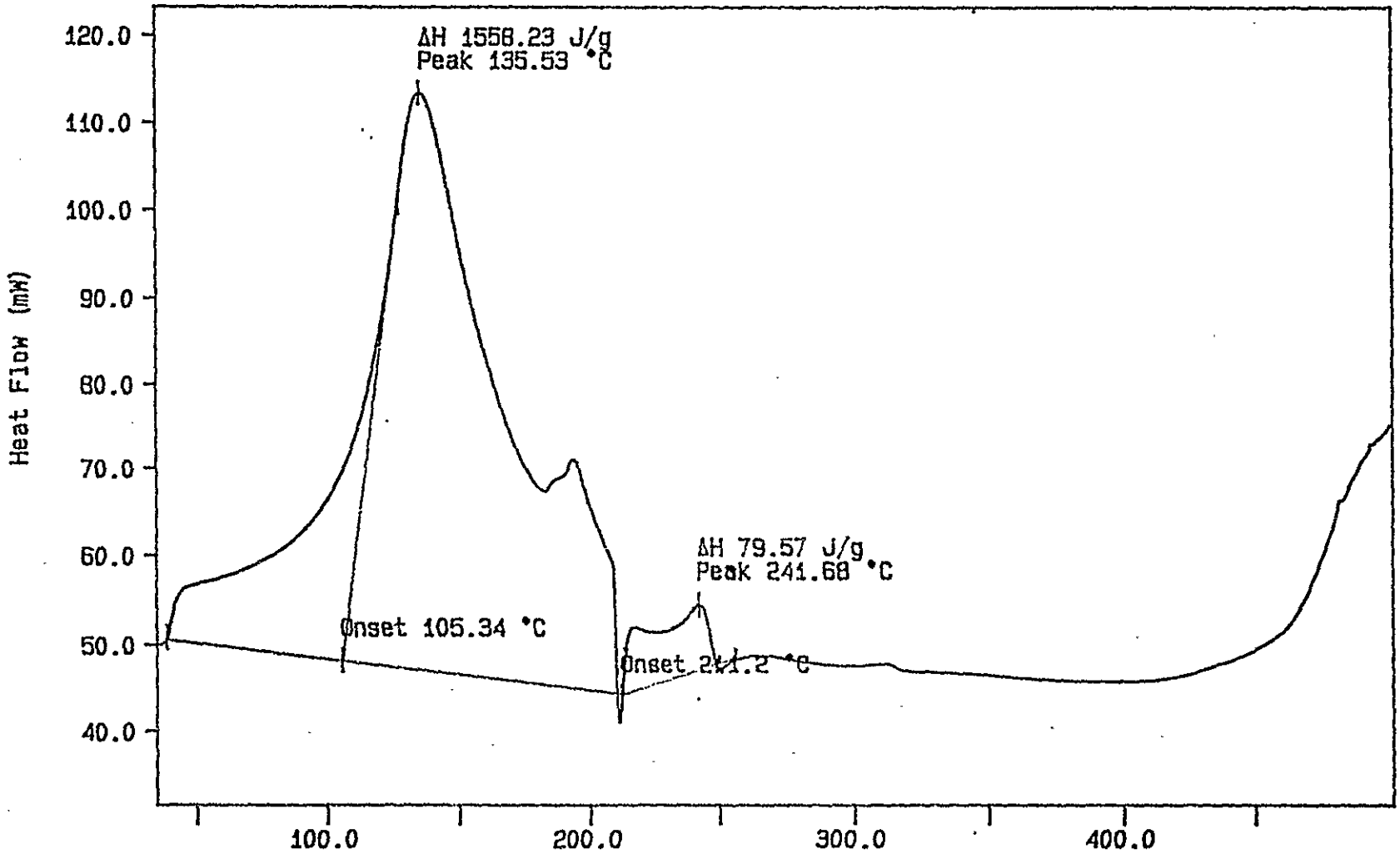
RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 06:42:55 1996
RDMeyers

2-83

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0

Curve 1: DSC
File info: sam020401 Sun Feb 4 07:38:08 1996
Sample Weight: 17.210 mg
S96T000248



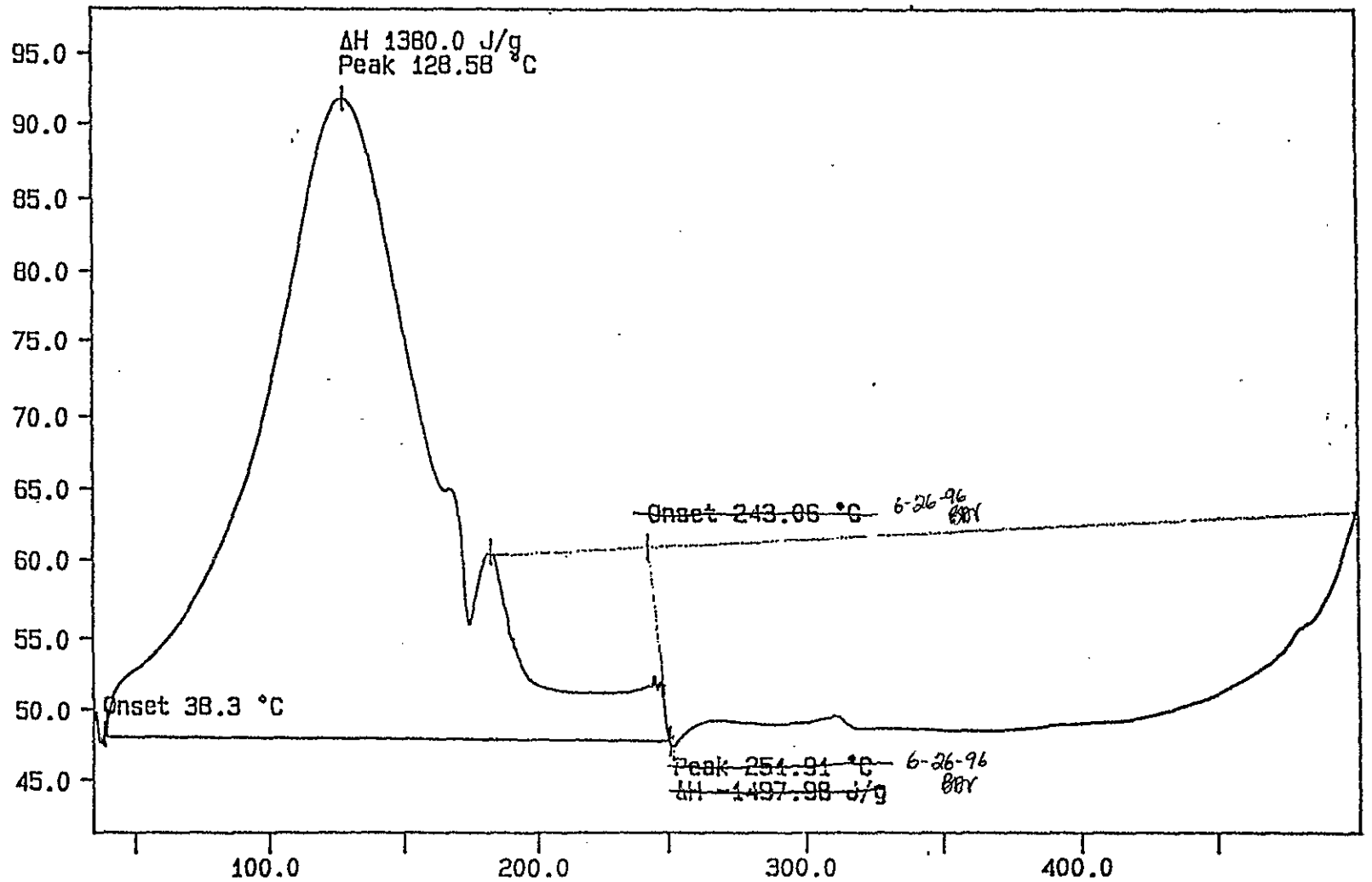
exotherm down, N2 purge gas
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 6 14:36:17 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103 REV. 0

Curve 1: DSC
File info: qsav2 Sun Feb 4 08:53:54 1996
Sample Weight: 14.310 mg
S96T000248DUP



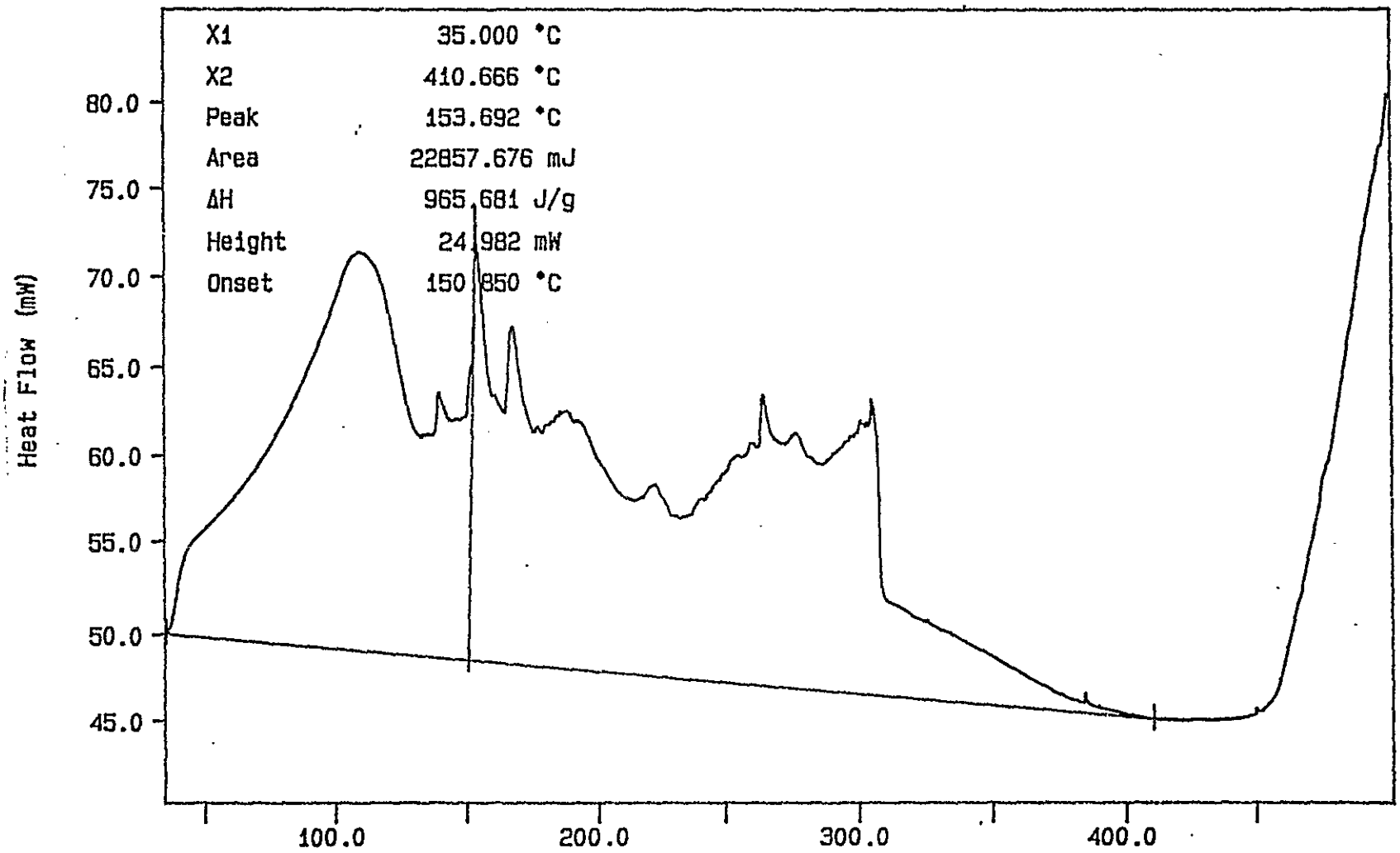
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 10:01:36 1996

2-85

WHC-SD-WM-DP-103, REV. 1
WHC-SD-WM-DP-103 REV. 0B

Curve 1: DSC
File info: qsav2 Sun Feb 4 11:59:20 1996
Sample Weight: 23.670 mg
S96T000249DUP
2/6/96 RW



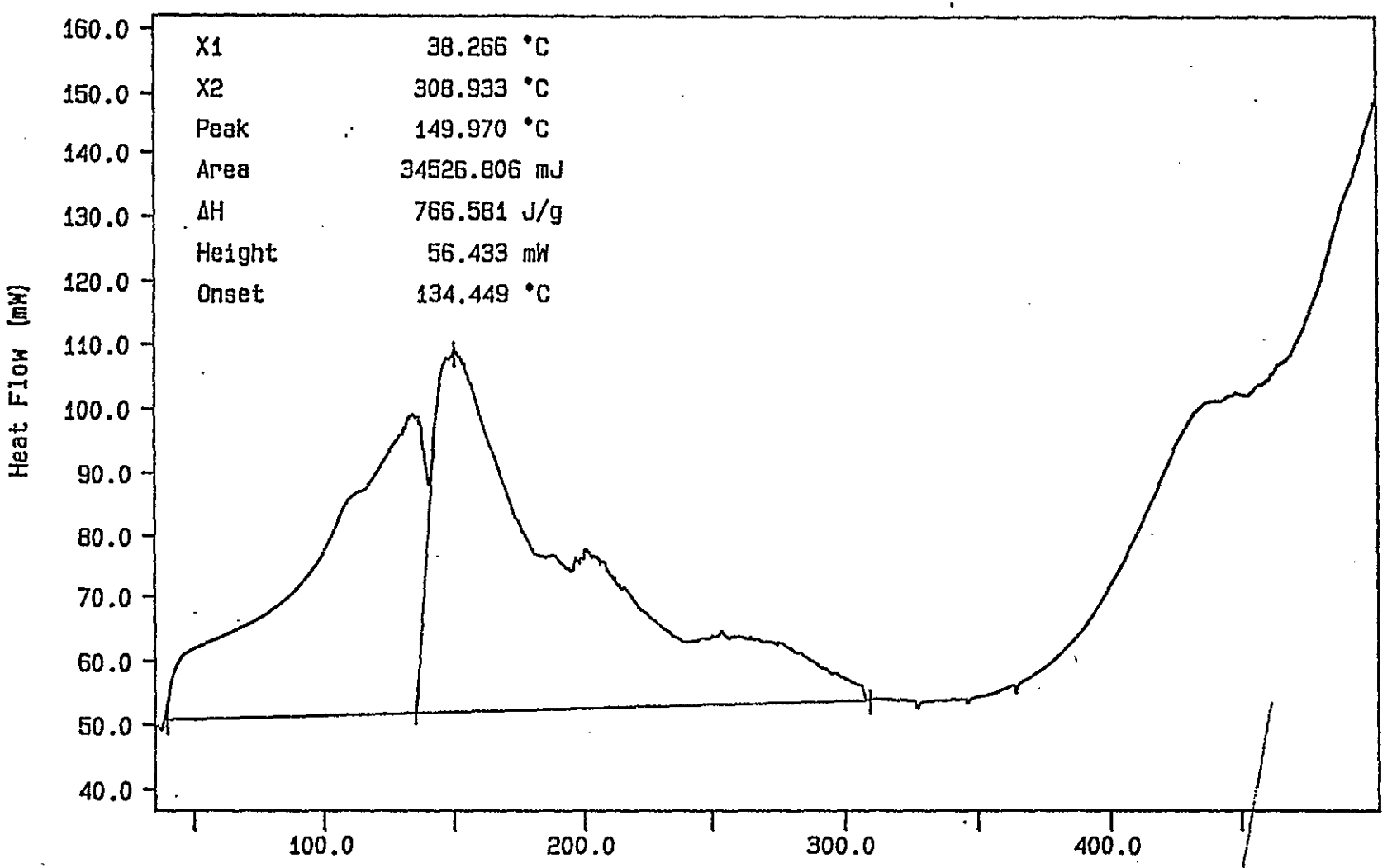
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 12:43:14 1996
RDMeyers

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP 103, REV. 0 B

Curve 1: DSC
File info: qsav2 Sun Feb 4 13:35:01 1996
Sample Weight: 45.040 mg
S96T000249~~IAIP~~ DUP
2/6/96 [illegible]



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 4 14:01:42 1996

WHC-SD-WM-DP-103, REV. 1
WHC-SD-WM-DP-103 REV. 0B

2-87

LABCORE Data Entry Template for Worklist# 5871

Analyst: RDM **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod C-1 **WHC-SD-WM-DP-103, REV. 1**

Worklist Comment: Rerun. Please run BY-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	28.05	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004173	1		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S95T004173	1		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
		4	STD				DSC-03	SOLID	28.45	28.32	N/A	Joules/g
95000229	BY-106	5	SAMPLE	S95T004174	1		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	6	DUP	S95T004174	1		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 5871

See attached for signatures
Analyst Signature Date 2/28/96 BDV

Analyst Signature Date 2-28-96

Verified by Blandina Valenzuela 2/29/96

Data Entry Comments: S95T004173 produced two endotherms, one at 106.5°C with a delta H of 519.72 J/g and second at 271.47°C with a delta H of 50.51 J/g. S95T004174 produced two endotherms, one at 149.58°C with a delta H of 344.01 J/g and second at 281.21°C with a delta H of 80 J/g.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 5871

Analyst: [illegible] Instrument: DSC0 _____ Book # 12N14B

Method: LA-514-113 Rev/Mod _____

WHC-SD-WM-DP-103, REV. 1

Worklist Comment: Rerun. Please run BY-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004173	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004173	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004174	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004174	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 5871

[illegible] 2/24/96

Analyst Signature Date

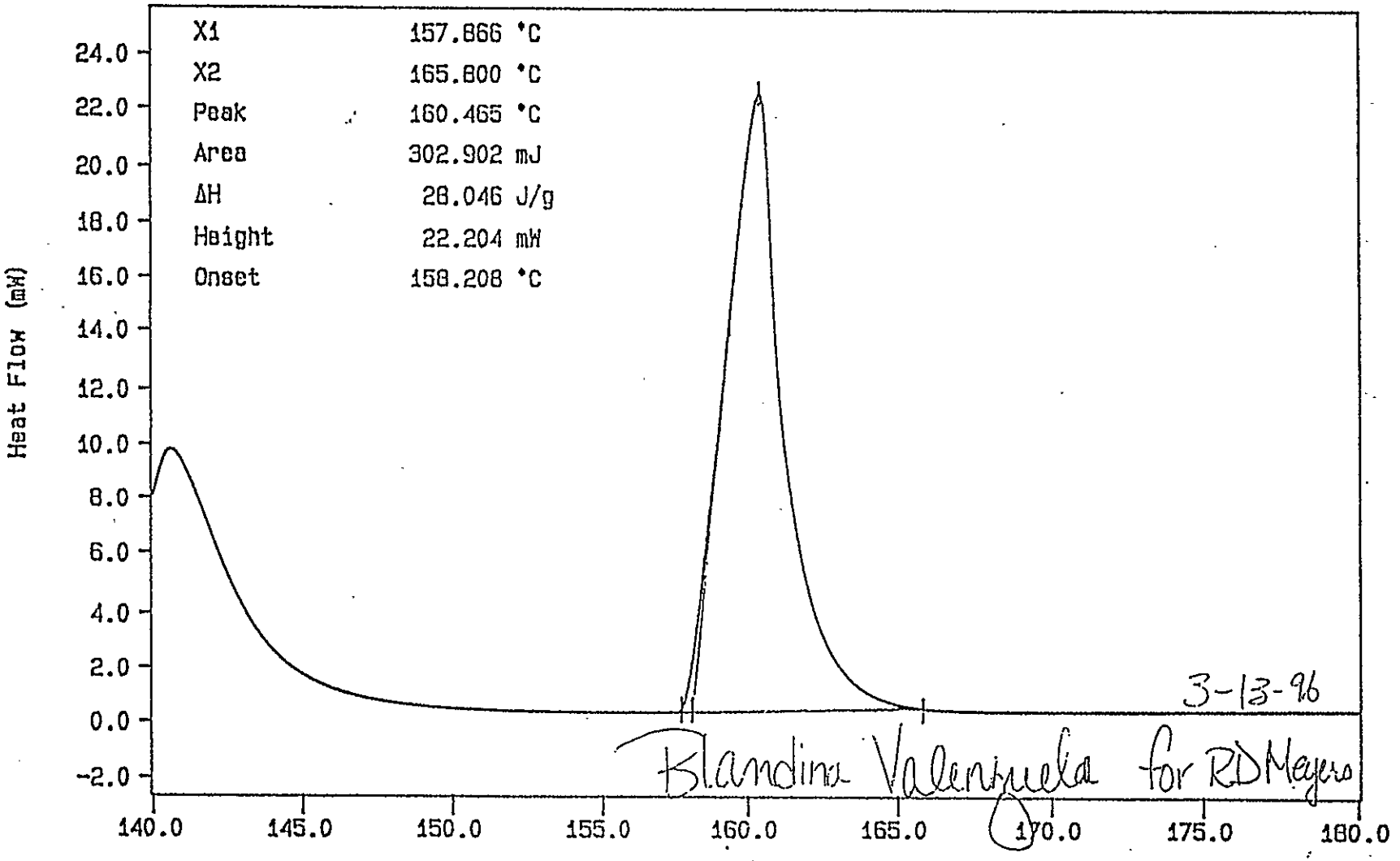
Analyst Signature Date

Other instrument was used 2/26/96 BDV

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: ind022302 Fri Feb 23 19:55:13 1996
Sample Weight: 10.800 mg
12N14-B INDIUM AT 10C\MIN
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-90 TO 2-95.



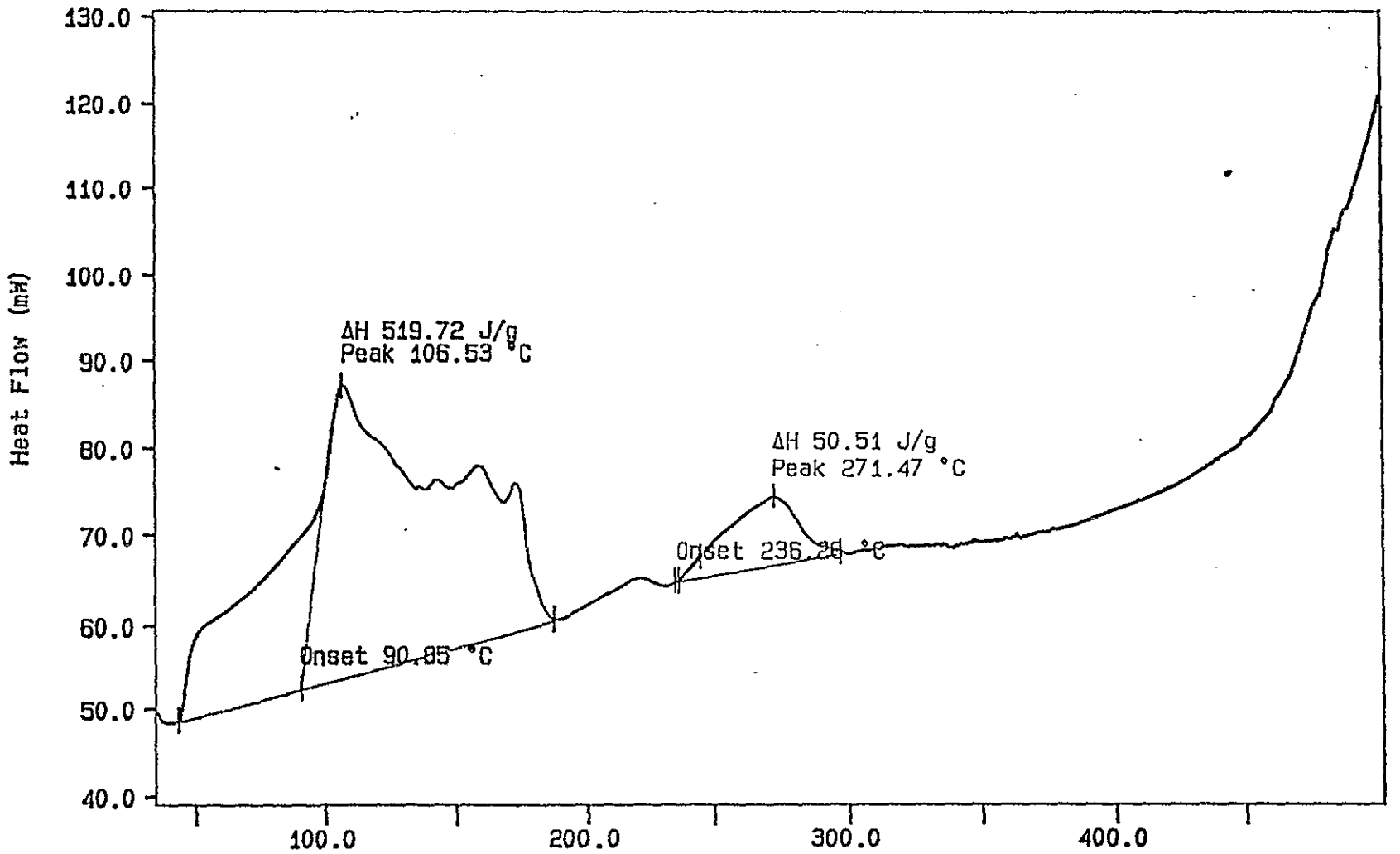
N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Feb 23 19:56:23 1996

2-90

WHC-SD-WM-DP-103, REV. 1
WHC-SD-WM-DP-103 REV. 0 B

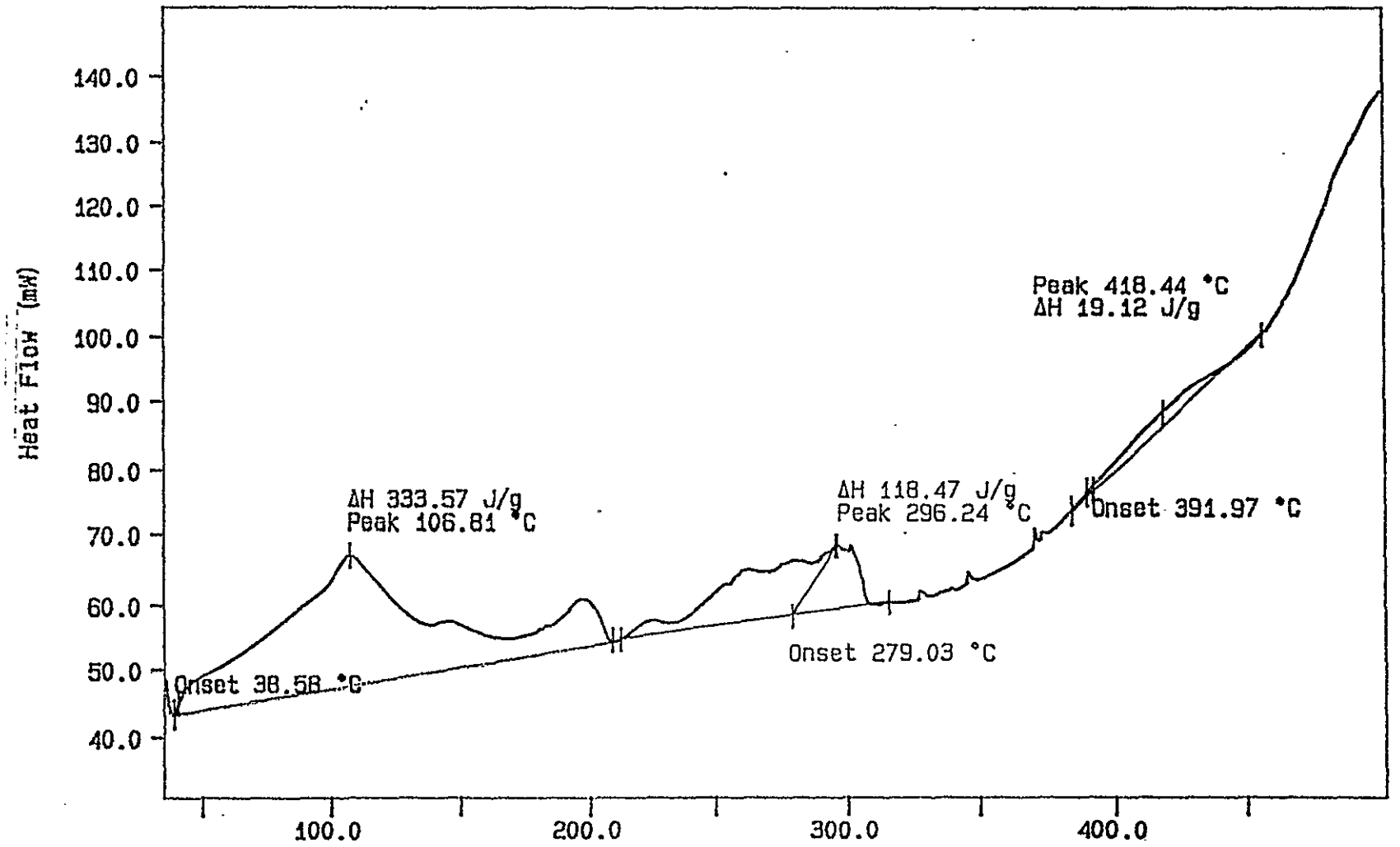
Curve 1: DSC
File info: sam022301 Fri Feb 23 22:52:59 1996
Sample Weight: 27.900 mg
S95T004173



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Feb 24 00:55:03 1996

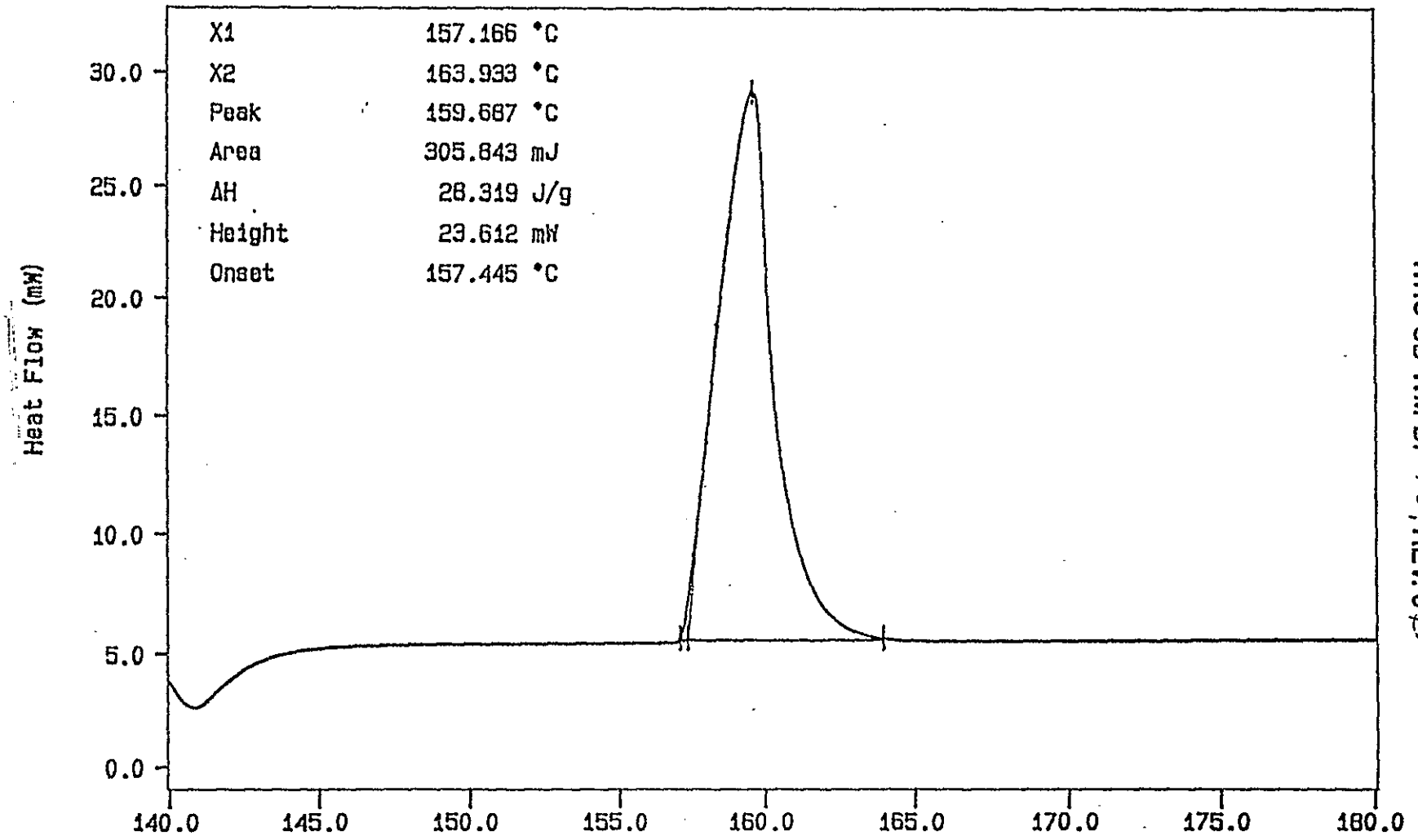
Curve 1: DSC
File info: sam022302 Sat Feb 24 01:47:12 1996
Sample Weight: 25.300 mg
S95T004173DUP



exotherm down, N2 purge gas
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 27 09:00:00 1996

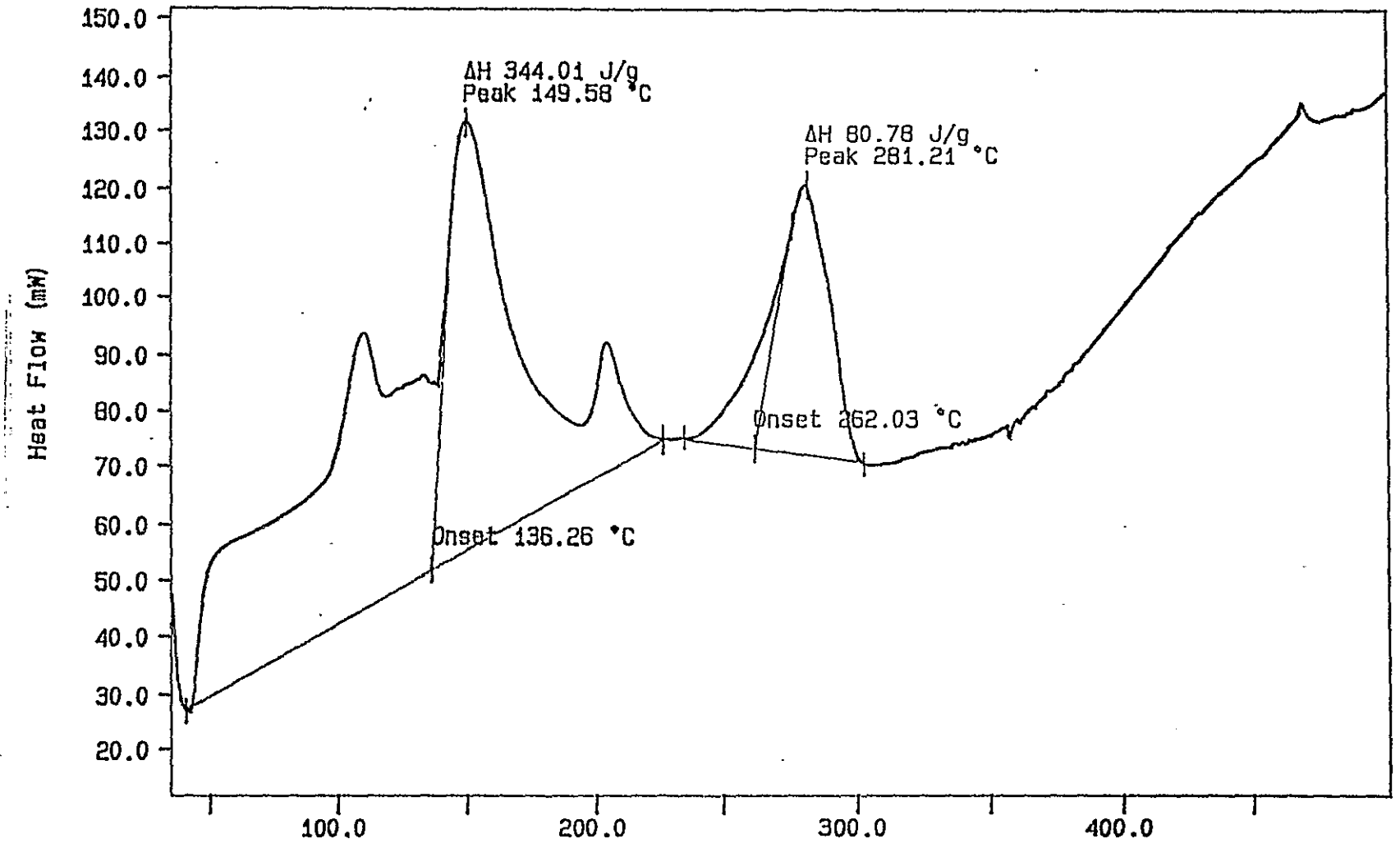
Curve 1: DSC
File info: ind022401 Sat Feb 24 19:00:17 1996
Sample Weight: 10.800 mg
12N14-B INDIUM AT 10C\MIN



N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Feb 24 20:08:16 1996

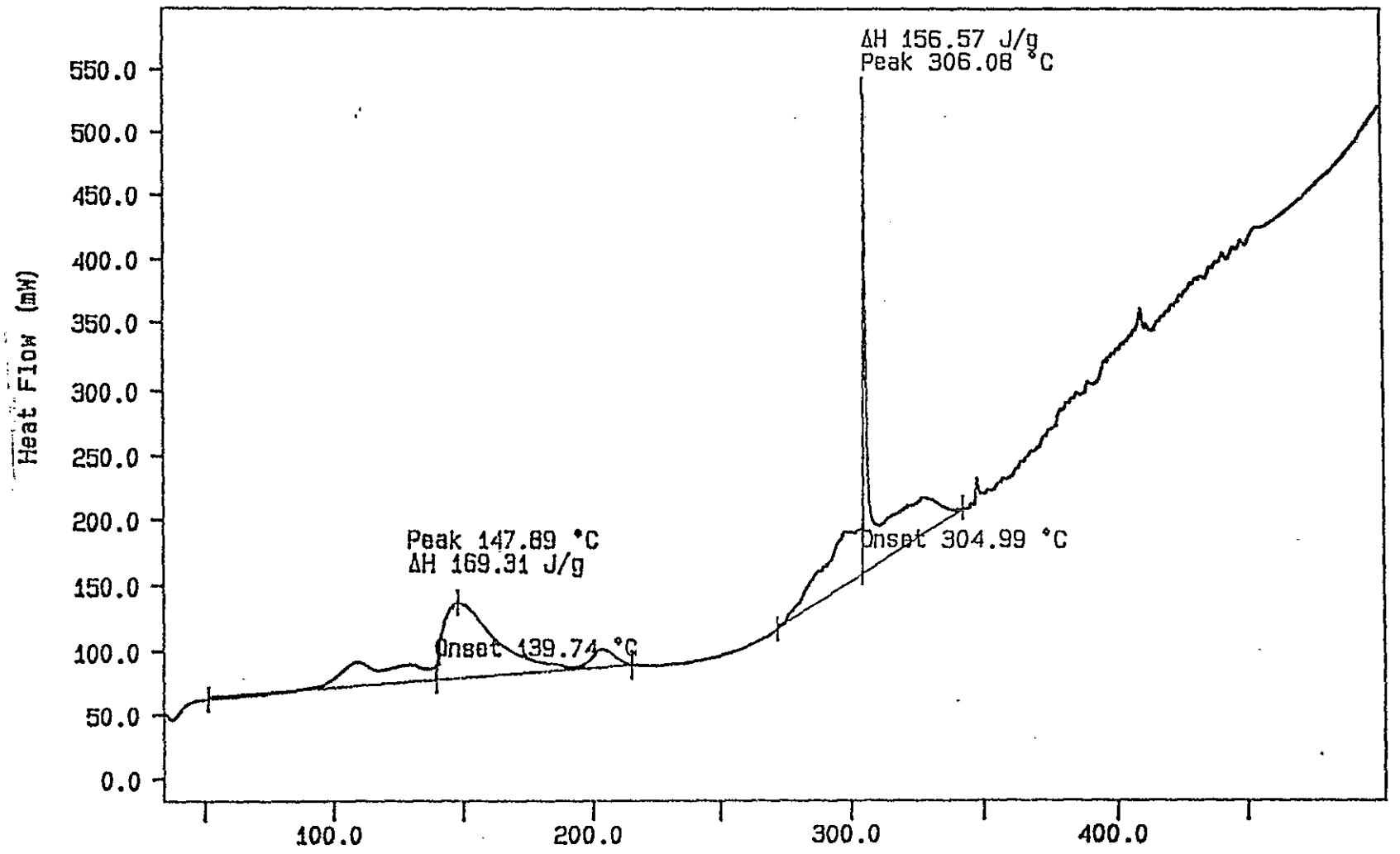
Curve 1: DSC
File info: sam022401 Sat Feb 24 22:59:24 1996
Sample Weight: 92.210 mg
S95T004174



exotherm down, N2 purge gas
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 400.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 25 00:56:39 1996

Curve 1: DSC
File info: sam022402 Sun Feb 25 01:48:32 1996
Sample Weight: 74.150 mg
S95T004174DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 25 03:45:20 1996

LABCORE Data Entry Template for Worklist# 5957

Analyst: RA JS Instrument: DSC0 1 Book # 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: BY-106 DSC-01 RUN UNDER N2. RCJ WHC-SD-WM-DP-103, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID	28.45	29.3	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S96T000258	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S96T000258	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 5957

Rae Ann Green 2-28-96
Analyst Signature Date

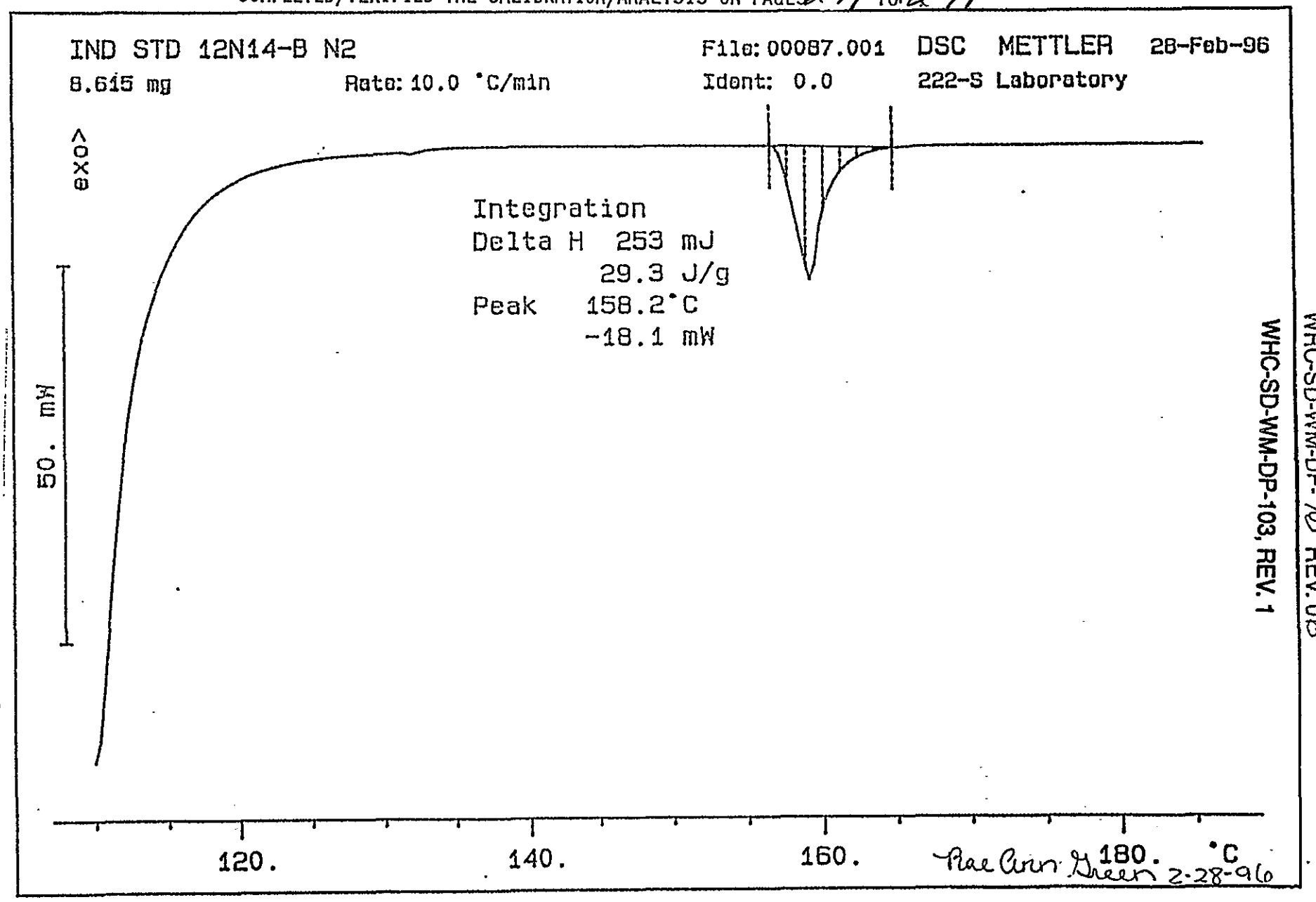
Linda Conlin 3/1/96
Analyst Signature Date

Verified by Blandina Valenzuela 3/7/96

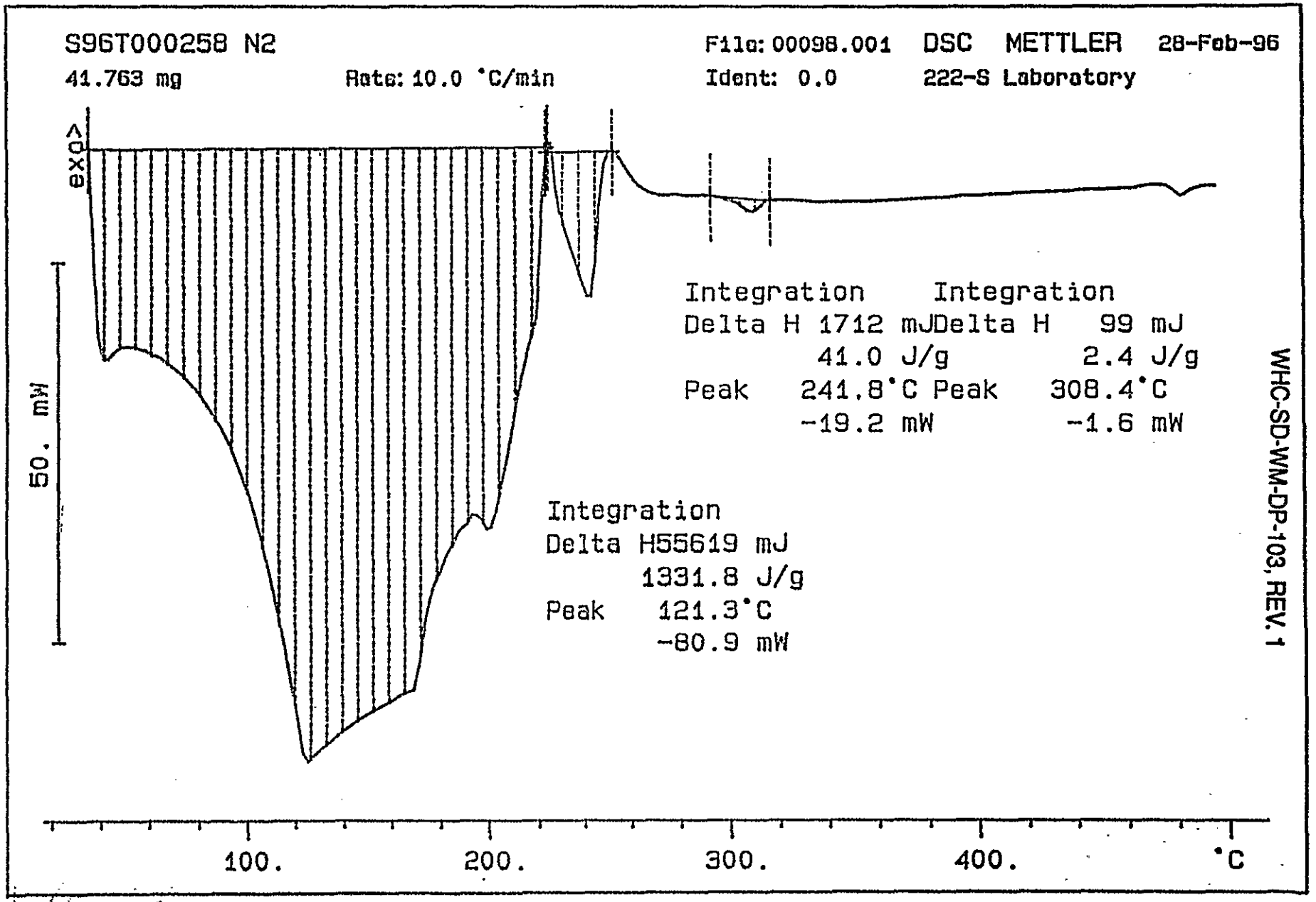
Data Entry Comments: Sample produced three endotherm at 121.3°C with a delta H of 1331.8 J/g, second at 241.8°C with a delta H of 41.0 J/g, and third at 308.4°C with a delta H of 2.4 J/g

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-97 TO 2-99

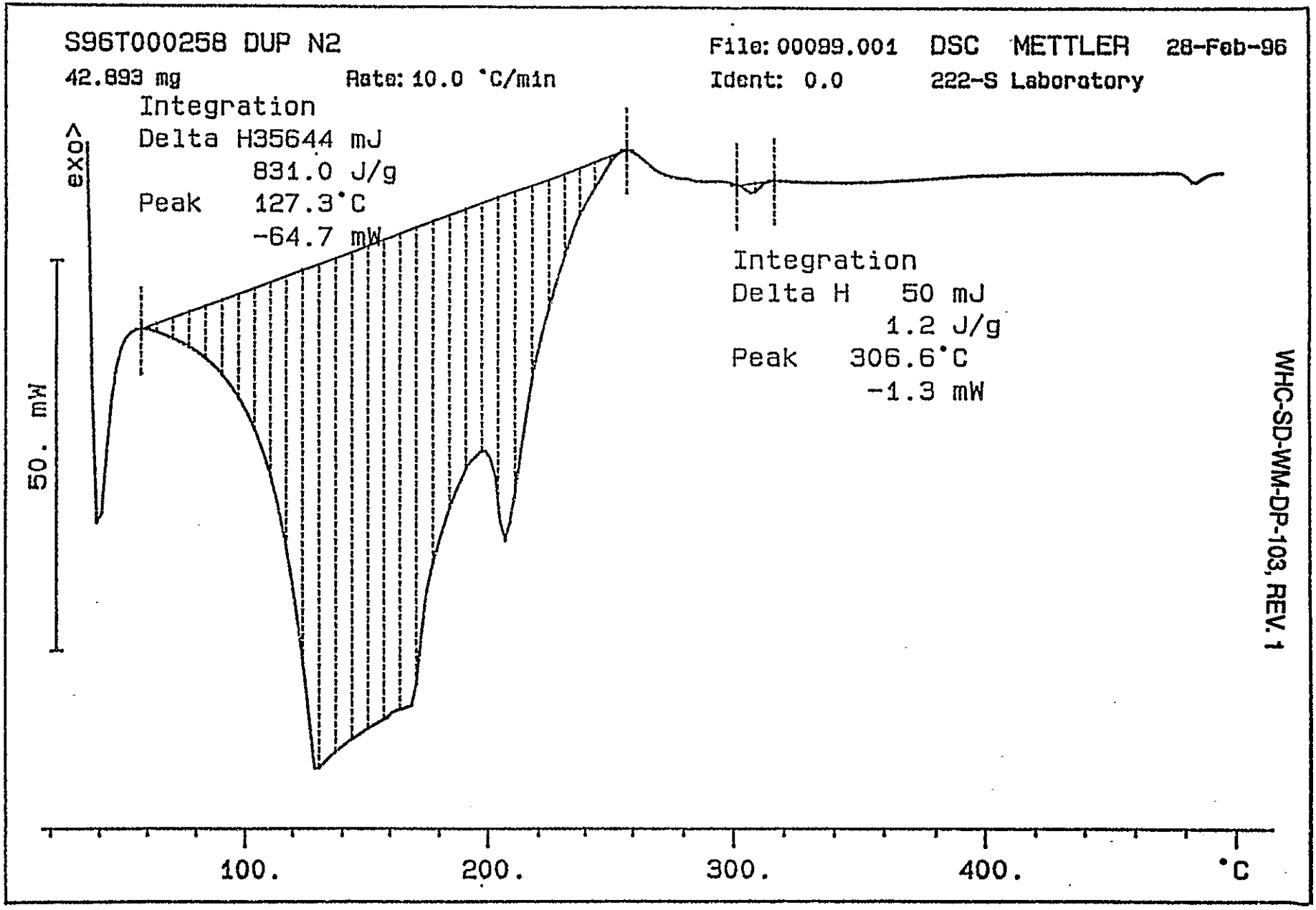


Rae Ann Green 2-28-96



WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0


S96T000258 DUP N2
42.893 mg
Rate: 10.0 °C/min
File: 00099.001
DSC METTLER
28-Feb-96
Ident: 0.0
222-S Laboratory
Integration
Delta H35644 mJ
831.0 J/g
Peak 127.3°C
-64.7 mW
Integration
Delta H 50 mJ
1.2 J/g
Peak 306.6°C
-1.3 mW
exo>
50. mW
100.
200.
300.
400.
°C

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WHC-SD-WM-DP-103 REV. 0B

THE FOLLOWING ANALYSES WERE RERUN. THEY ARE INCLUDED IN THE DATA PACKAGE BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

worklistrpt Version 2.1 05/15/95
02/06/96 15:24

LABCORE Data Entry Template for Worklist# 4929

Analyst: SMF **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.41 *	N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004173	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	3	DUP	S95T004173	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004174	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000229	BY-106	5	DUP	S95T004174	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4929

See attached for signatures
Analyst Signature Date 2/6/96 BDV

Verified by Blandina Valenzuela 2/27/96

Analyst Signature Date

DATA NOT USED IN PACKAGE

Data Entry Comments: S95T004173 produced ~~one~~ BDV 2/27/96 two endotherms, one at 109.1°C with a delta H of 66.04 J/g and second at 150.9°C with a delta H of 279.99 J/g. The Sample will be rerun due to some inexplicable peaks in the baseline

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

2-105

S95T004174 produced two endotherms, one at 109.0°C with a delta H of 360.54 J/g and second at 272.19°C with a delta H of 116.61 J/g. Sample will be rerun for confirma

worklistrpt Version 2.1 05/15/95
01/16/96 11:57

LABCORE Data Entry Template for Worklist# 4929

Analyst: SMF **Instrument:** DSC0 _____ **Book #** 12N143

Method: LA-514-113 Rev/Mod _____

Worklist Comment: BY-106 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	2	SAMPLE	S95T004173	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	3	DUP	S95T004173	0		DSC-01	SOLID			N/A	Joules/g
95000229	BY-106	4	SAMPLE	S95T004174	0		DSC-01	SOLID	N/A			Joules/g
95000229	BY-106	5	DUP	S95T004174	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 4929

Susie M. Dalton 2-4-96
Analyst Signature Date

NE Wright 2/7/96
Analyst Signature Date

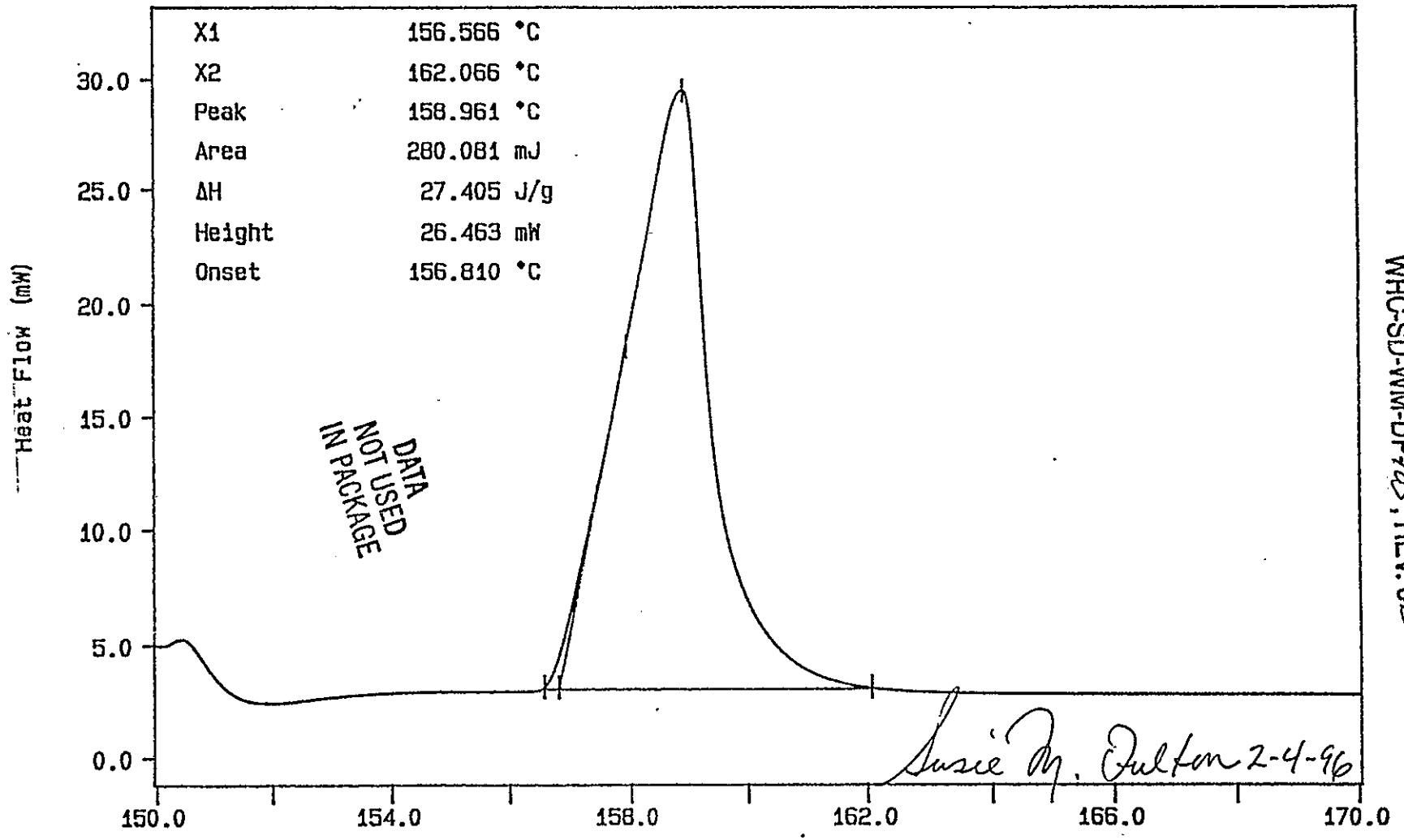
Other instrument was used. 2/27/96 BDY

DATA NOT USED IN PACKAGE

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND020401 Sun Feb 4 21:54:16 1996
Sample Weight: 10.220 mg
12N14B Indium at 10C/min



N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

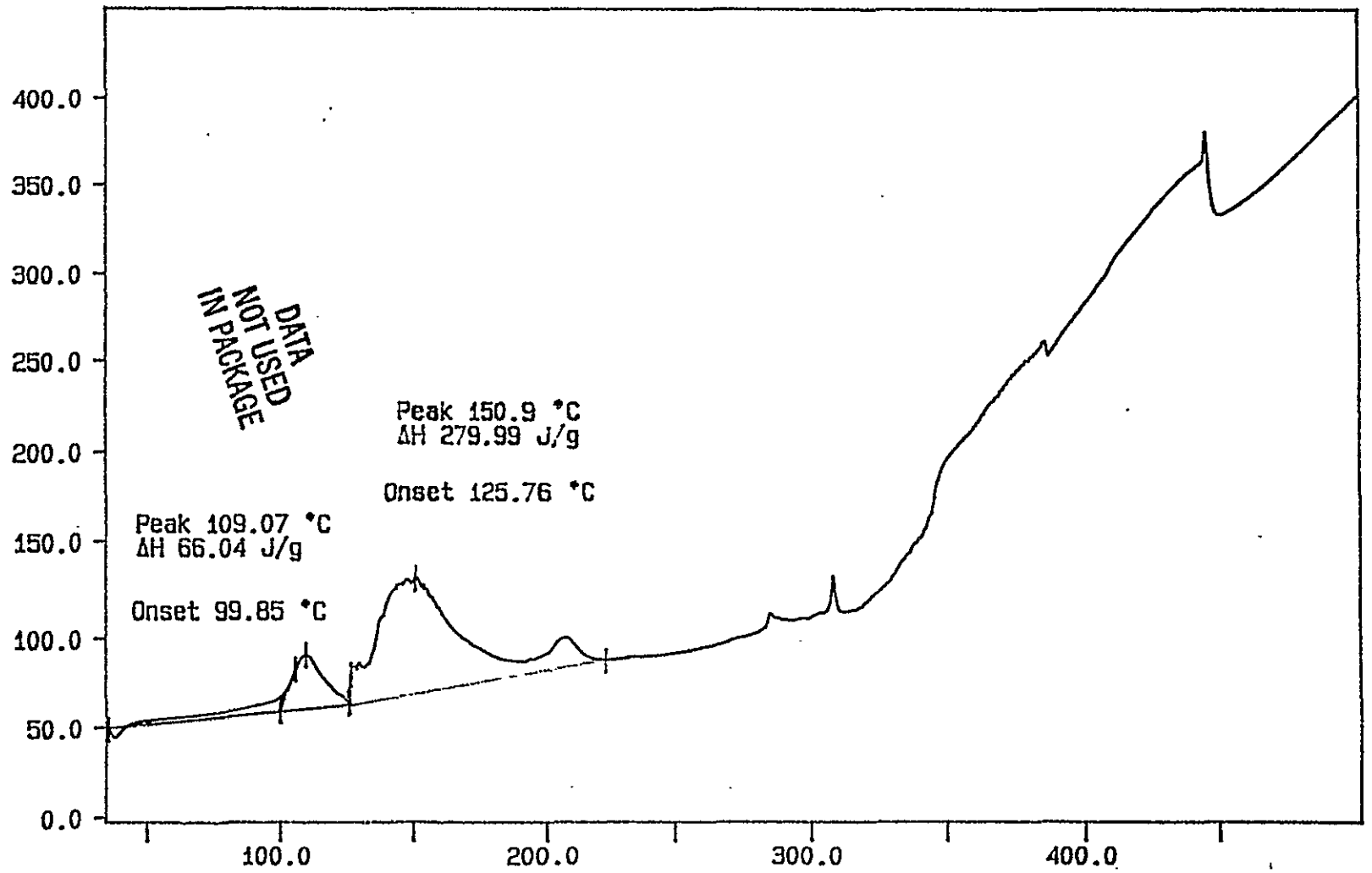
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 5 01:11:33 1996

2-107

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0B

Curve 1: DSC
File info: SAM020407 Mon Feb 5 00:04:22 1996
Sample Weight: 48.990 mg
S95T004173



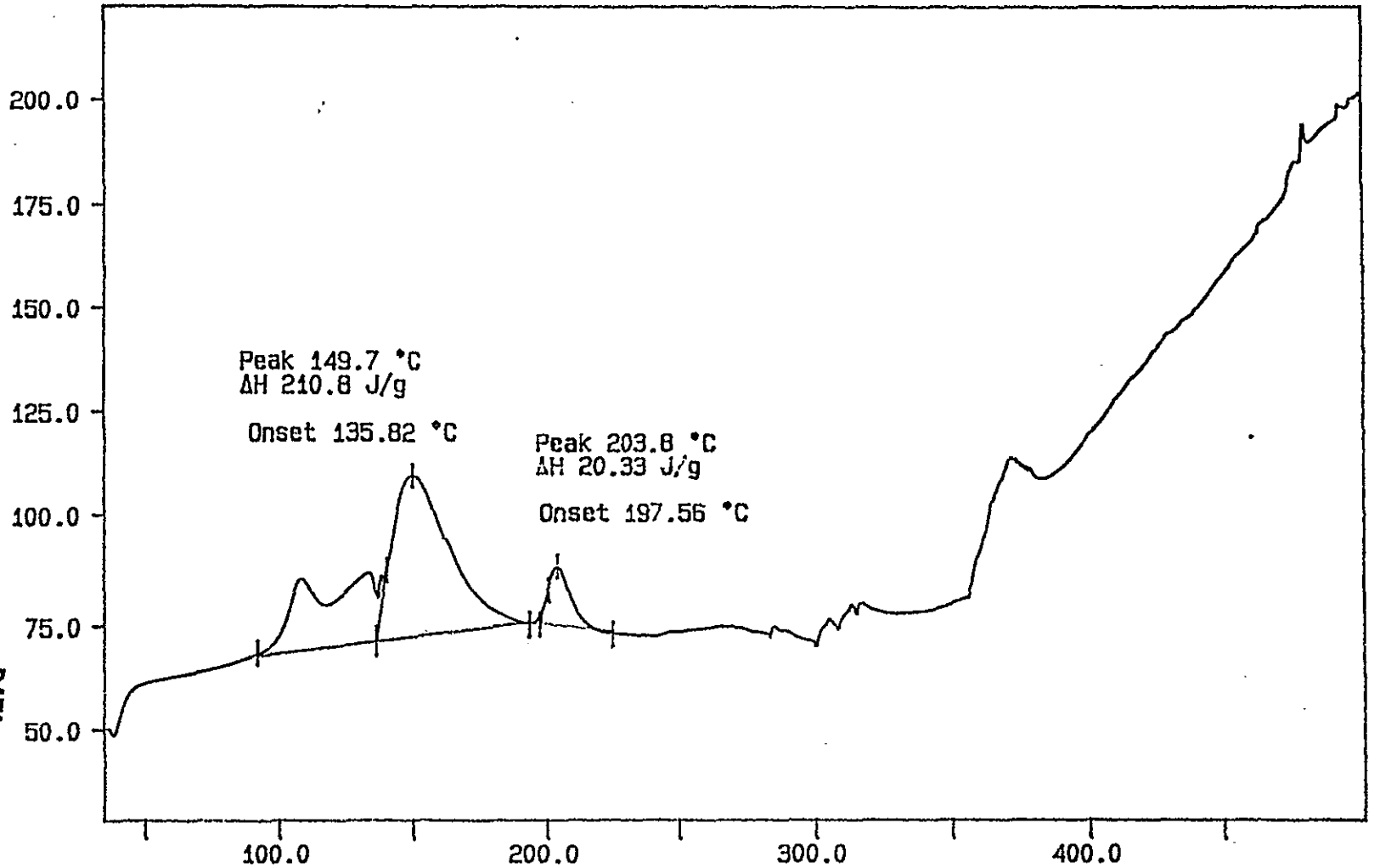
exotherm down, N2 purge gas

TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 5 00:53:15 1996

2-108

Curve 1: DSC
File info: SAM020408 Mon Feb 5 01:56:59 1996
Sample Weight: 39.640 mg
S95T004173 DUP

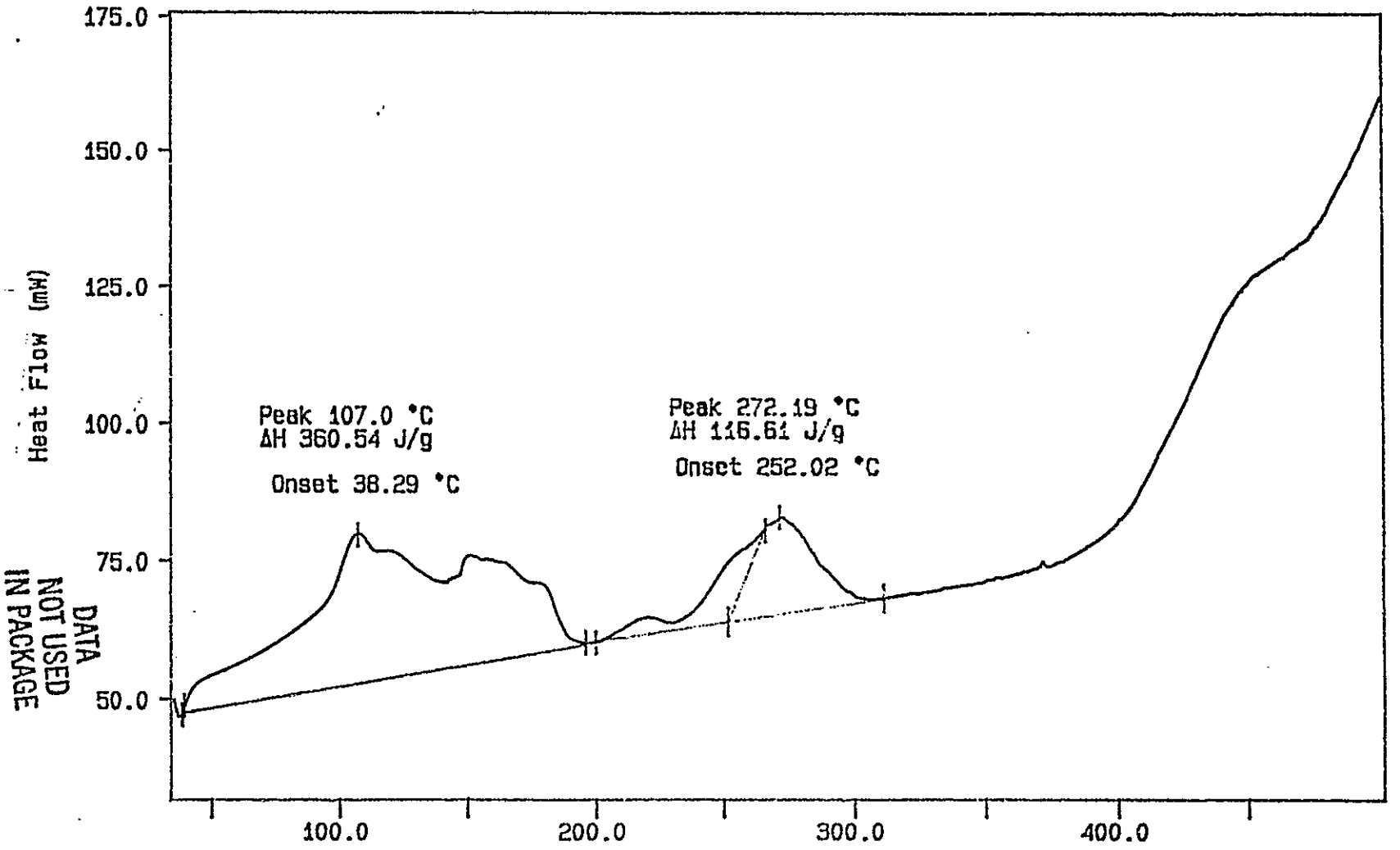


DATA NOT USED IN PACKAGE

exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 5 02:02:40 1996

Curve 1: DSC
File info: SAM020409 Mon Feb 5 03:02:00 1996
Sample Weight: 36.230 mg
S952T004174

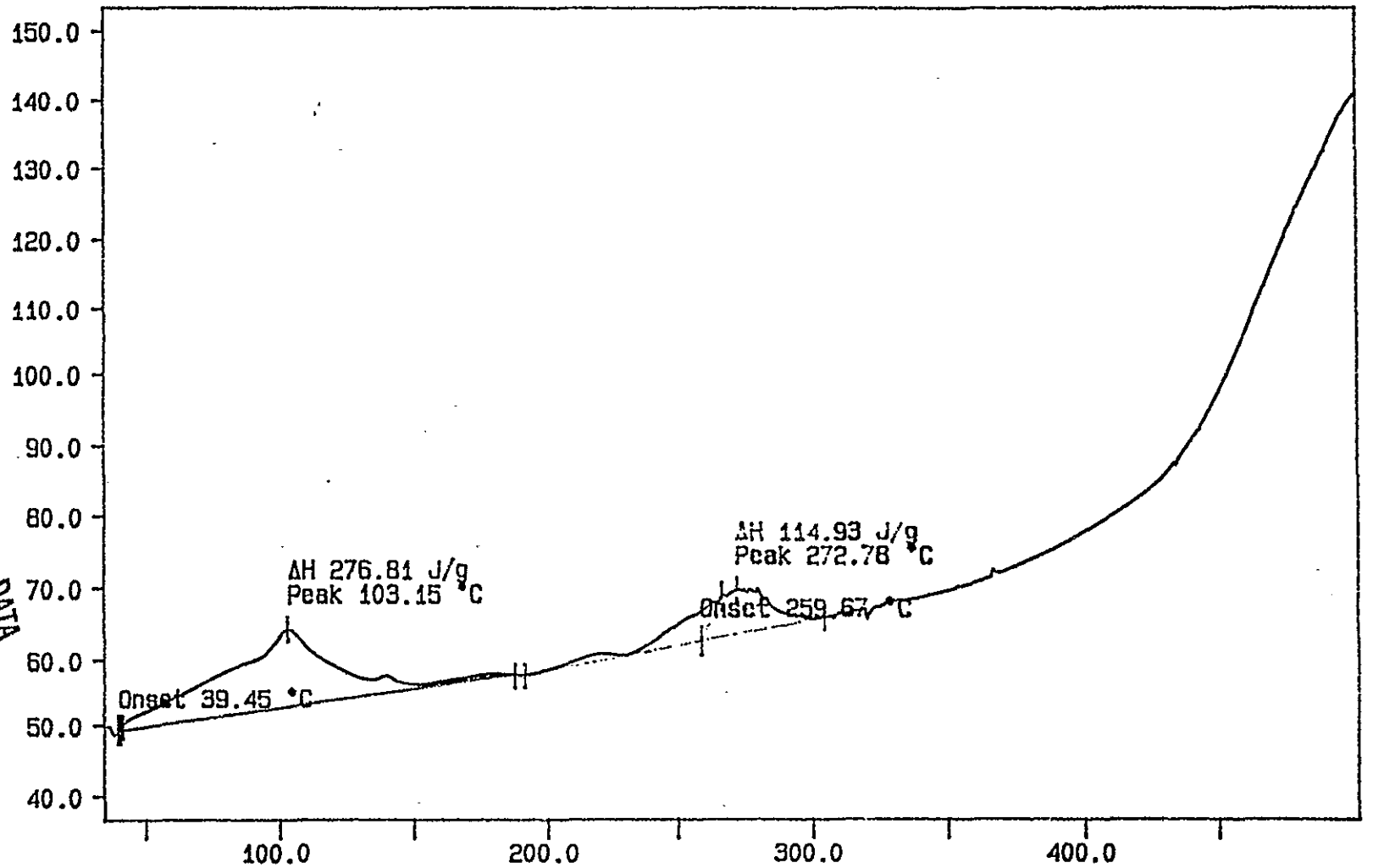


DATA NOT USED IN PACKAGE

exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 5 03:57:41 1996

Curve 1: DSC
File info: SAM020410 Mon Feb 5 04:48:27 1996
Sample Weight: 12.080 mg
S95T004174 DUP



DATA NOT USED IN PACKAGE

exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 5 06:33:56 1996

worklistrpt Version 2.1 05/15/95
01/16/96 12:10

WHC-SD-WM-DP-103 REV. 0B

LABCORE Data Entry Template for Worklist# 4936

Analyst: ADP Instrument: TGA0 _____ Book # ~~7 100C~~ 75N8 A

Method: LA-560-112 Rev/Mod C-1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.2	59.32	N/A	%
95000229	BY-106	2	SAMPLE	S95T004167	0		TGA-01	SOLID	N/A	17.45		%
95000229	BY-106	3	DUP	S95T004167	0		TGA-01	SOLID	17.45	15.06	N/A	%
95000229	BY-106	4	SAMPLE	S95T004168	0		TGA-01	SOLID	N/A	30.84		%
95000229	BY-106	5	DUP	S95T004168	0		TGA-01	SOLID	30.84	30.50	N/A	%

Final page for worklist # 4936

[signature] APO 2-1-96 ~~1-31-96~~
Analyst Signature Date

[signature] 2-9-96
Analyst Signature Date

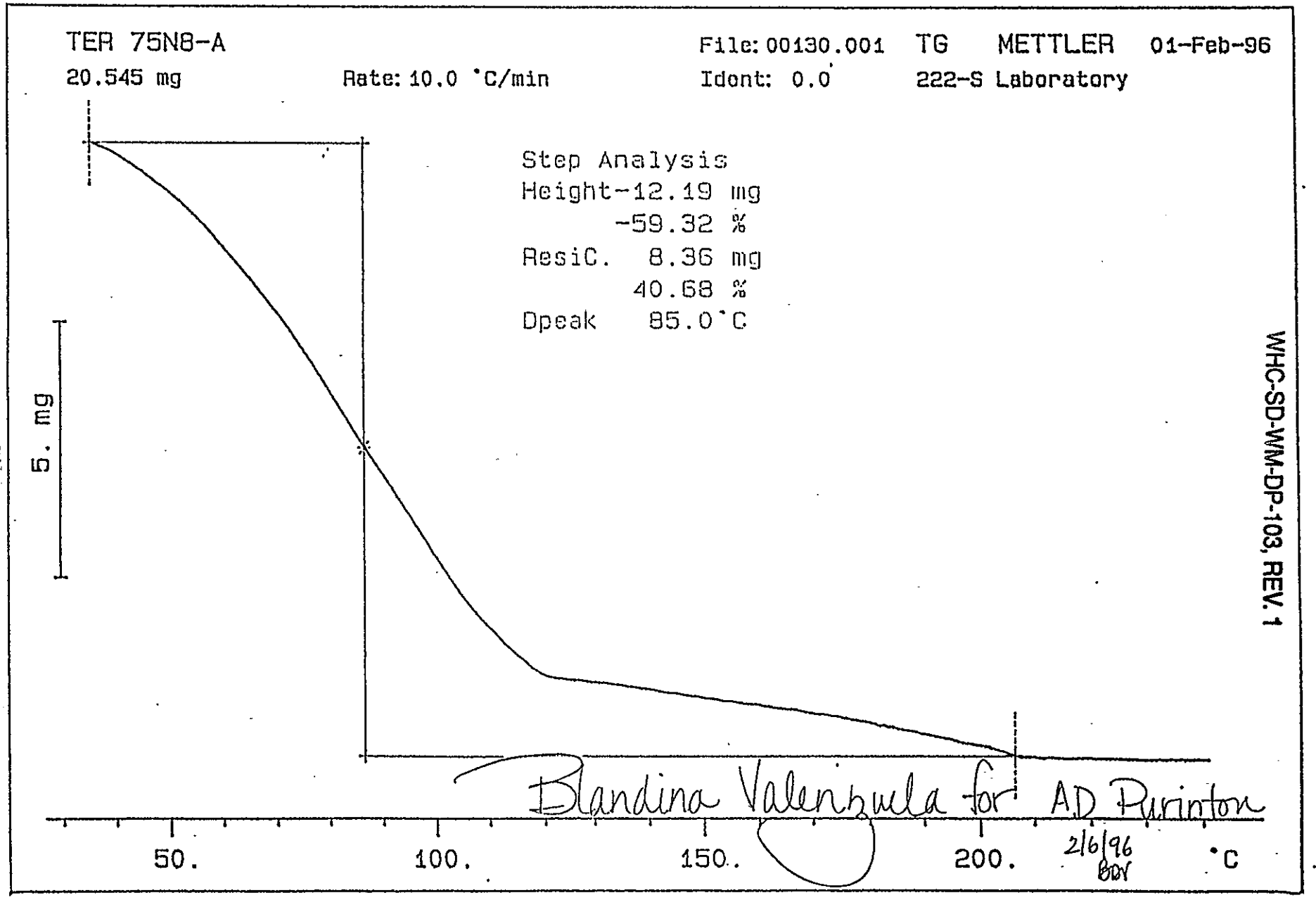
Verified by Blandina Valenzuela 2-12-96

Data Entry Comments: S95T004167 results are the sum of two distint weight loss steps. The sample and duplicate also produced ~~of 3.0~~ 2/6/96 APO a second weight loss step of 3.09%.
S95T004168 produced a second weight loss step of ~~7.94%~~ 2/6/96 6.72%

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-113 TO 2-117

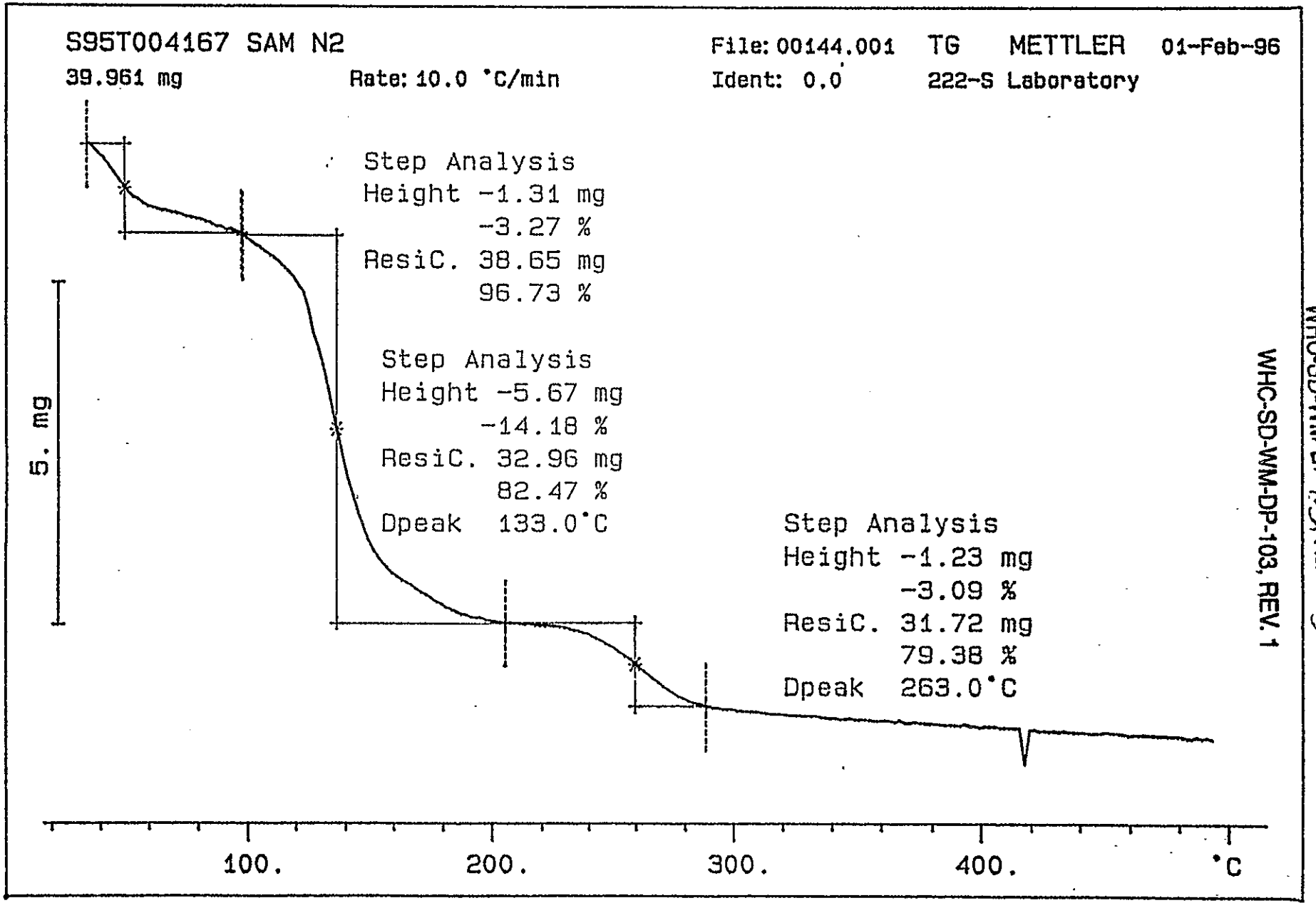
BEST AVAILABLE COPY



Blandina Valenzuela for A.D. Purinton 2/6/96 BDV

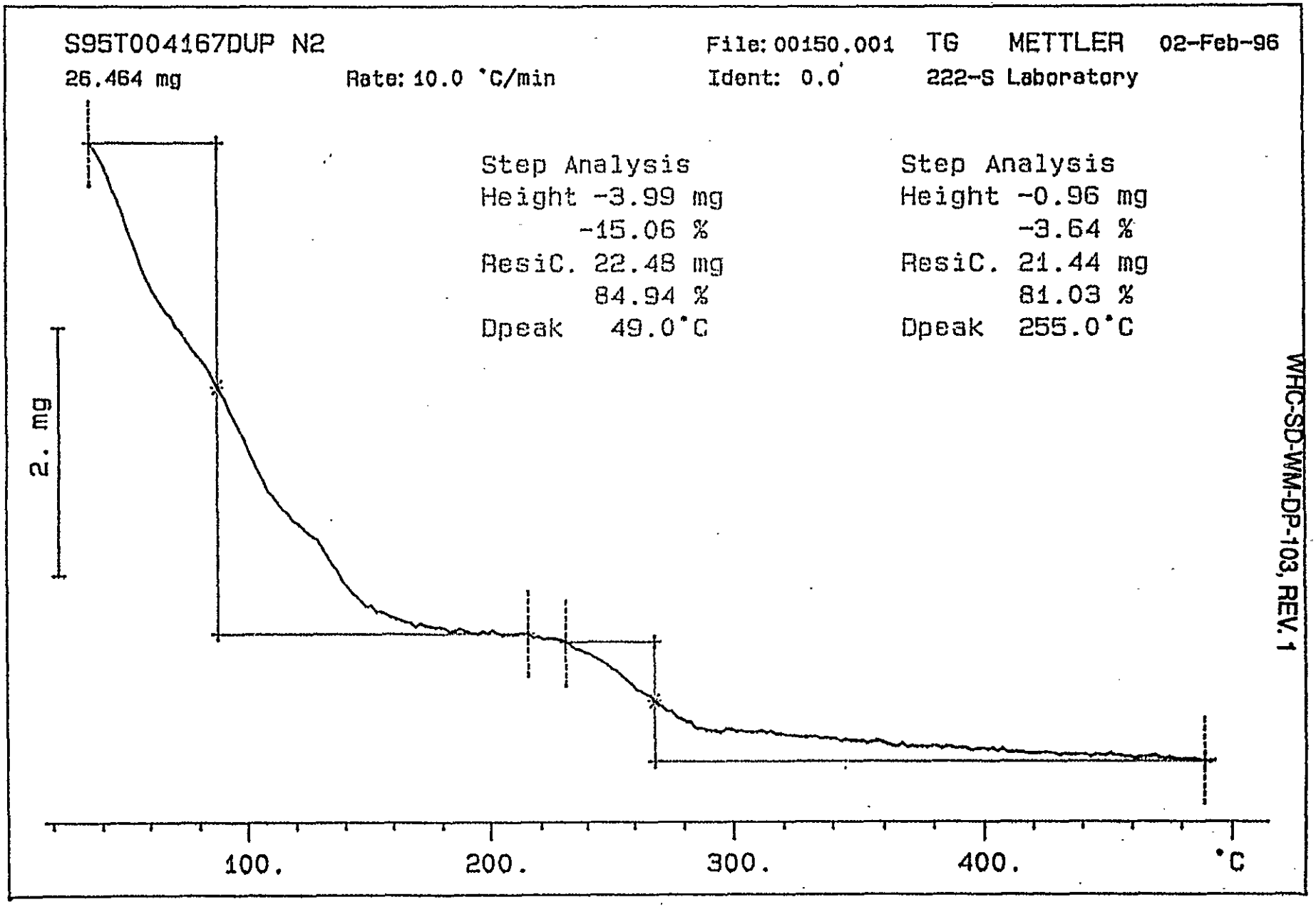
WHC-SD-WM-DP-103 REV. 0

BEST AVAILABLE COPY

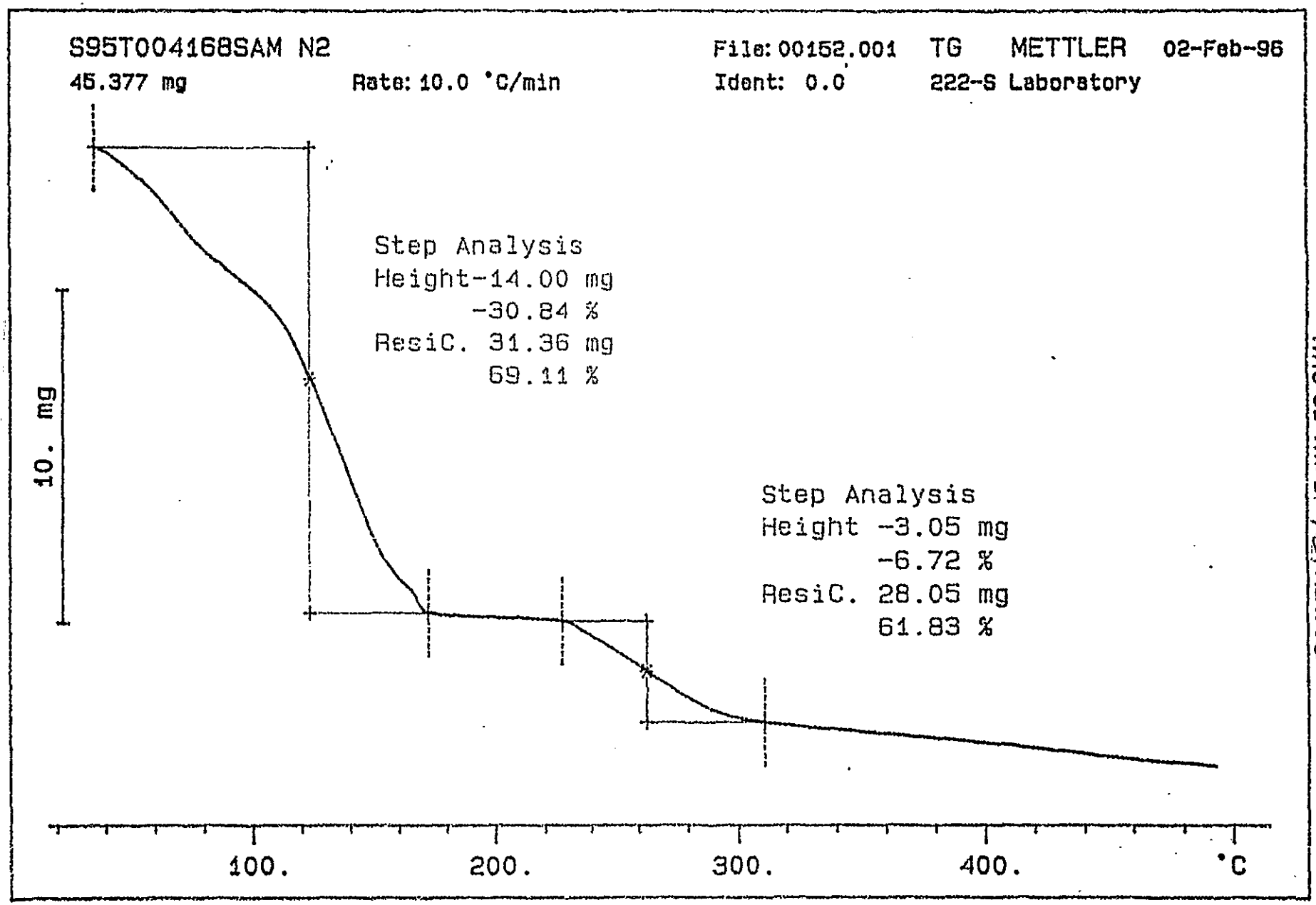


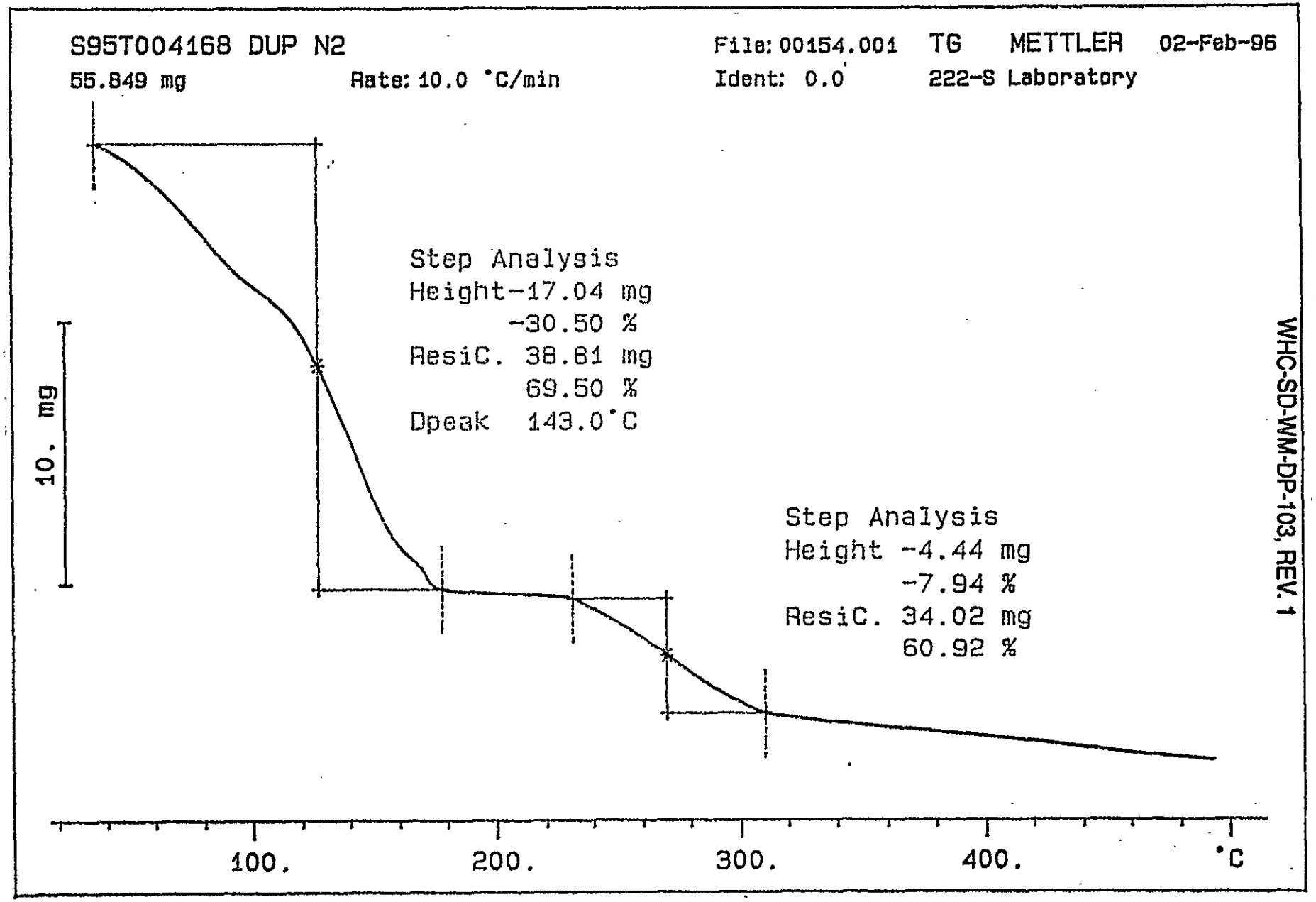
WHC-SD-WM-DP 103, REV. 0B

WHC-SD-WM-DP-103, REV. 1


S95T004167DUP N2
26.464 mg
Rate: 10.0 °C/min
File: 00150.001
Ident: 0.0
TG
METTLER
02-Feb-96
222-S Laboratory
Step Analysis
Height -3.99 mg
-15.06 %
ResiC. 22.48 mg
84.94 %
Dpeak 49.0°C
Step Analysis
Height -0.96 mg
-3.64 %
ResiC. 21.44 mg
81.03 %
Dpeak 255.0°C
2. mg
100.
200.
300.
400.
°C

BEST AVAILABLE COPY




S95T004168 DUP N2
55.849 mg
Rate: 10.0 °C/min
File: 00154.001
TG
METTLER
02-Feb-96
Ident: 0.0
222-S Laboratory
Step Analysis
Height -17.04 mg
-30.50 %
ResiC. 38.61 mg
69.50 %
Dpeak 143.0°C
Step Analysis
Height -4.44 mg
-7.94 %
ResiC. 34.02 mg
60.92 %
10. mg
100.
200.
300.
400.
°C

worklistrpt Version 2.1 05/15/95
01/16/96 12:11

LABCORE Data Entry Template for Worklist# 4937

Analyst: DPB **Instrument:** TGA0 1 **Book #** 75N8-A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.2	60.25	N/A	%
95000229	BY-106	2	SAMPLE	S95T004169	0		TGA-01	SOLID	N/A	21.57		%
95000229	BY-106	3	DUP	S95T004169	0		TGA-01	SOLID	21.57	17.91	N/A	%
95000229	BY-106	4	SAMPLE	S95T004170	0		TGA-01	SOLID	N/A			%
95000229	BY-106	5	DUP	S95T004170	0		TGA-01	SOLID			N/A	%

Final page for worklist # 4937

Dana P. Bromley 2/6/96
Analyst Signature Date

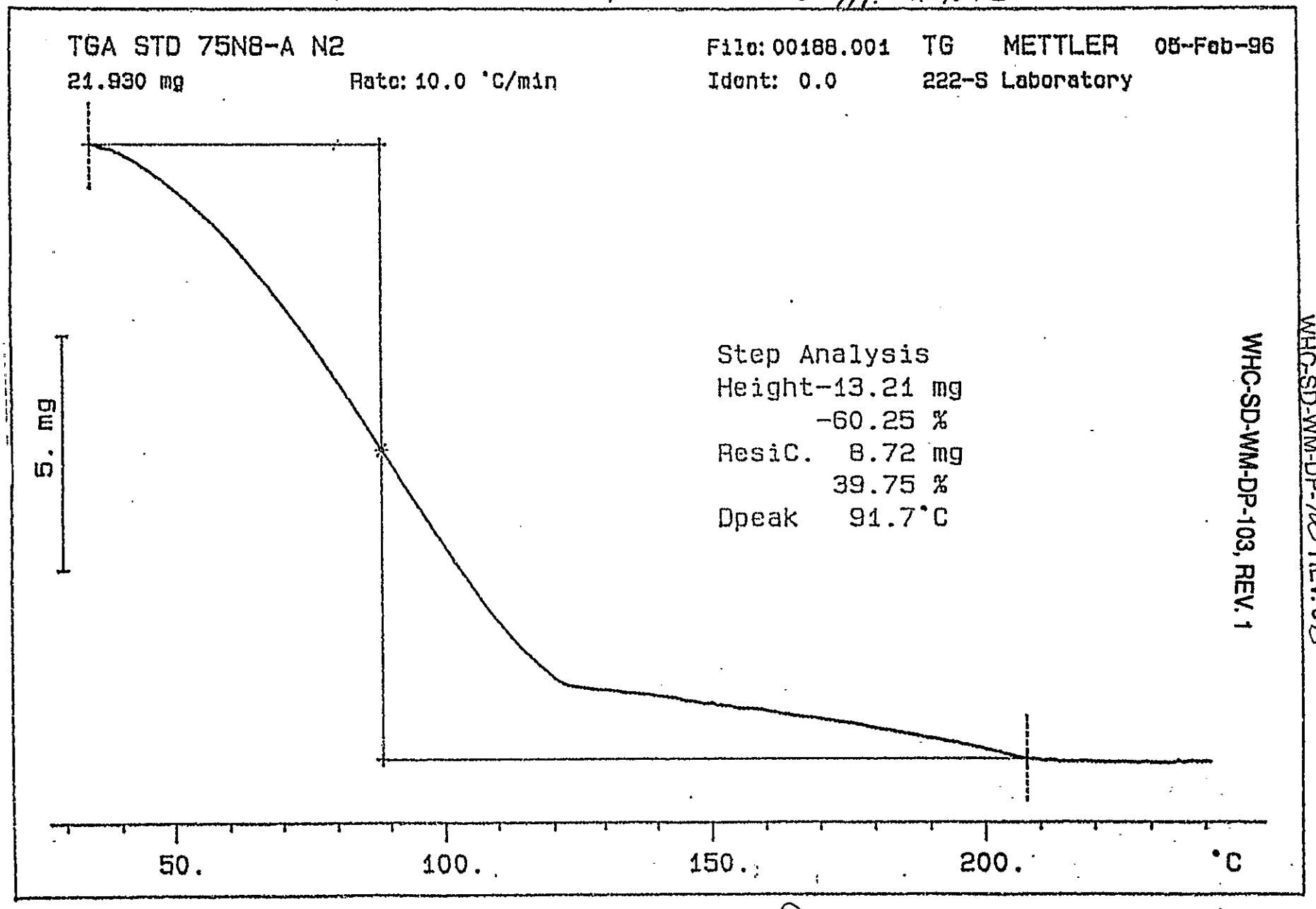
Analyst Signature Date

Susie M. Dalton 2/11/96

Data Entry Comments:

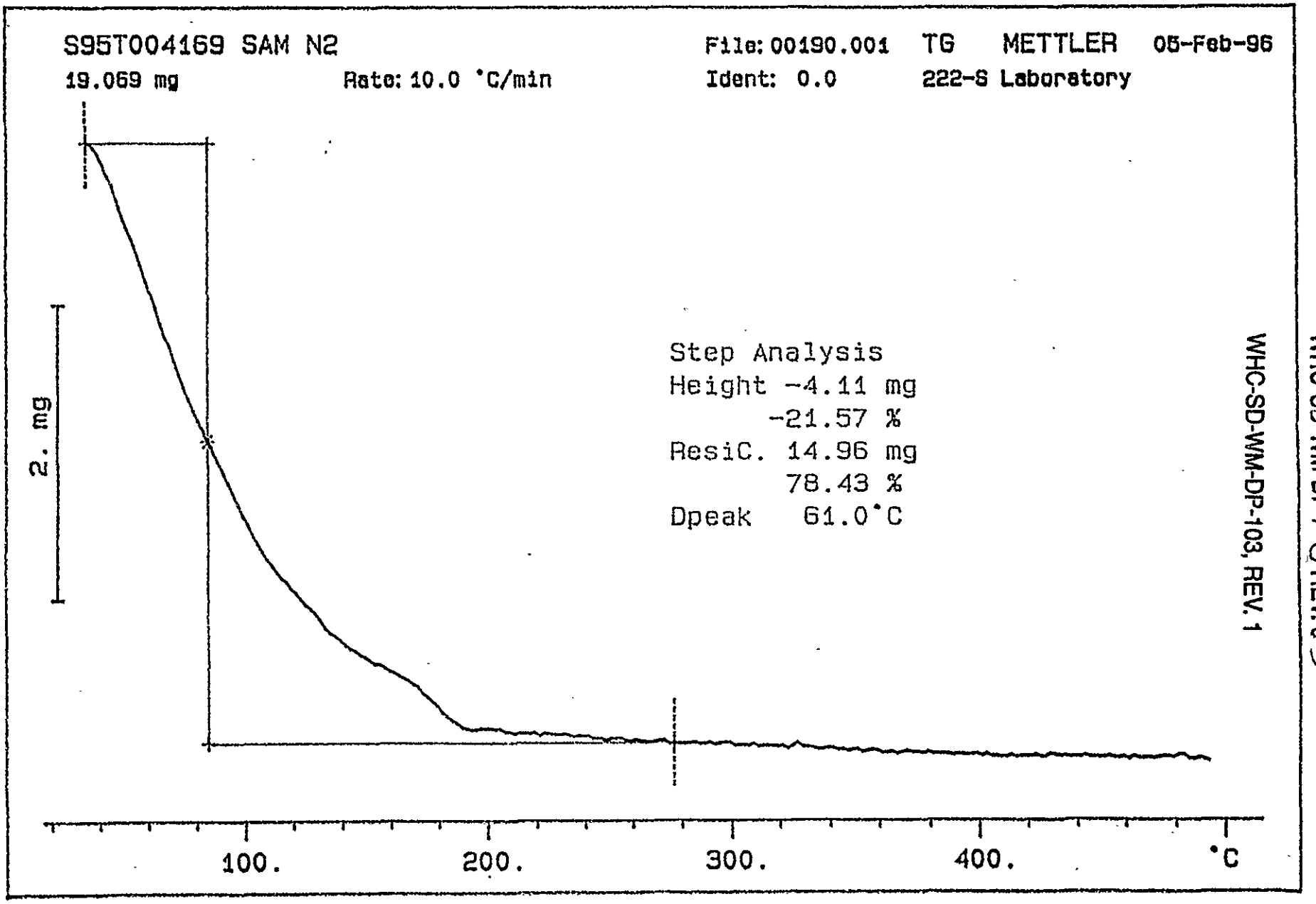
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

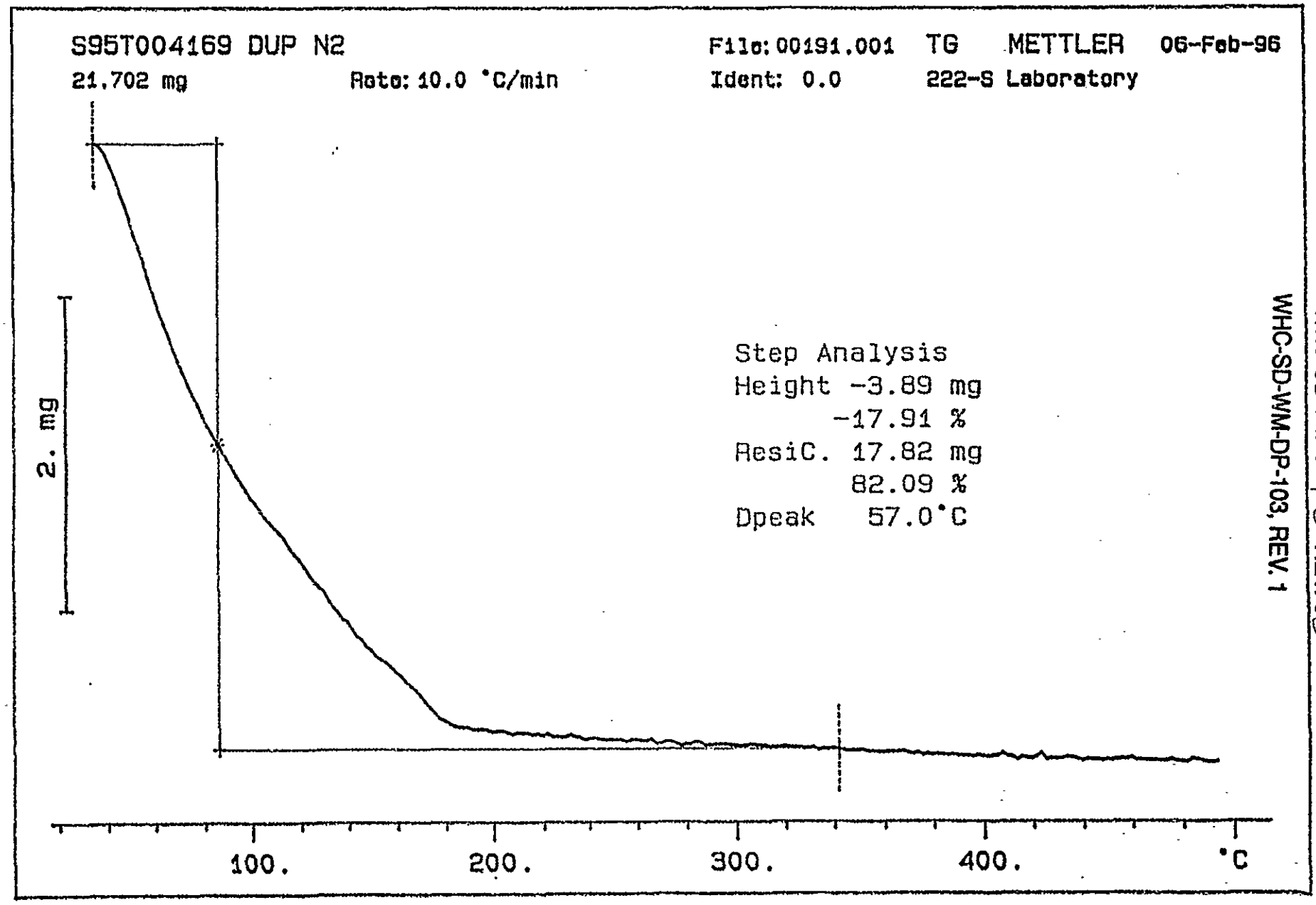
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-119 TO 2-123

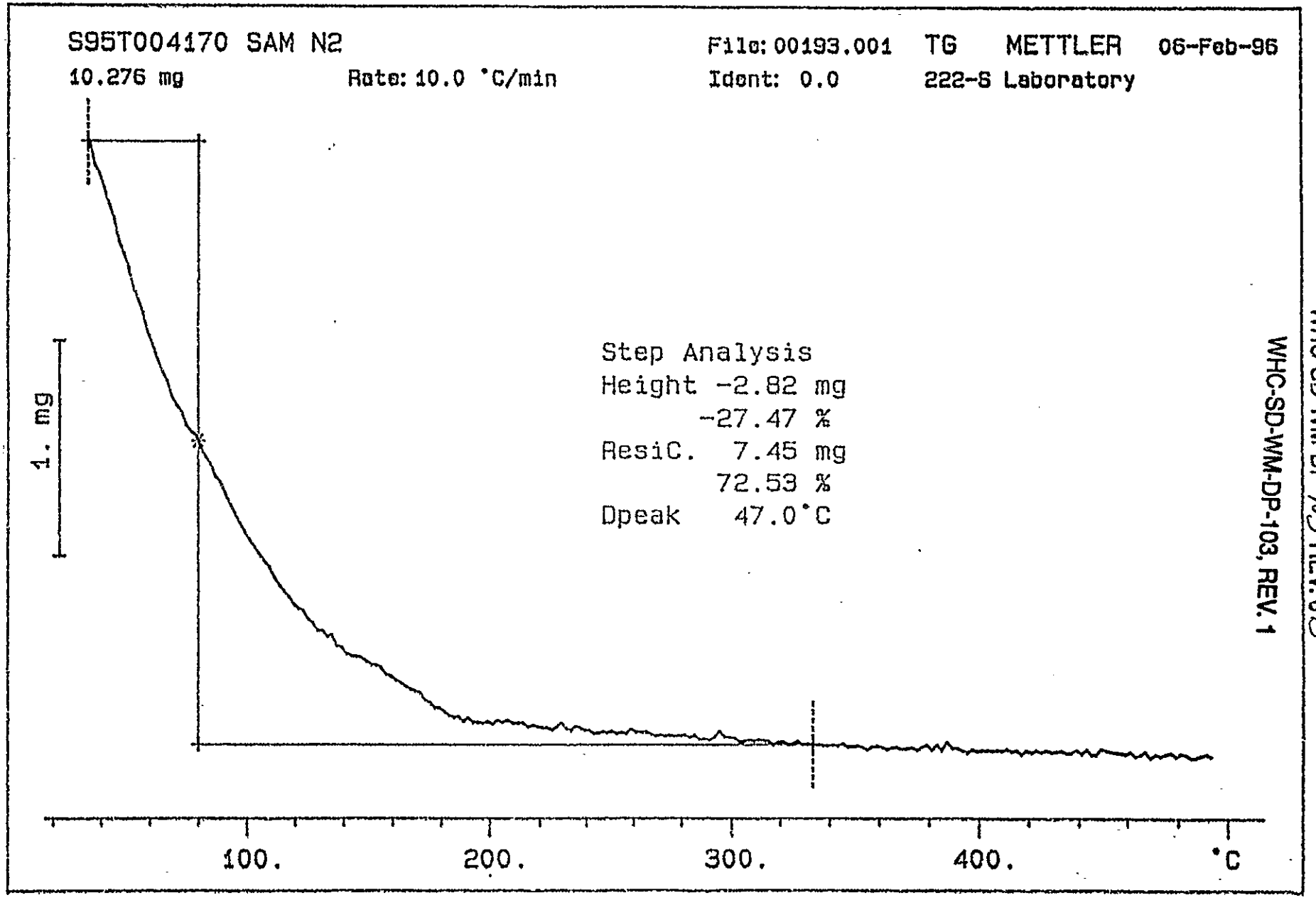


WHC-SD-WM-DP-103 REV. 0B

WHC-SD-WM-DP-103, REV. 1

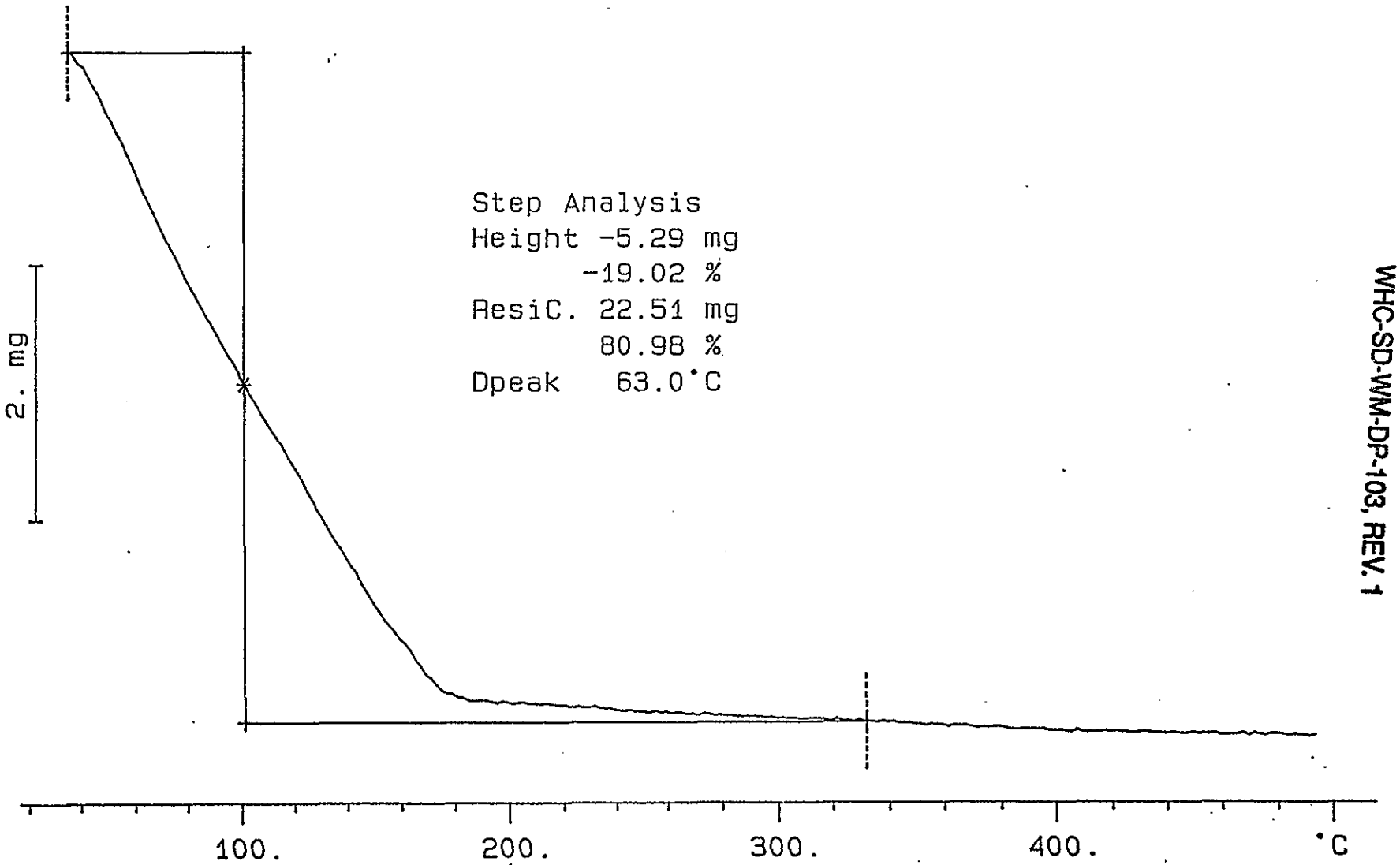

S95T004169 SAM N2
19.069 mg
Rate: 10.0 °C/min
File: 00190.001
Ident: 0.0
TG
METTLER
05-Feb-96
222-S Laboratory
Step Analysis
Height -4.11 mg
-21.57 %
ResiC. 14.96 mg
78.43 %
Dpeak 61.0°C
2. mg
100.
200.
300.
400.
°C


S95T004169 DUP N2
21.702 mg
Rate: 10.0 °C/min
File: 00191.001
TG
METTLER
06-Feb-96
Ident: 0.0
222-S Laboratory
Step Analysis
Height -3.89 mg
-17.91 %
ResiC. 17.82 mg
82.09 %
Dpeak 57.0°C
2. mg
100.
200.
300.
400.
°C


S95T004170 SAM N2
10.276 mg
Rate: 10.0 °C/min
File: 00193.001
Ident: 0.0
TG
METTLER
222-S Laboratory
06-Feb-96
1. mg
Step Analysis
Height -2.82 mg
-27.47 %
ResiC. 7.45 mg
72.53 %
Dpeak 47.0°C
100.
200.
300.
400.
°C

S95T004170 DUP N2 File: 00032.001 TG METTLER 11-Feb-96

27.797 mg Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory



worklistrpt Version 2.1 05/15/95
02/14/96 11:36

LABCORE Data Entry Template for Worklist# 4938

Analyst: ADP Instrument: TGA0 1 Book # 75N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.2	60.20*	N/A	%
95000229	BY-106	2	SAMPLE	S95T004171	0		TGA-01	SOLID	N/A	12.70		%
95000229	BY-106	3	DUP	S95T004171	0		TGA-01	SOLID	12.70	12.05	N/A	%
		4	STD				TGA-01	SOLID	59.2	60.16	N/A	%
95000229	BY-106	5	SAMPLE	S95T004172	0		TGA-01	SOLID	N/A	15.58		%
95000229	BY-106	6	DUP	S95T004172	0		TGA-01	SOLID	15.58	12.74	N/A	%

Final page for worklist # 4938

See attached for signatures
Analyst Signature Date 2/14/96

[signature] 2-14-96
Analyst Signature Date

Verified by Blandina Valenzuela 2/15/96

Data Entry Comments: S95T004171 has sharp dips cause from motion around the lab and does not interfere with results

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrpt Version 2.1 05/15/95
01/16/96 12:12

LABCORE Data Entry Template for Worklist# 4938

Analyst: ADP **Instrument:** TGA0 **Book #** 75N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000229	BY-106	2	SAMPLE	S95T004171	0		TGA-01	SOLID	N/A			%
95000229	BY-106	3	DUP	S95T004171	0		TGA-01	SOLID			N/A	%
95000229	BY-106	4	SAMPLE	S95T004172	0		TGA-01	SOLID	N/A			%
95000229	BY-106	5	DUP	S95T004172	0		TGA-01	SOLID			N/A	%

Final page for worklist # 4938

Analyst Signature Date 2/12/96

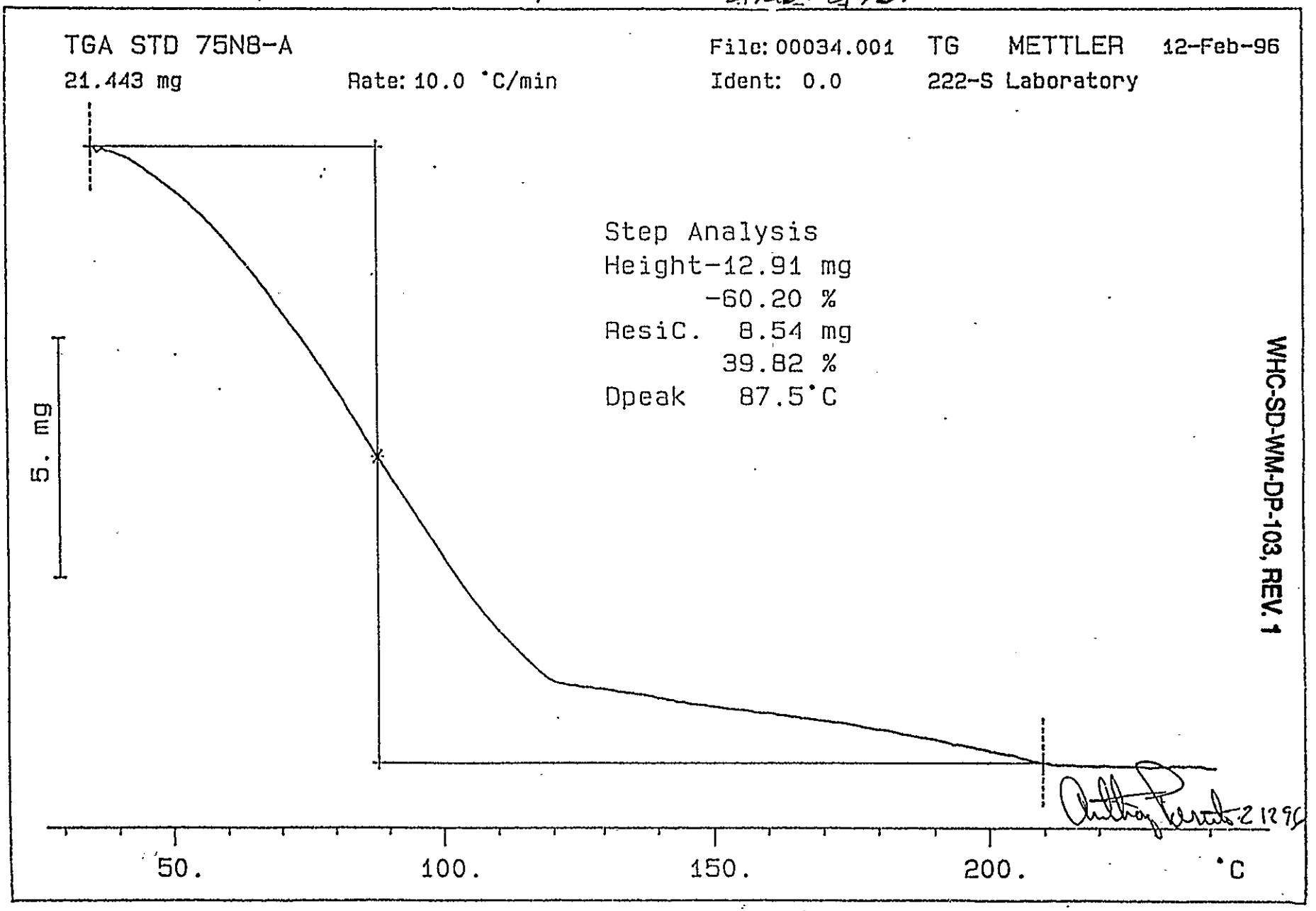
Analyst Signature Date 2/13/96

Analyst Signature Date

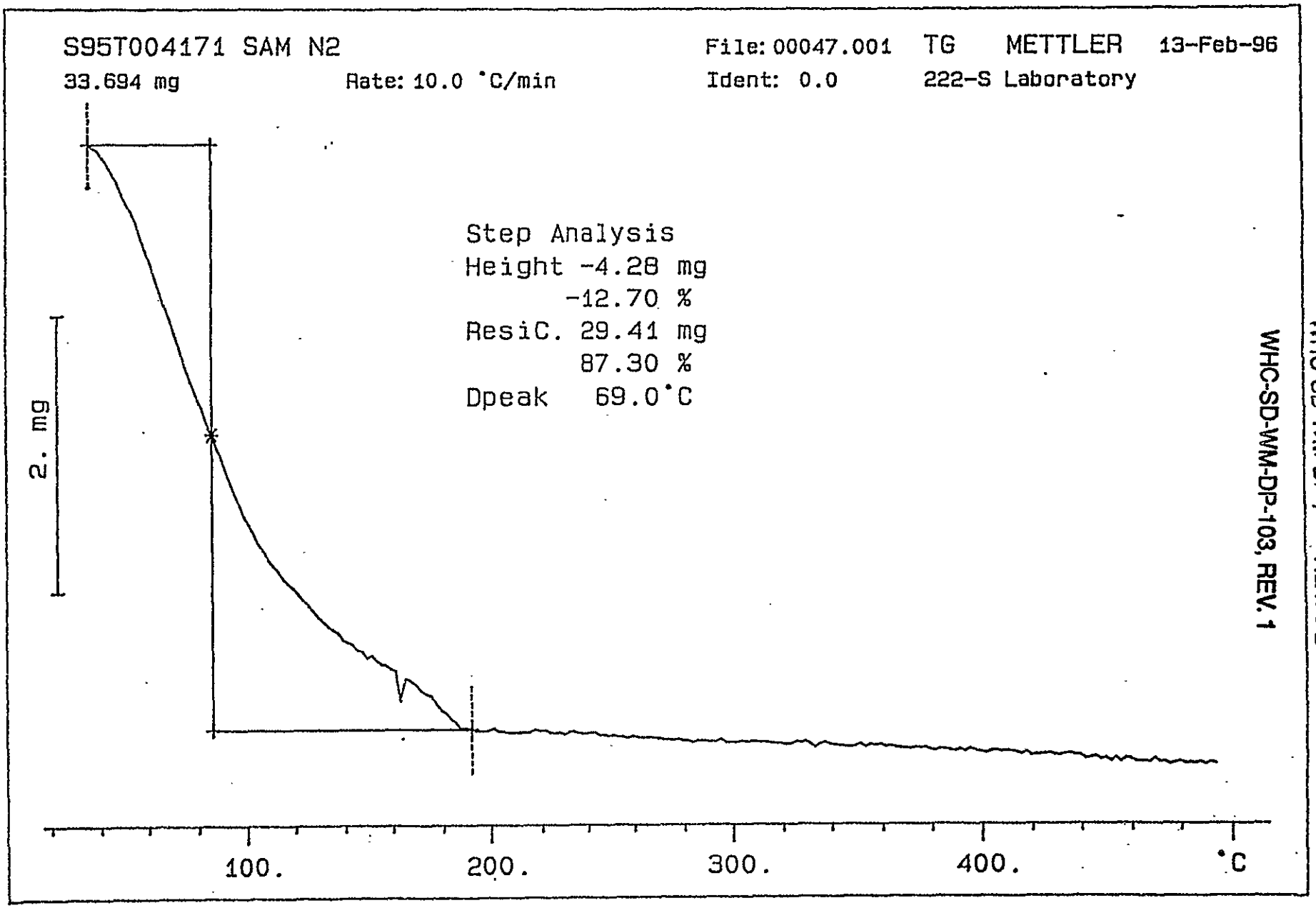
Data Entry Comments:

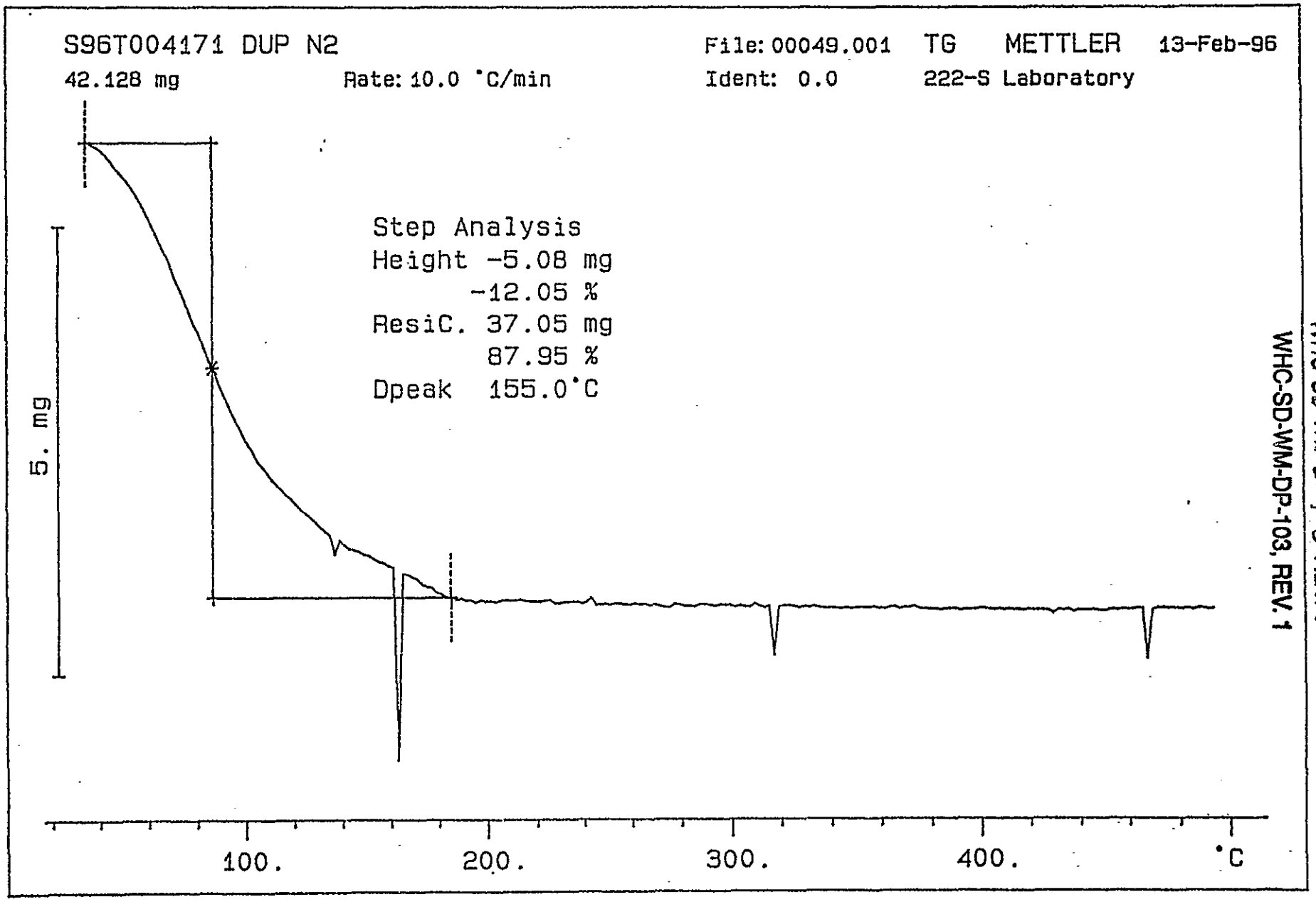
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

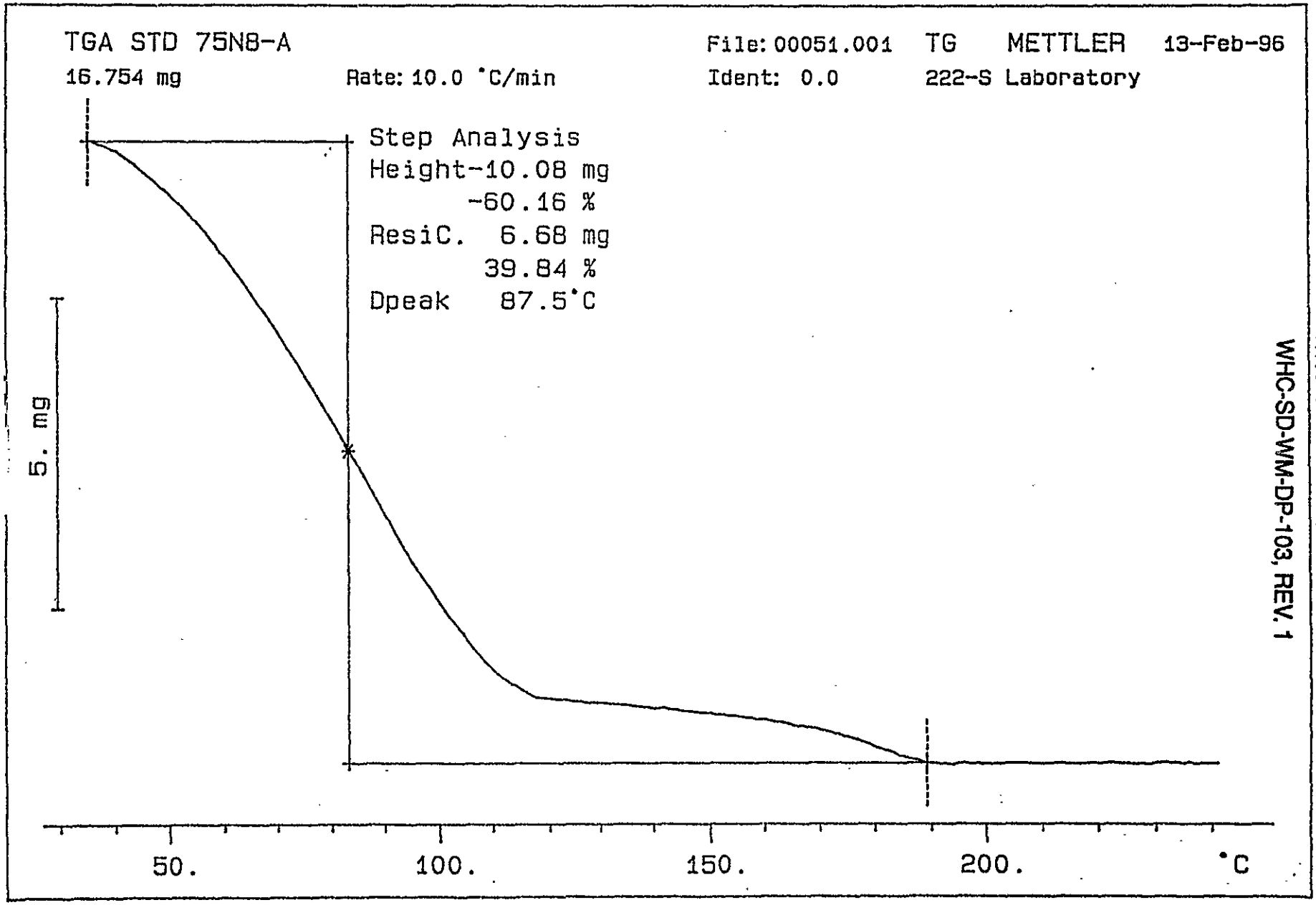
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-126 TO 2-131



Anthony Ferrato 2 12 96


S95T004171 SAM N2
33.694 mg
Rate: 10.0 °C/min
File: 00047.001
Ident: 0.0
TG
METTLER
222-S Laboratory
13-Feb-96
Step Analysis
Height -4.28 mg
-12.70 %
ResiC. 29.41 mg
87.30 %
Dpeak 69.0°C
2. mg
100.
200.
300.
400.
°C


S96T004171 DUP N2
42.128 mg
Rate: 10.0 °C/min
File: 00049.001
Ident: 0.0
TG
METTLER
222-S Laboratory
13-Feb-96
Step Analysis
Height -5.08 mg
-12.05 %
ResiC. 37.05 mg
87.95 %
Dpeak 155.0°C
5. mg
100.
200.
300.
400.
°C


TGA STD 75N8-A
16.754 mg
Rate: 10.0 °C/min
File: 00051.001
TG
METTLER
13-Feb-96
Ident: 0.0
222-S Laboratory
Step Analysis
Height-10.08 mg
-60.16 %
ResiC. 6.68 mg
39.84 %
Dpeak 87.5°C
5. mg
50.
100.
150.
200.
°C

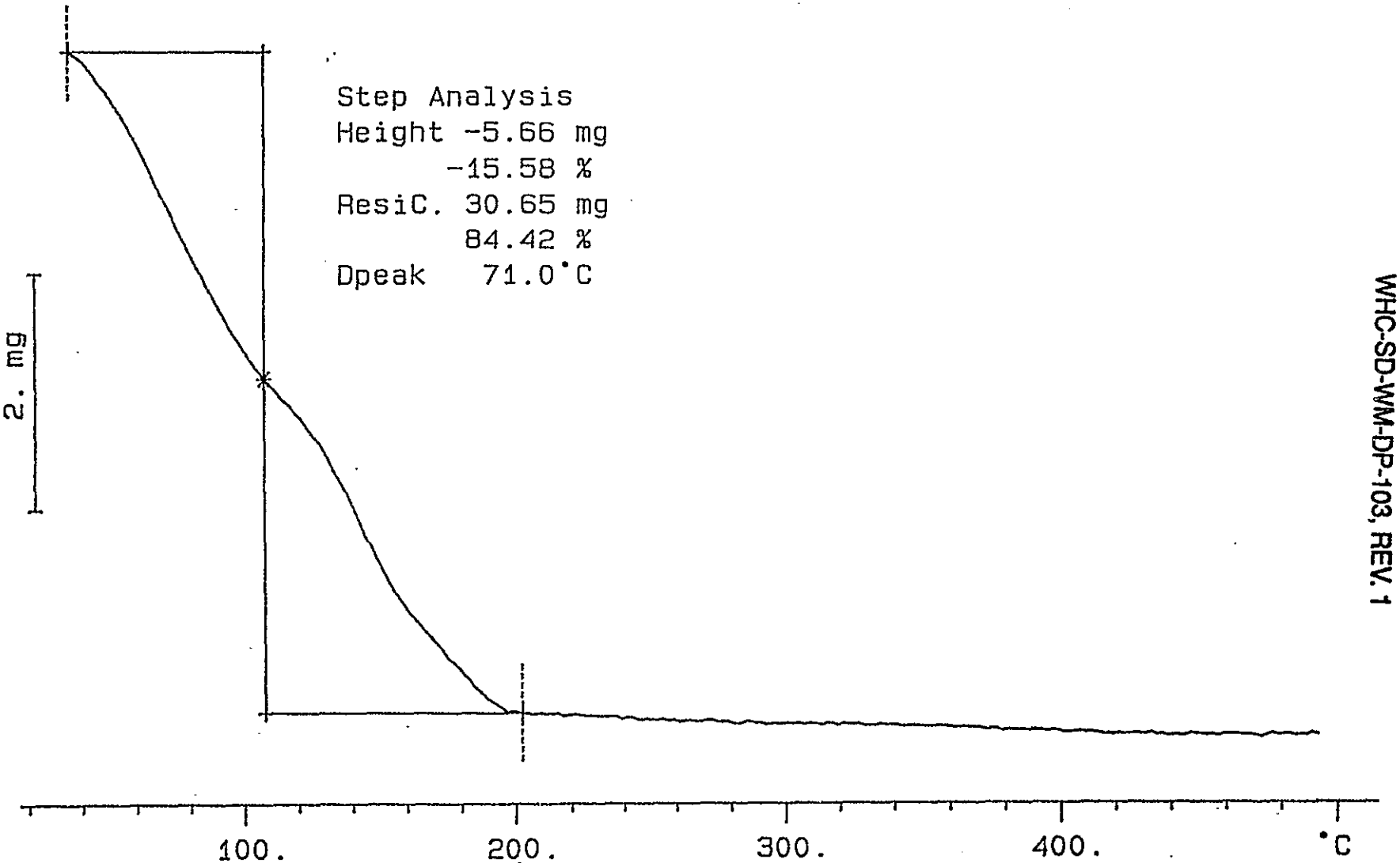
S95T004172 N2

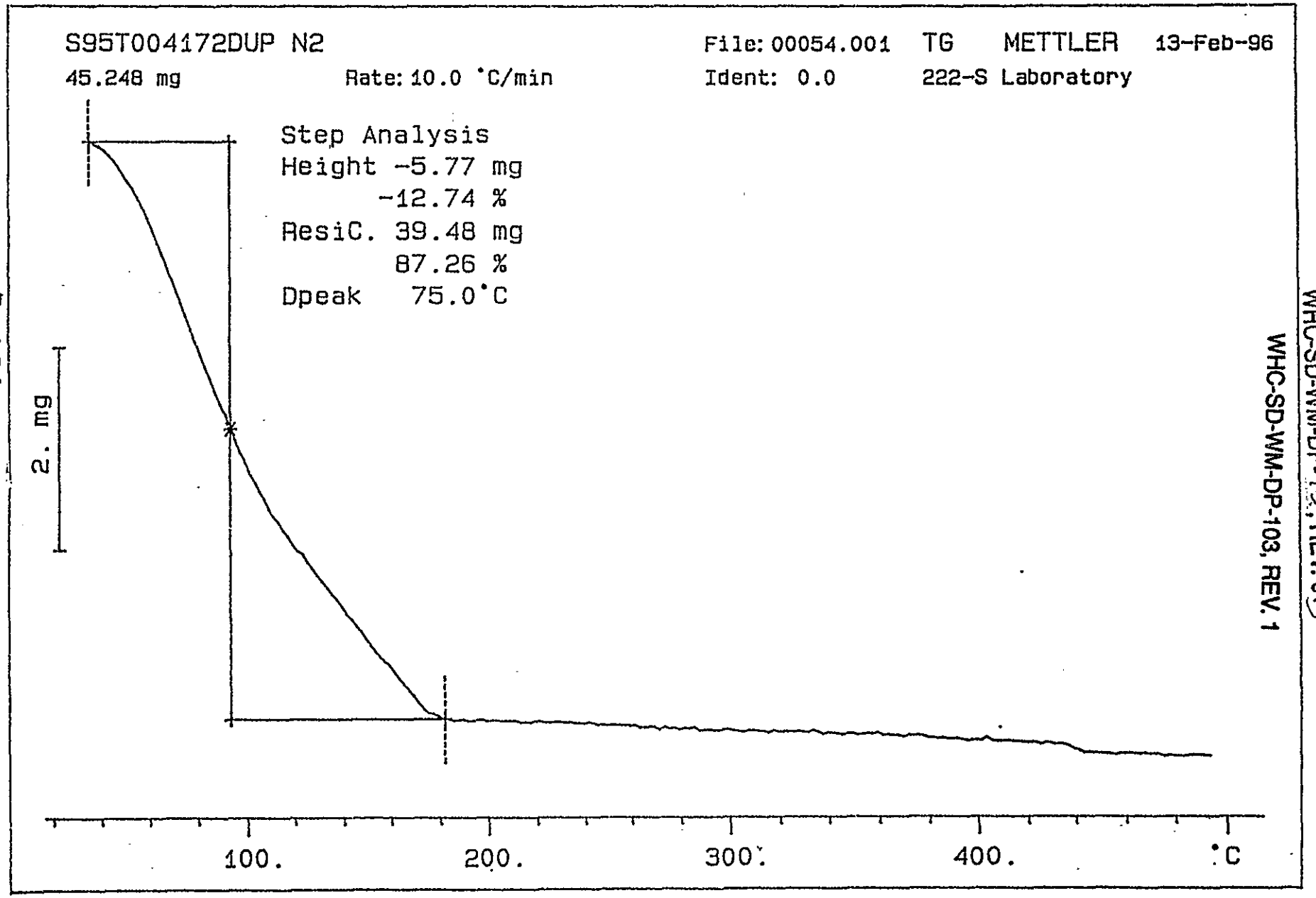
36.310 mg

Rate: 10.0 °C/min

File: 00053.001 TG METTLER 13-Feb-96

Ident: 0.0 222-S Laboratory




S95T004172DUP N2
45.248 mg
Rate: 10.0 °C/min
File: 00054.001
Ident: 0.0
TG
METTLER
222-S Laboratory
13-Feb-96
Step Analysis
Height -5.77 mg
-12.74 %
ResiC. 39.48 mg
87.26 %
Dpeak 75.0°C
2. mg
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 4939

Analyst: SAF **Instrument:** TGA0 1 **Book #** 7508-A

Method: LA-560-112 Rev/Mod B-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.2	60.13	N/A	%
95000229	BY-106	2	SAMPLE	S95T004173	0		TGA-01	SOLID	N/A	19.45		%
95000229	BY-106	3	DUP	S95T004173	0		TGA-01	SOLID	19.45	20.58	N/A	%
95000229	BY-106	4	SAMPLE	S95T004174	0		TGA-01	SOLID	N/A	14.91		%
95000229	BY-106	5	DUP	S95T004174	0		TGA-01	SOLID	14.91	14.60	N/A	%

Final page for worklist # 4939

Susie M. Julian 2-4-96 — Analyst Signature, Date

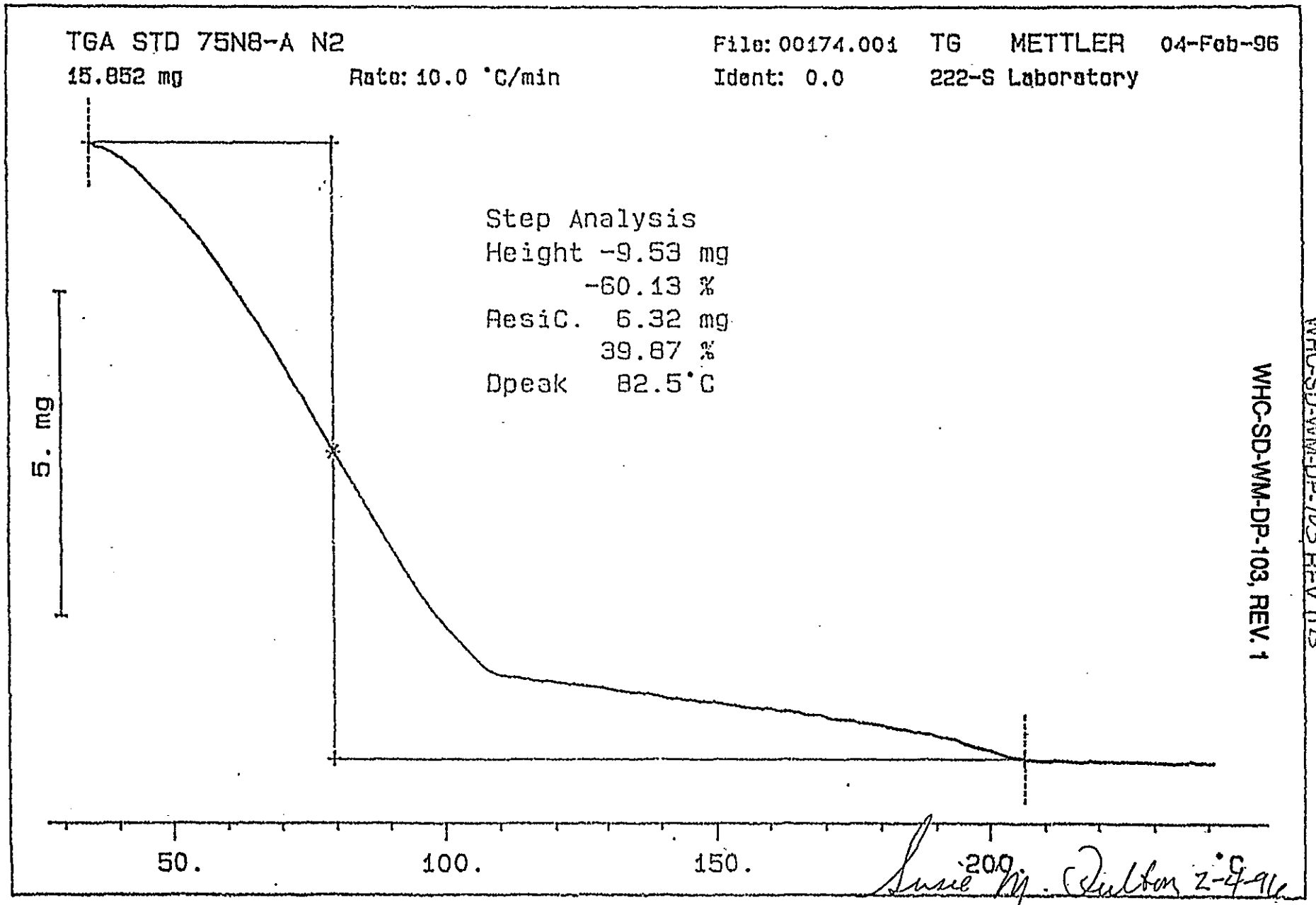
[illegible] 2-7-96 — Analyst Signature, Date

Verified by Blandina Valenzuela 2/8/96

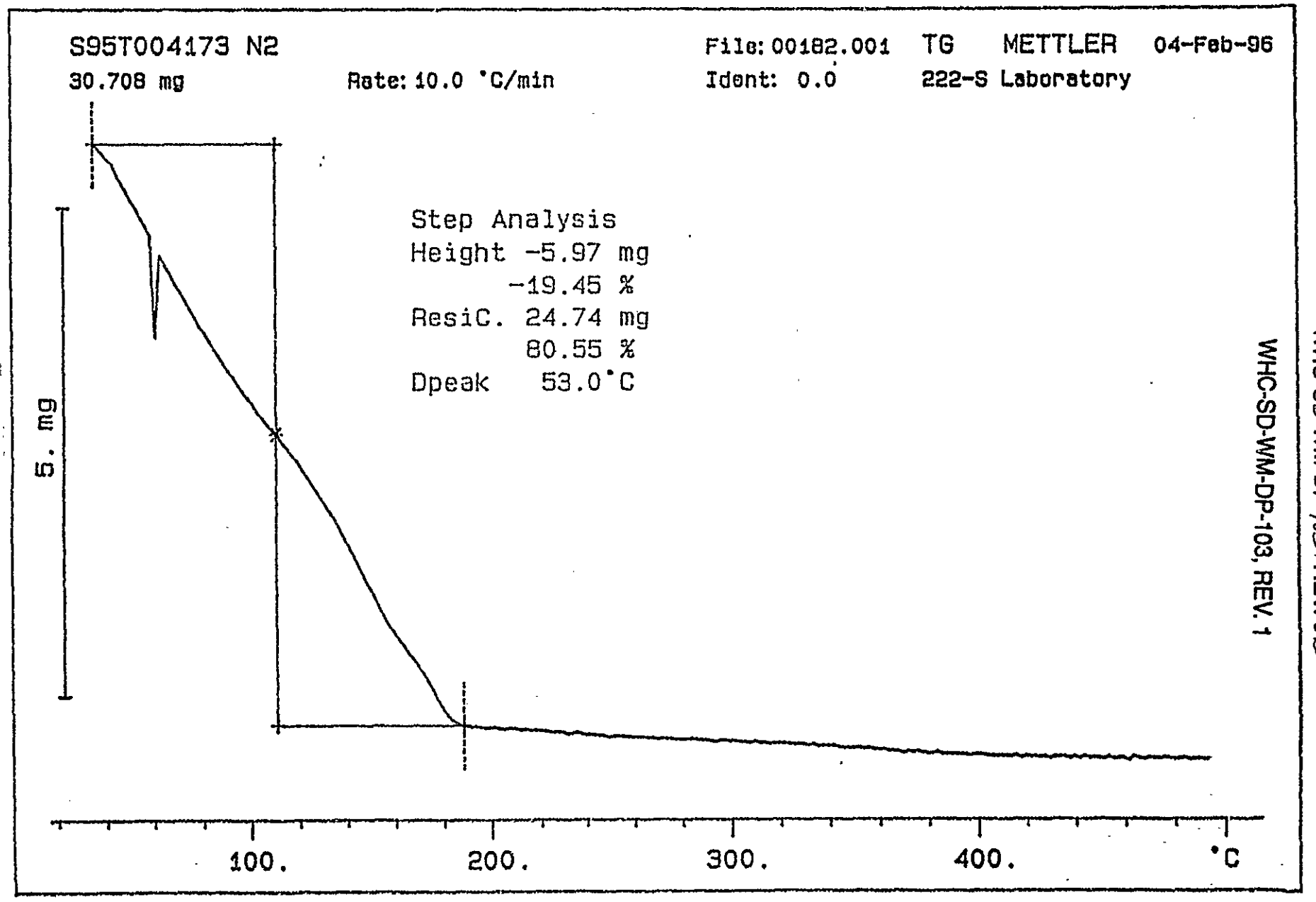
Data Entry Comments:

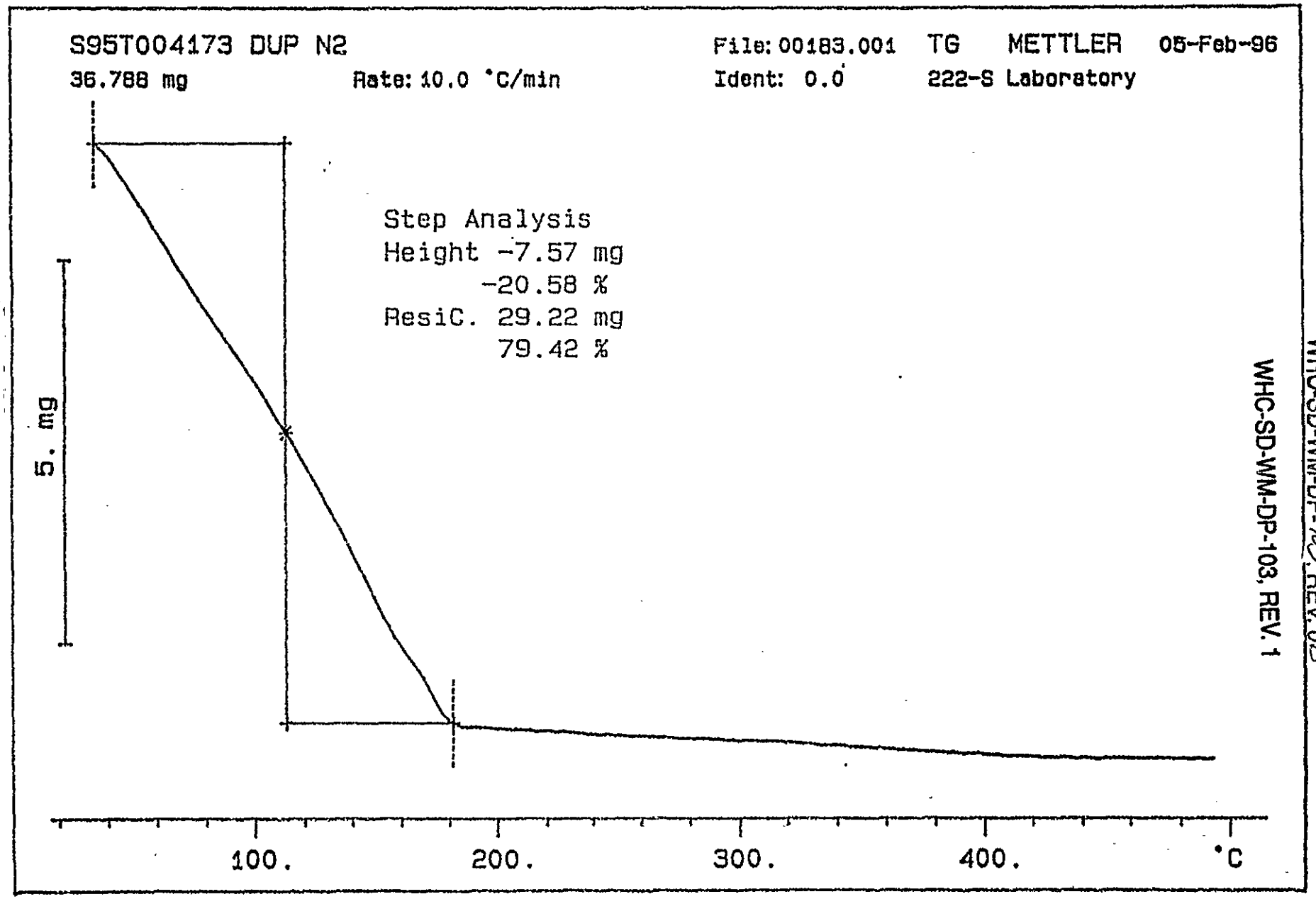
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

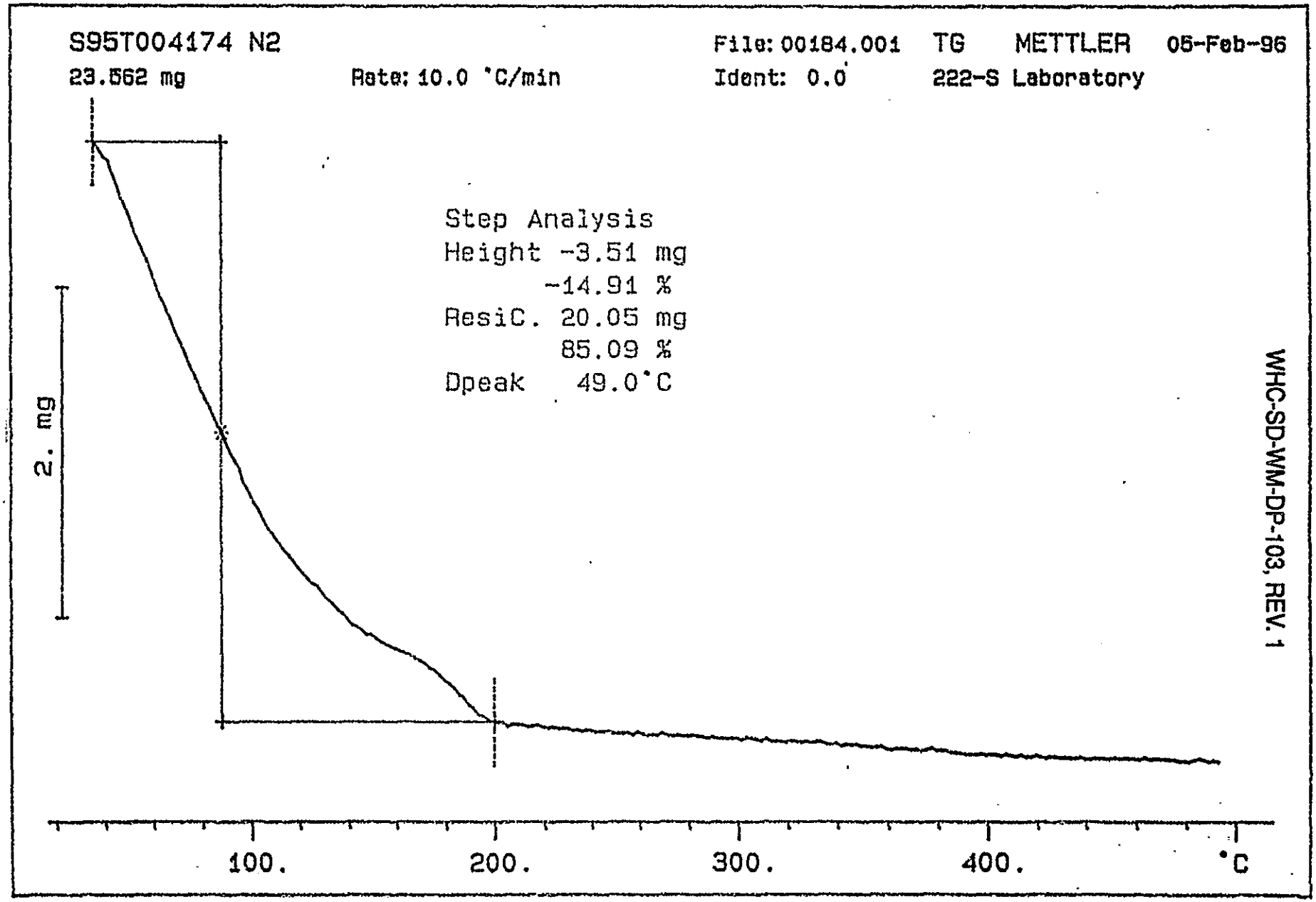
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-133 TO 2-137

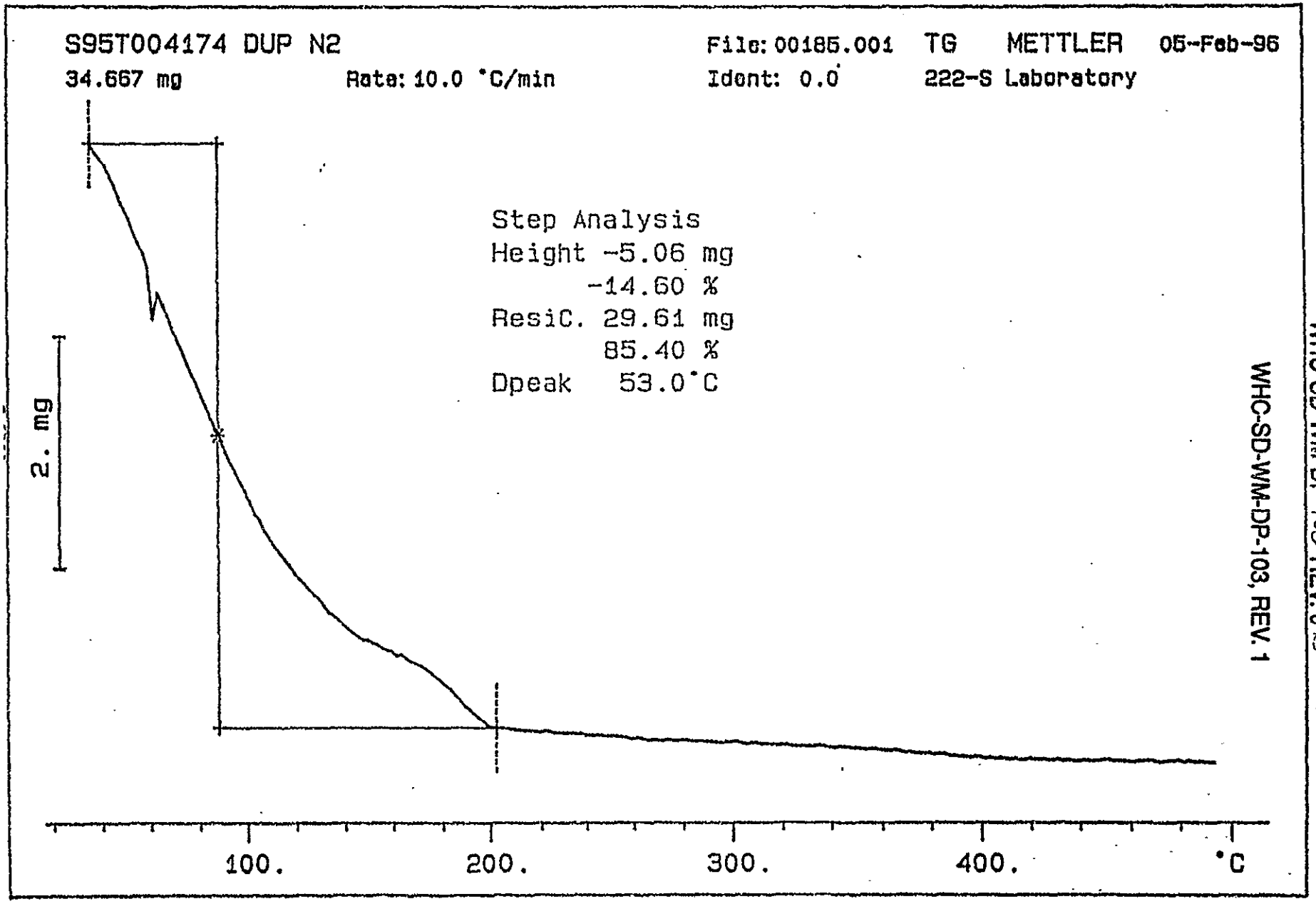


Susie M. Dilton 2-4-96


S95T004173 N2
30.708 mg
Rate: 10.0 °C/min
File: 00182.001
Ident: 0.0
TG
METTLER
222-S Laboratory
04-Feb-96
Step Analysis
Height -5.97 mg
-19.45 %
ResiC. 24.74 mg
80.55 %
Dpeak 53.0°C
5. mg
100.
200.
300.
400.
°C


S95T004173 DUP N2
36.788 mg
Rate: 10.0 °C/min
File: 00183.001
Ident: 0.0
TG
METTLER
05-Feb-96
222-S Laboratory
Step Analysis
Height -7.57 mg
-20.58 %
ResiC. 29.22 mg
79.42 %
5. mg
100.
200.
300.
400.
°C


S95T004174 N2
23.562 mg
Rate: 10.0 °C/min
File: 00184.001
Ident: 0.0
TG
METTLER
05-Feb-96
222-S Laboratory
Step Analysis
Height -3.51 mg
-14.91 %
ResiC. 20.05 mg
85.09 %
Dpeak 49.0°C
2. mg
100.
200.
300.
400.
°C


S95T004174 DUP N2
34.667 mg
Rate: 10.0 °C/min
File: 00185.001
Ident: 0.0
TG
METTLER
05-Feb-96
222-S Laboratory
Step Analysis
Height -5.06 mg
-14.60 %
ResiC. 29.61 mg
85.40 %
Dpeak 53.0°C
2. mg
100.
200.
300.
400.
°C

worklistrpt Version 2.1 05/15/95
01/16/96 12:13

WHC-SD-WM-DP- 103 REV. 0B

Page: 1

LABCORE Data Entry Template for Worklist# 4940

Analyst: RBM Instrument: TGA0 1 Book # 75N84

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.2	60.30	N/A	%
95000229	BY-106	2 SAMPLE	S95T004175	0		TGA-01	SOLID	N/A	17.37		%
95000229	BY-106	3 DUP	S95T004175	0		TGA-01	SOLID	17.37	16.08	N/A	%
95000229	BY-106	4 SAMPLE	S95T004176	0		TGA-01	SOLID	N/A	26.58		%
95000229	BY-106	5 DUP	S95T004176	0		TGA-01	SOLID	26.58	30.19	N/A	%

Final page for worklist # 4940

RBM 2/12/96
Analyst Signature Date

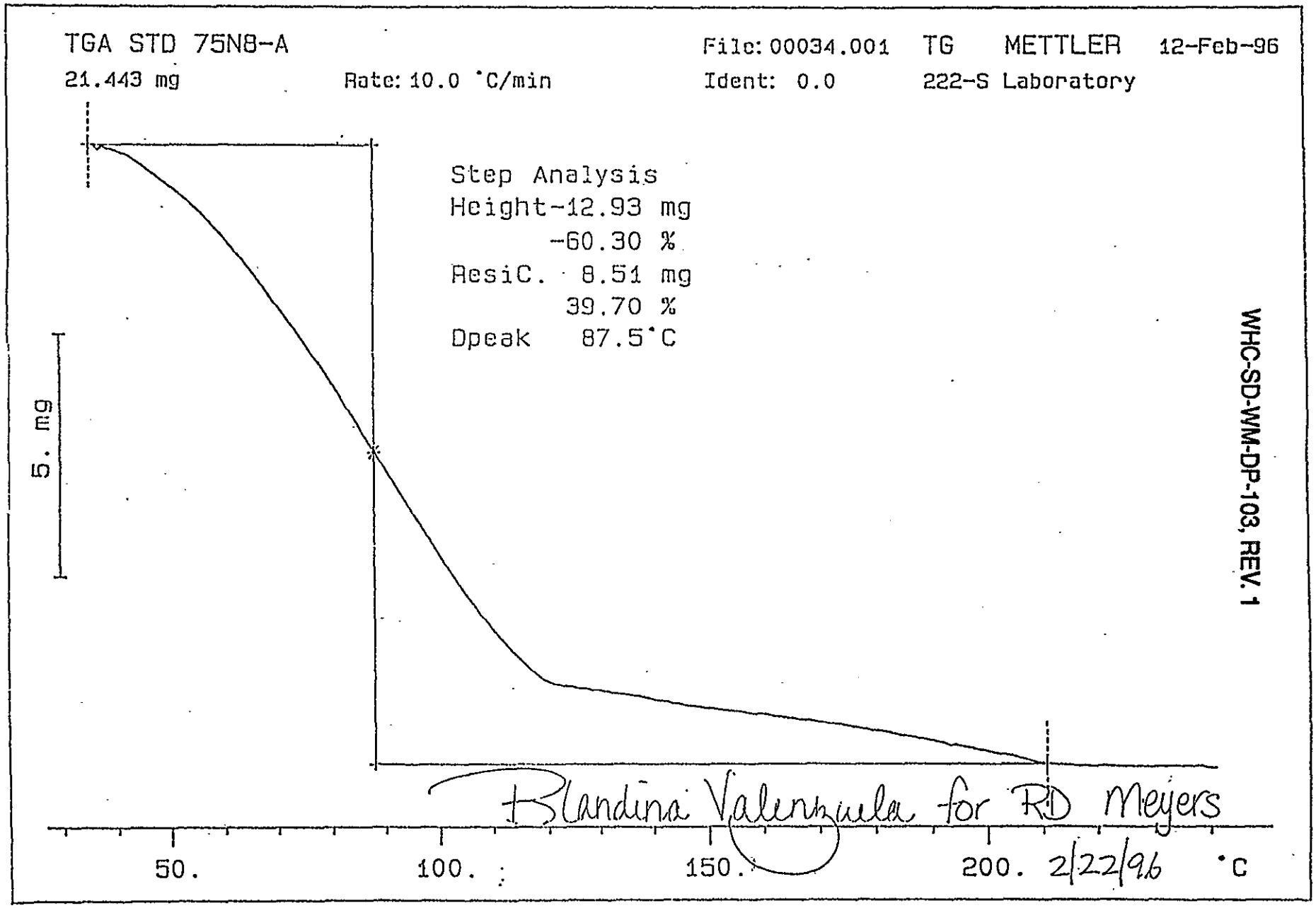
2-13-96
Analyst Signature Date

Verified by Blandina Valenzuela 2/14/96

Data Entry Comments: S95T004175 RBM 2/12/96 results are the sum of two weight loss steps.

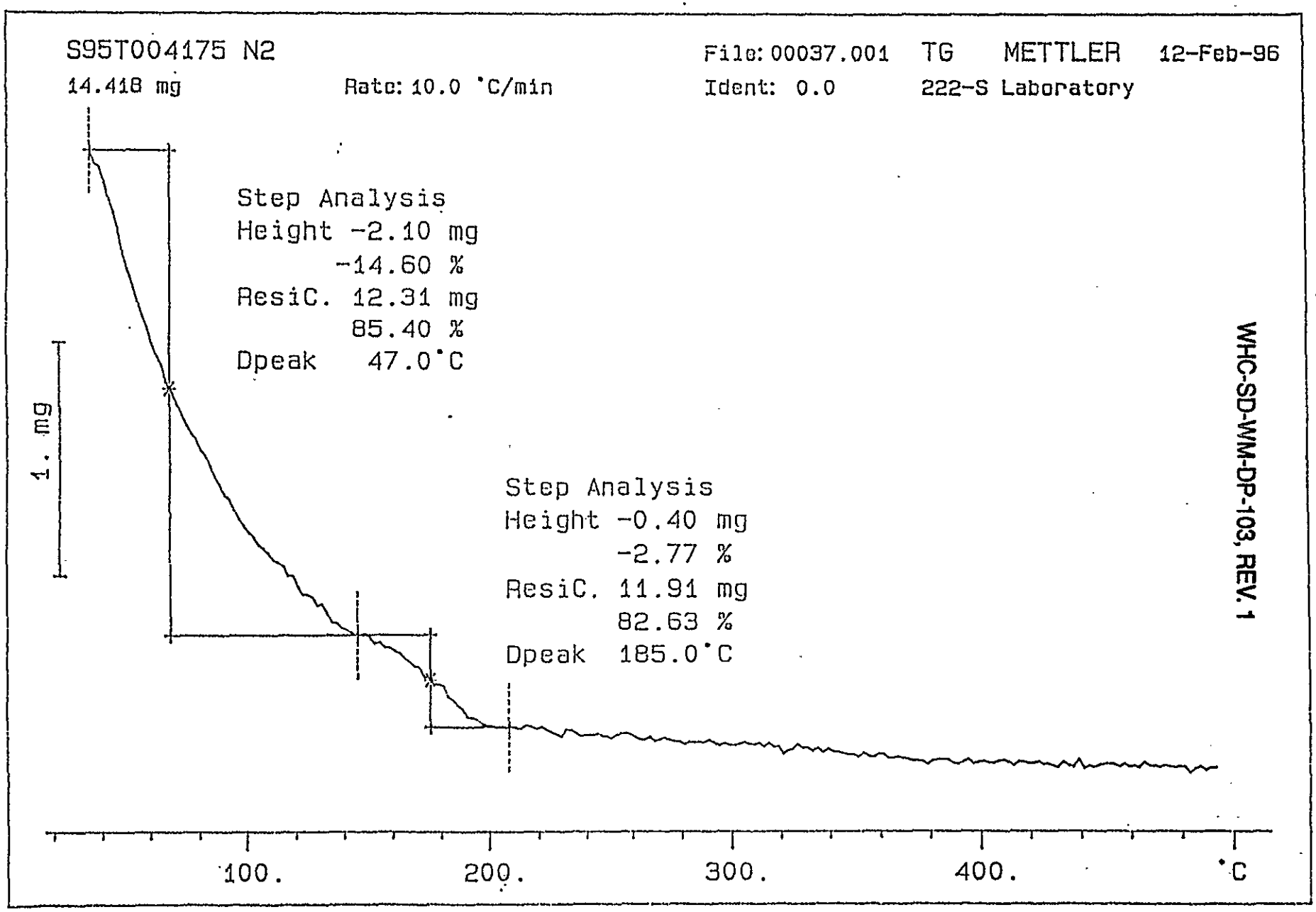
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-139 TO 2-143

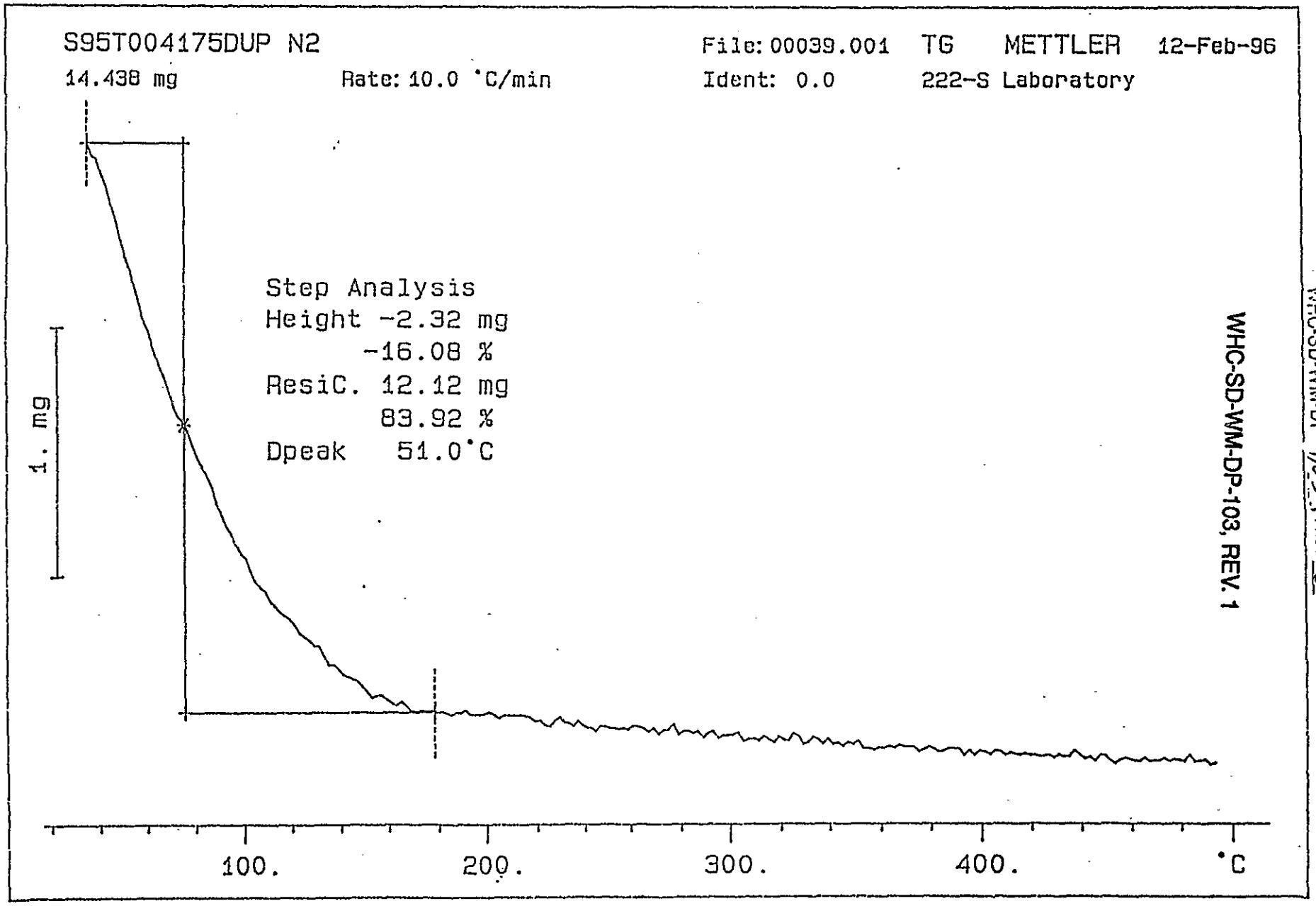


Blandina Valenzuela for RD Meyers 2/22/96

WHC-SD-WM-DP-103, REV. 1



WHC-SD-WM-DP-103, REV. 1


S95T004175DUP N2
14.438 mg
Rate: 10.0 °C/min
File: 00039.001
Ident: 0.0
TG
METTLER
222-S Laboratory
12-Feb-96
Step Analysis
Height -2.32 mg
-16.08 %
ResiC. 12.12 mg
83.92 %
Dpeak 51.0°C
1. mg
100.
200.
300.
400.
°C

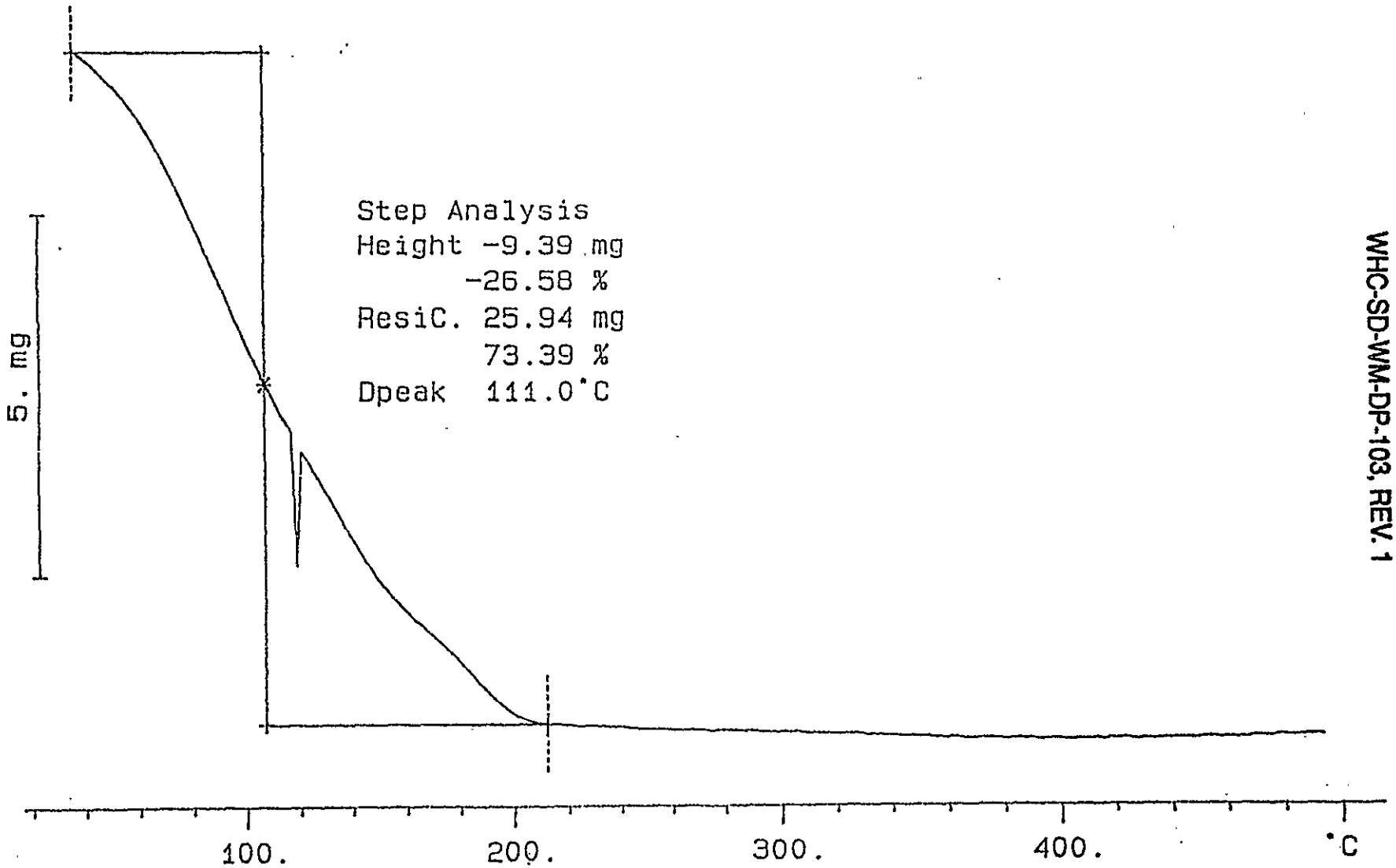
S95T004176 N2

35.340 mg

Rate: 10.0 °C/min

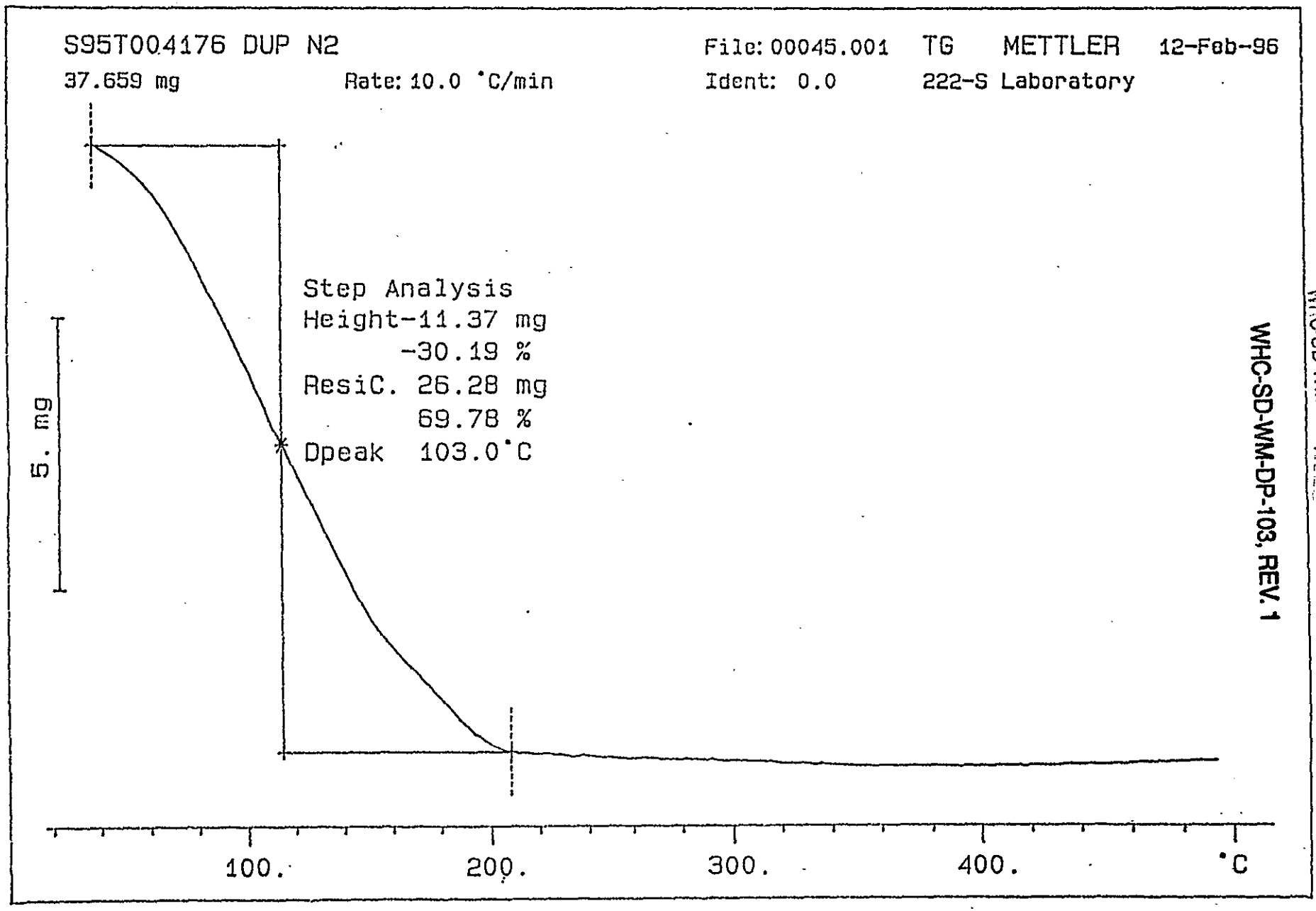
File: 00043.001 TG METTLER 12-Feb-96

Ident: 0.0 222-S Laboratory



WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0B


S95T004176 DUP N2
37.659 mg
Rate: 10.0 °C/min
File: 00045.001
Ident: 0.0
TG
METTLER
222-S Laboratory
12-Feb-96
Step Analysis
Height-11.37 mg
-30.19 %
ResiC. 26.28 mg
69.78 %
Dpeak 103.0°C
5. mg
100.
200.
300.
400.
°C

worklistrpt Version 2.1 05/15/95
02/13/96 14:05

WHC-SD-WM-DP-103, REV. DB

LABCORE Data Entry Template for Worklist# 4941

Analyst: RDM Instrument: TGA0 3 Book # 75N8-A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	59.2	60.51	N/A	%
95000229	BY-106	2	SAMPLE	S95T004177		0	TGA-03	SOLID	N/A	38.64		%
95000229	BY-106	3	DUP	S95T004177		0	TGA-03	SOLID	38.64	33.85	N/A	%
95000229	BY-106	4	SAMPLE	S95T004178		0	TGA-03	SOLID	N/A	30.42		%
95000229	BY-106	5	DUP	S95T004178		0	TGA-03	SOLID	30.42	24.54	N/A	%

Final page for worklist # 4941

See attached for signatures
Analyst Signature Date 2/13/96

Verified by Blandina Valenzuela EBV 2/14/96

Analyst Signature Date 2-14-96

Data Entry Comments: S95T004177 results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 4941

Analyst: RPM Instrument: TGA0 Book # TSNB-A

Method: LA-560-112 Rev/Mod C-1

WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000229	BY-106	2	SAMPLE	S95T004177	0		TGA-01	SOLID	N/A			%
95000229	BY-106	3	DUP	S95T004177	0		TGA-01	SOLID			N/A	%
95000229	BY-106	4	SAMPLE	S95T004178	0		TGA-01	SOLID	N/A			%
95000229	BY-106	5	DUP	S95T004178	0		TGA-01	SOLID			N/A	%

Final page for worklist # 4941

RPM 2/12/96

Analyst Signature Date

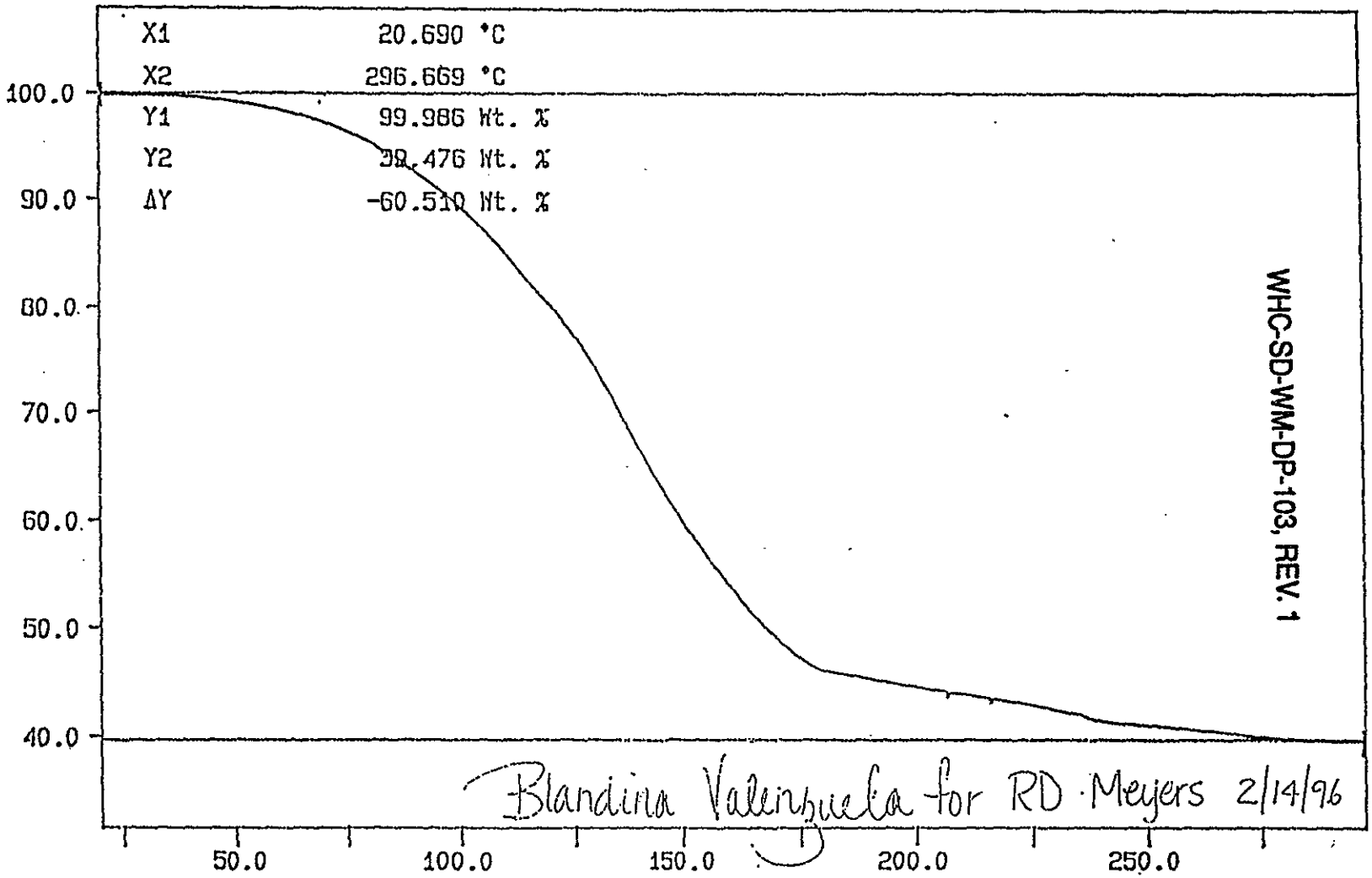
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: ter021201 Mon Feb 12 07:56:34 1996
Sample Weight: 17.364 mg
TERLIQ 75N8A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-146 TO 2-150



WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0B

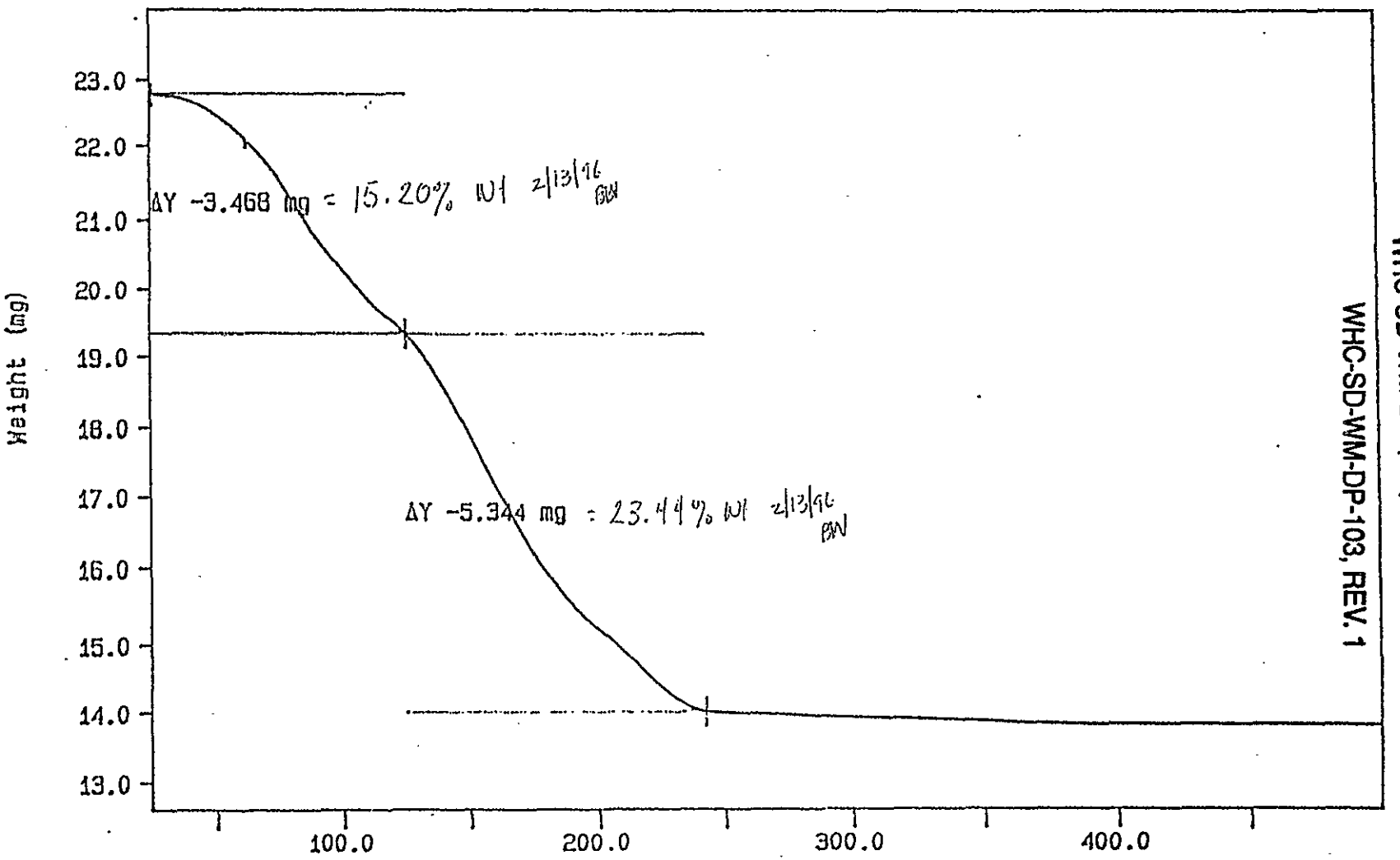
Blandina Valenzuela for RD Meyers 2/14/96

N2 10C/MIN
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 12 09:52:45 1996

Curve 1: TGA
File info: sam021201 Mon Feb 12 10:47:17 1996
Sample Weight: 22.803 mg
S95T004177

BEST AVAILABLE COPY



10C/MIN N2
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

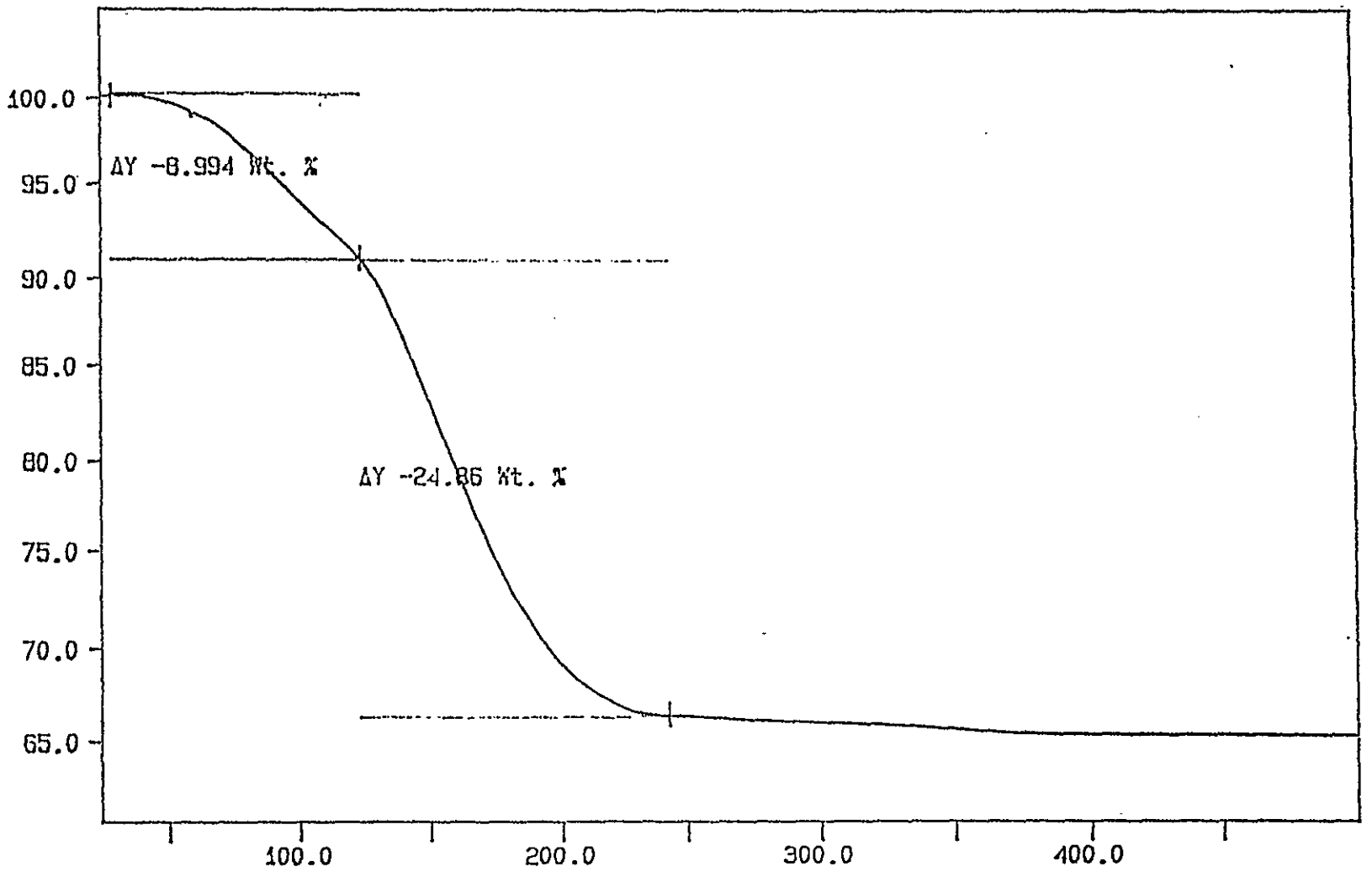
RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 13 11:19:18 1996

WHC-SD-WM-DP-103, REV. 0B

WHC-SD-WM-DP-103, REV. 1

Curve 1: TGA
File info: som021202 Mon Feb 12 12:07:16 1996
Sample Weight: 18.903 mg
S95T004177DUP

BEST AVAILABLE COPY



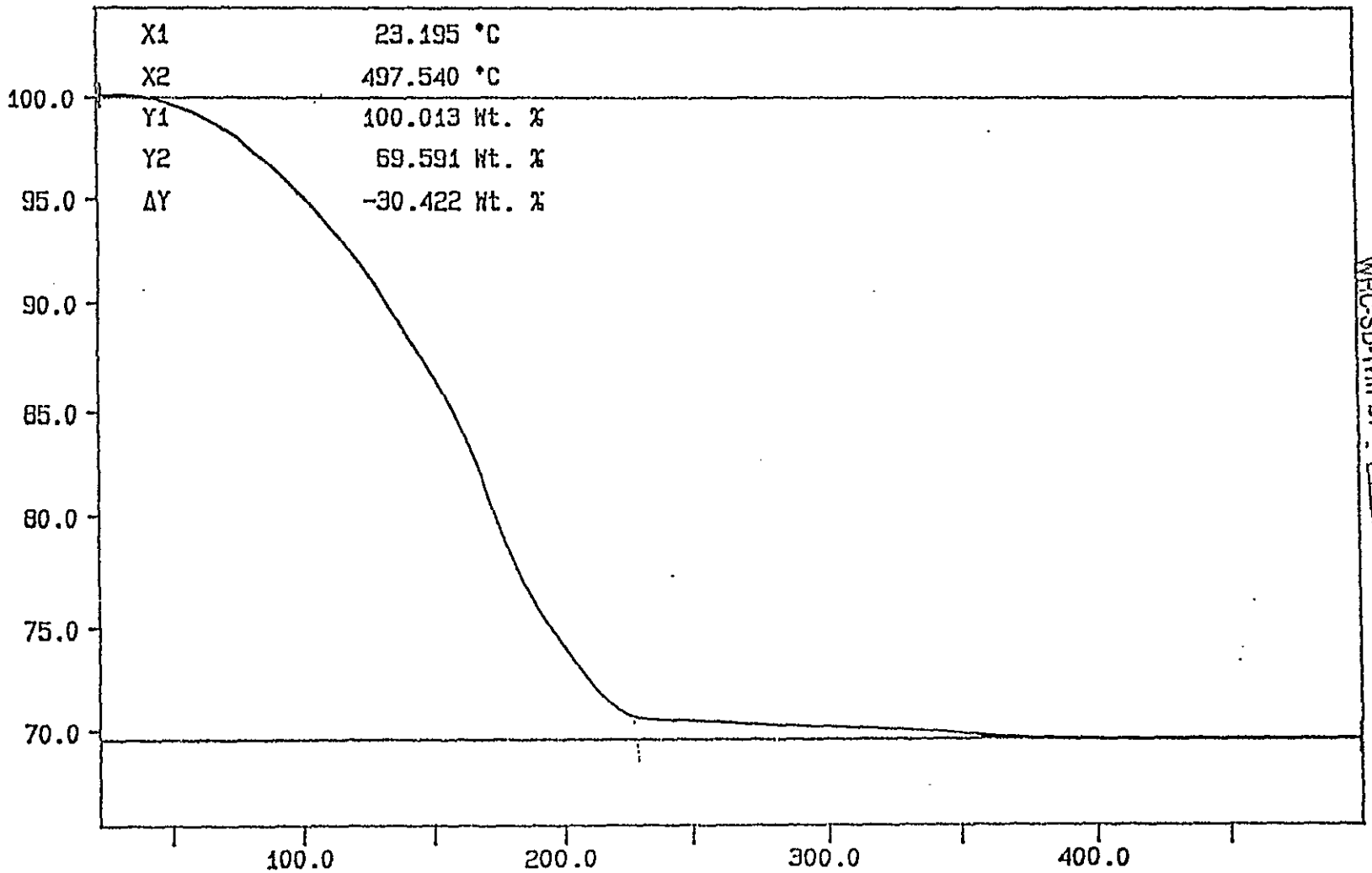
10C/MIN N2
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 13 11:26:19 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 0B

Curve 1: TGA
File info: qsavi Mon Feb 12 13:57:49 1996
Sample Weight: 25.534 mg
S95T004178



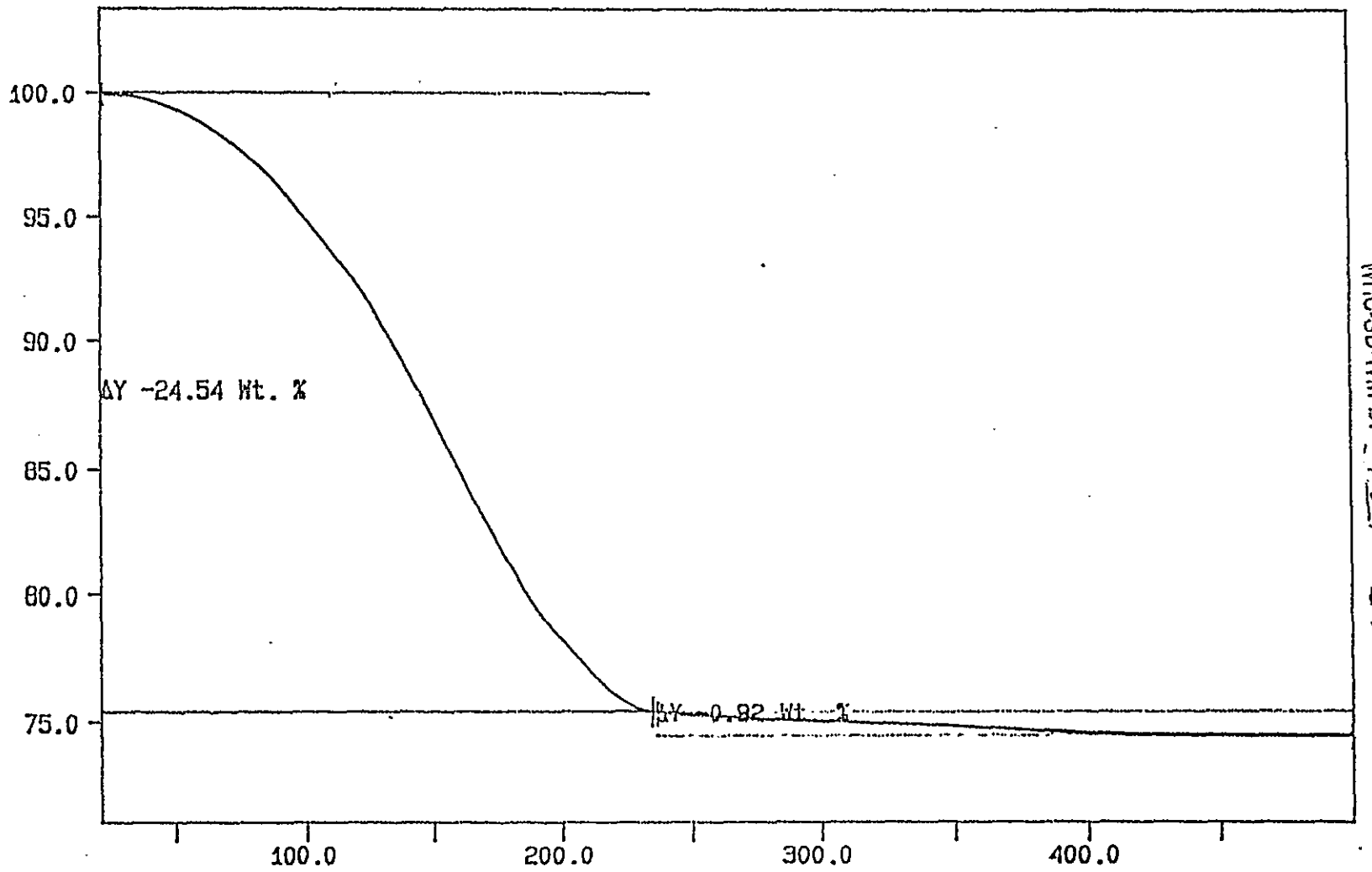
10C/MIN N2
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 12 15:57:36 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV. 1

Curve 1: TGA
File info: 021205 Mon Feb 12 19:40:54 1996
Sample Weight: 23.527 mg
S95T004178 TAP DWP
2/13/96 BW



10C/MIN N2
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Feb 12 20:41:15 1996

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103, REV 0B

2-150

LABCORE Data Entry Template for Worklist# 5161

Analyst: RDM Instrument: TGA0 1 Book # 75NB-A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: Please run BY-106 TGAs under N2. dcd

WHC-SD-WM-DP-103, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.2	60.09	N/A	%
95000229	BY-106	2	SAMPLE	S96T000104	0		TGA-01	SOLID	N/A	10.49		%
95000229	BY-106	3	DUP	S96T000104	0		TGA-01	SOLID	10.49	6.31	N/A	%
95000229	BY-106	4	SAMPLE	S96T000105	0		TGA-01	SOLID	N/A	18.47		%
95000229	BY-106	5	DUP	S96T000105	0		TGA-01	SOLID	18.47	18.35	N/A	%

Final page for worklist # 5161

RDMyers 2/4/96
Analyst Signature Date

[illegible] 2-9-96
Analyst Signature Date

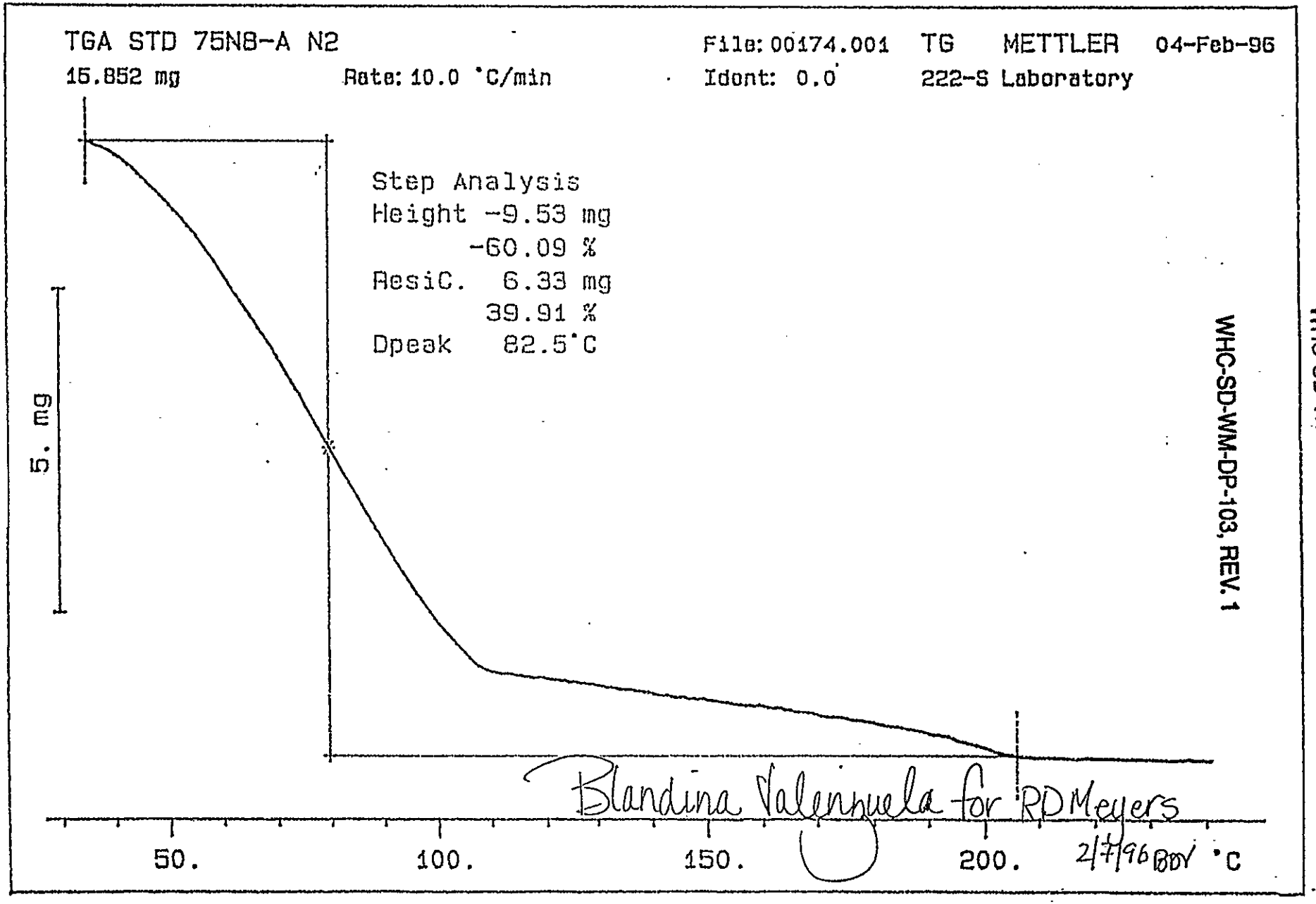
S Fulton 2/4/96
Verified by Blandina Valenzuela 2/12/96

Data Entry Comments: S96T000104 did not appear to have ~~only~~ BOY 2/6/96 much water. The RPD's are high between the sample and duplicate however there may not be any justification to rerunning this sample due to the low percent water. The noise seen on the thermogram is due to vibration in the lab and they appear large due to the expanded scale.

S96T000105 results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-152 TO 2-156

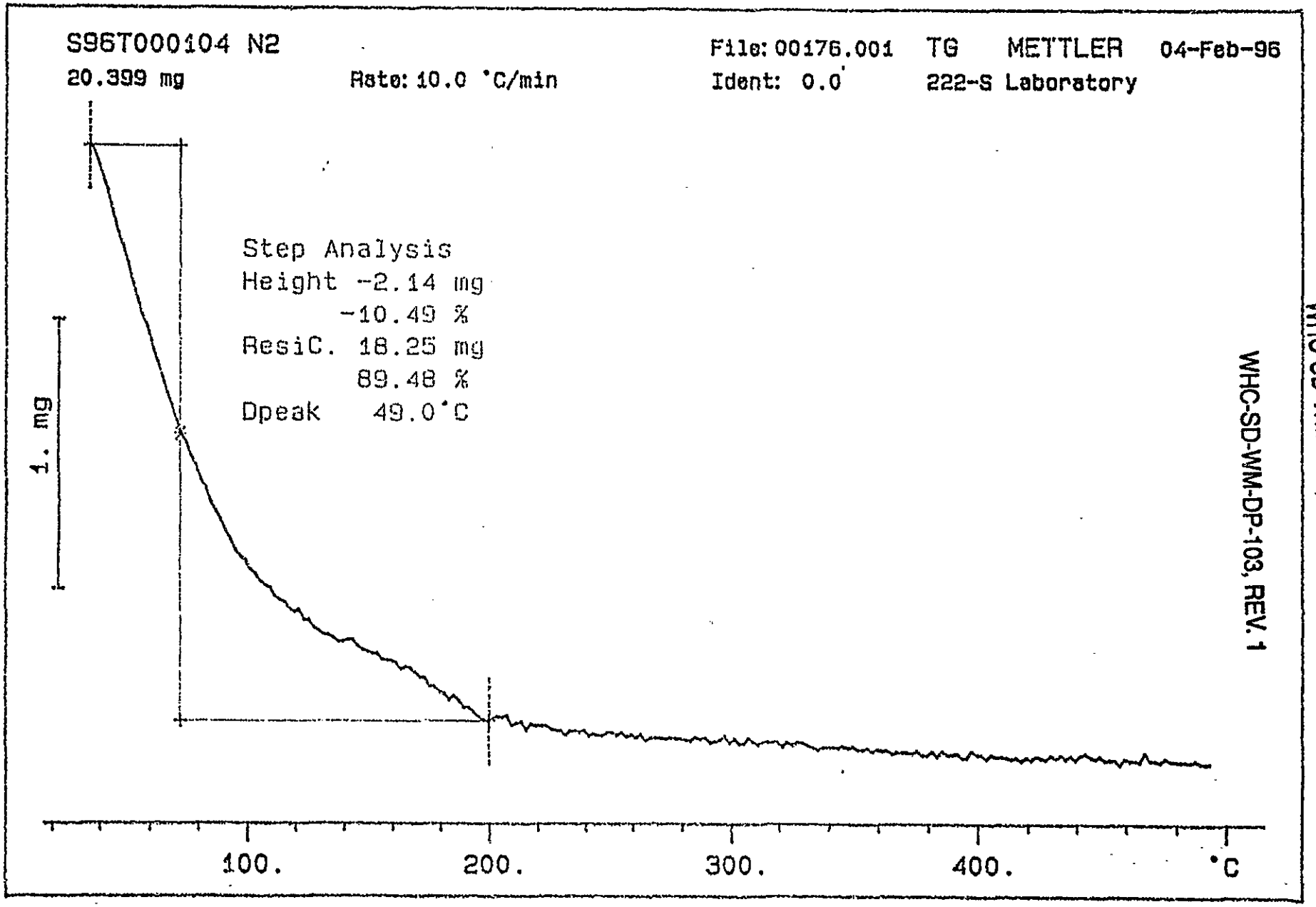


Blandina Valenzuela for RD Meyers 2/7/96 BDV

WHC-SD-WM-DP-103, REV. 1

WHC-SD-WM-DP-103 REV. 0

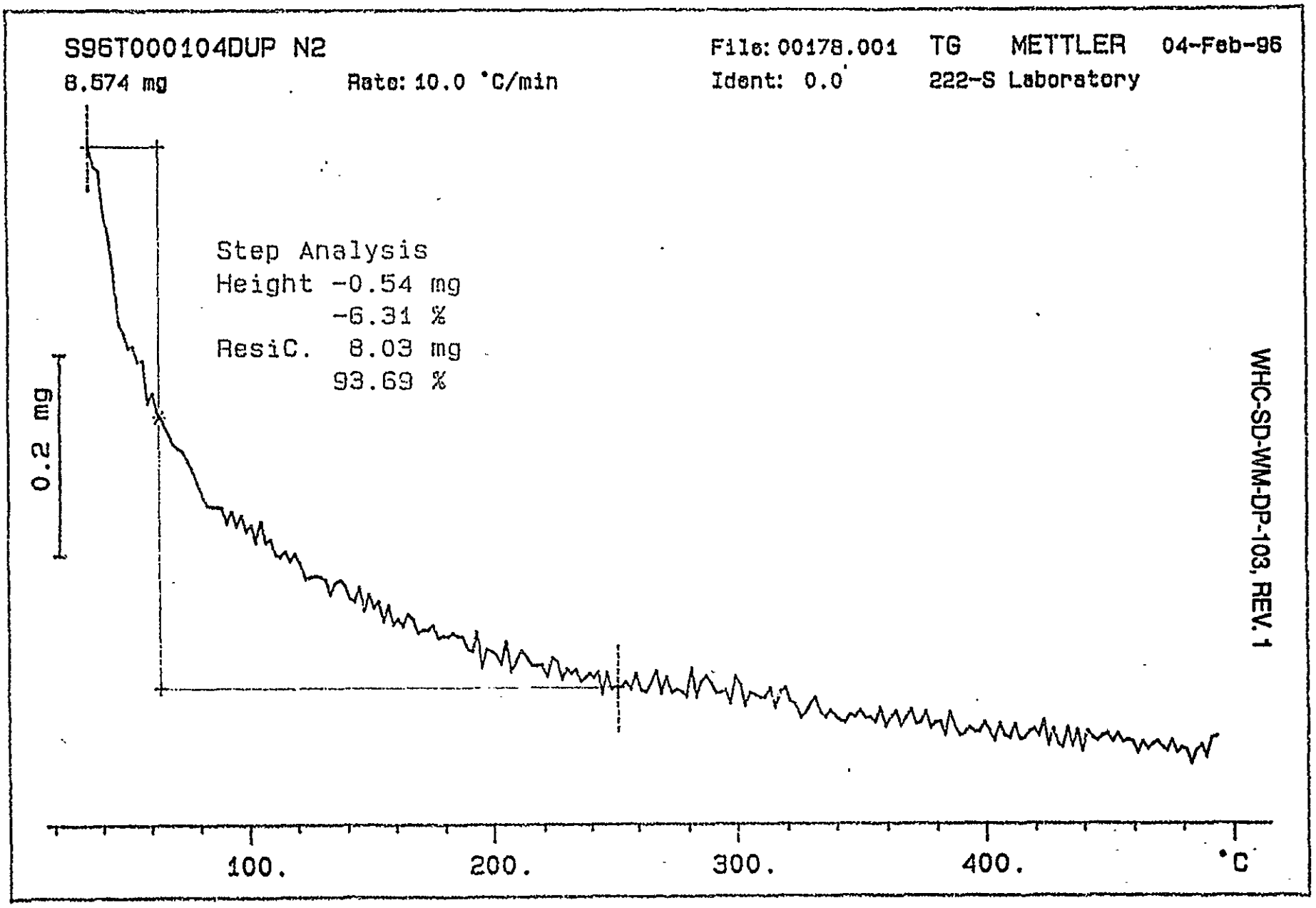
BEST AVAILABLE COPY

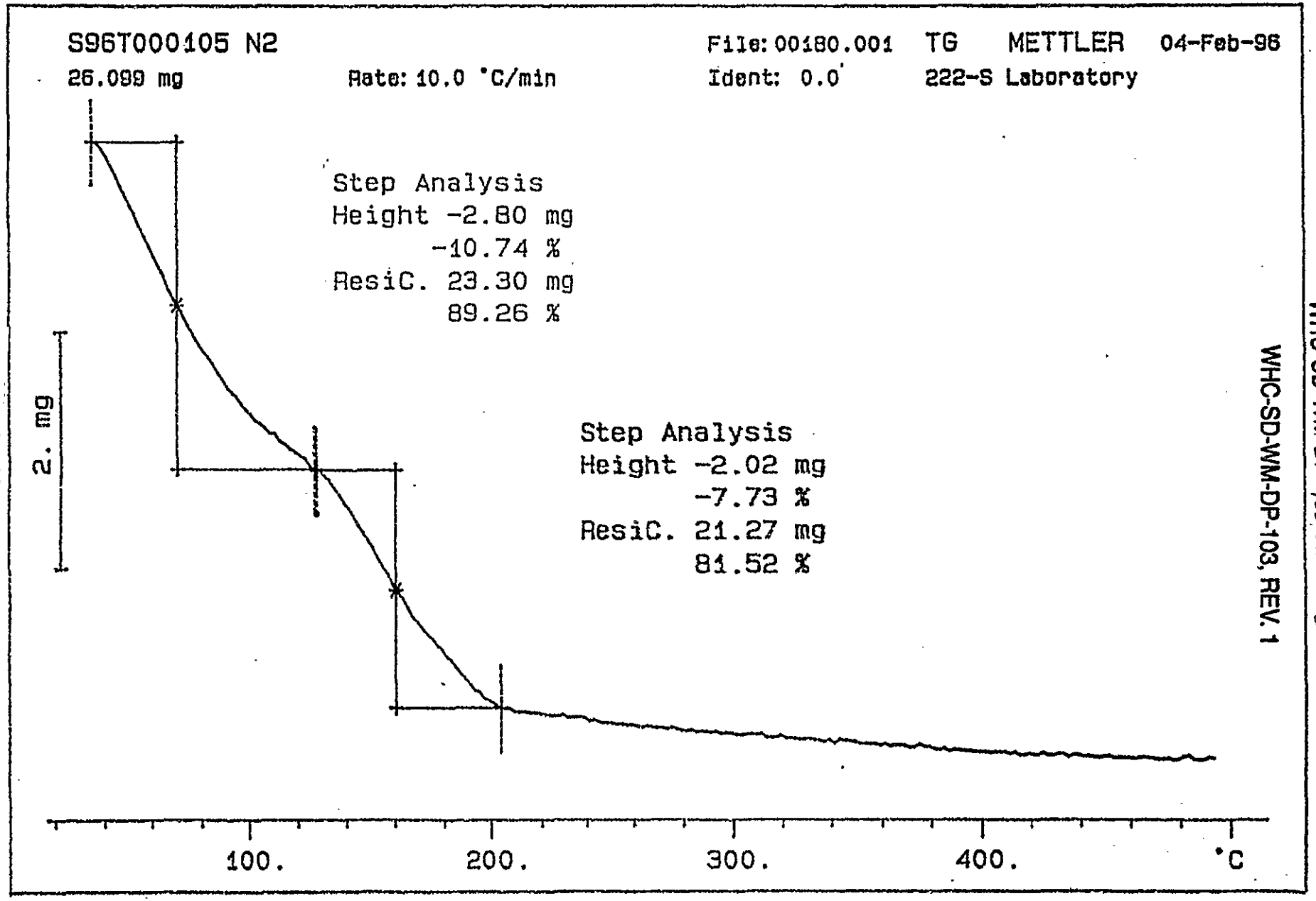


WHC-SD-WM-DP-103 REV. 0

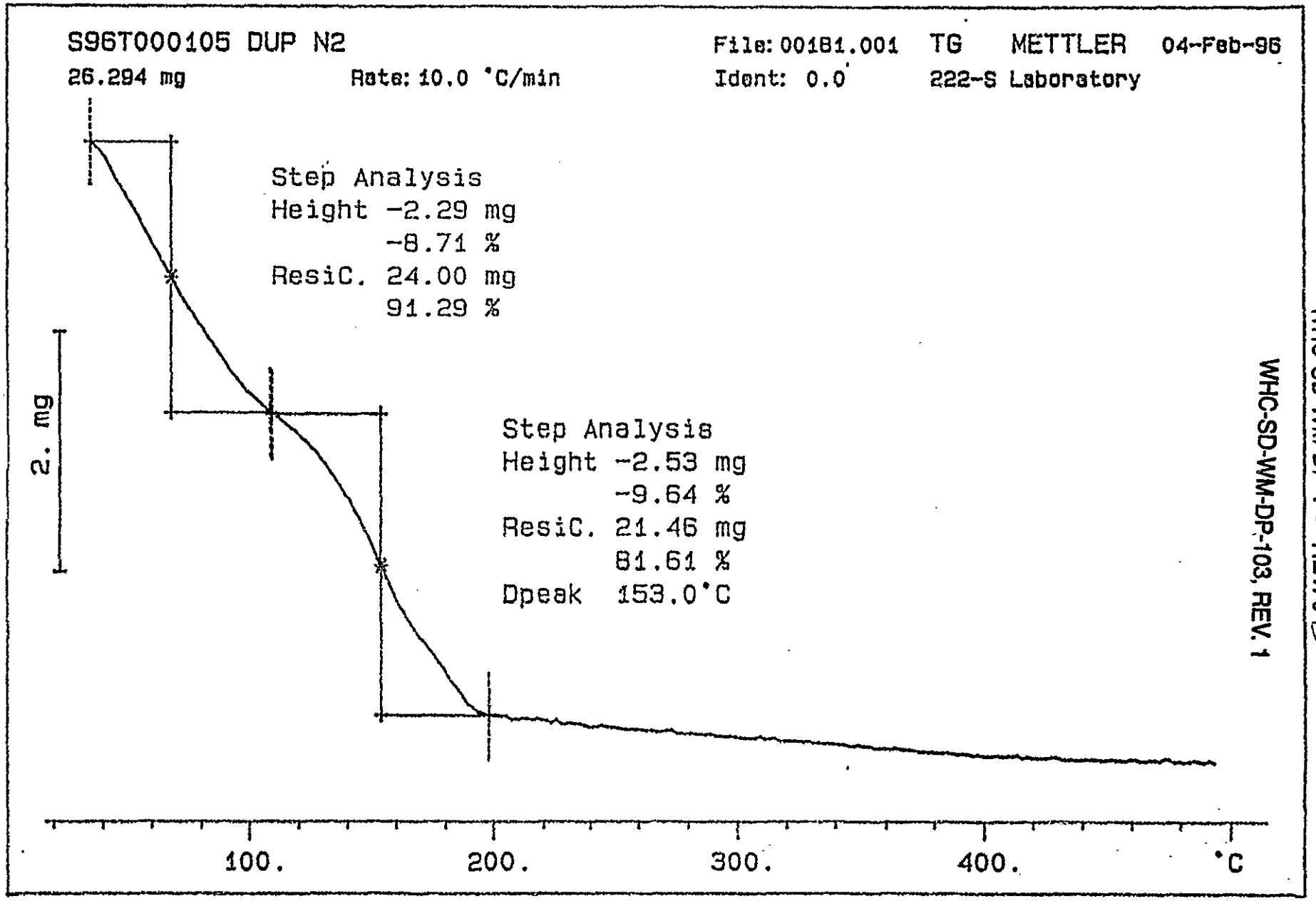
WHC-SD-WM-DP-103, REV. 1

BEST AVAILABLE COPY




S96T000105 N2
26.099 mg
Rate: 10.0 °C/min
File: 00180.001
Ident: 0.0
TG
METTLER
04-Feb-96
222-S Laboratory
Step Analysis
Height -2.80 mg
-10.74 %
ResiC. 23.30 mg
89.26 %
Step Analysis
Height -2.02 mg
-7.73 %
ResiC. 21.27 mg
81.52 %
2. mg
100.
200.
300.
400.
°C

BEST AVAILABLE COPY



LABCORE Data Entry Template for Worklist# 5223

Analyst: PJM Instrument: TGA0 3 Book # 75N8A

Method: LA-514-114 Rev/Mod C-1

WHC-SD-WM-DP-103, REV. 1

Worklist Comment: Please run BY-106 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	SOLID	59.2	60.31	N/A	%
95000229	BY-106	2 SAMPLE	S96T000248	0		TGA-03	SOLID	N/A	45.28		%
95000229	BY-106	3 DUP	S96T000248	0		TGA-03	SOLID	45.28	36.81	N/A	%

Final page for worklist # 5223

PJ McCown 2/1/96
Analyst Signature Date

Linda Conlin 2/25/96
Analyst Signature Date

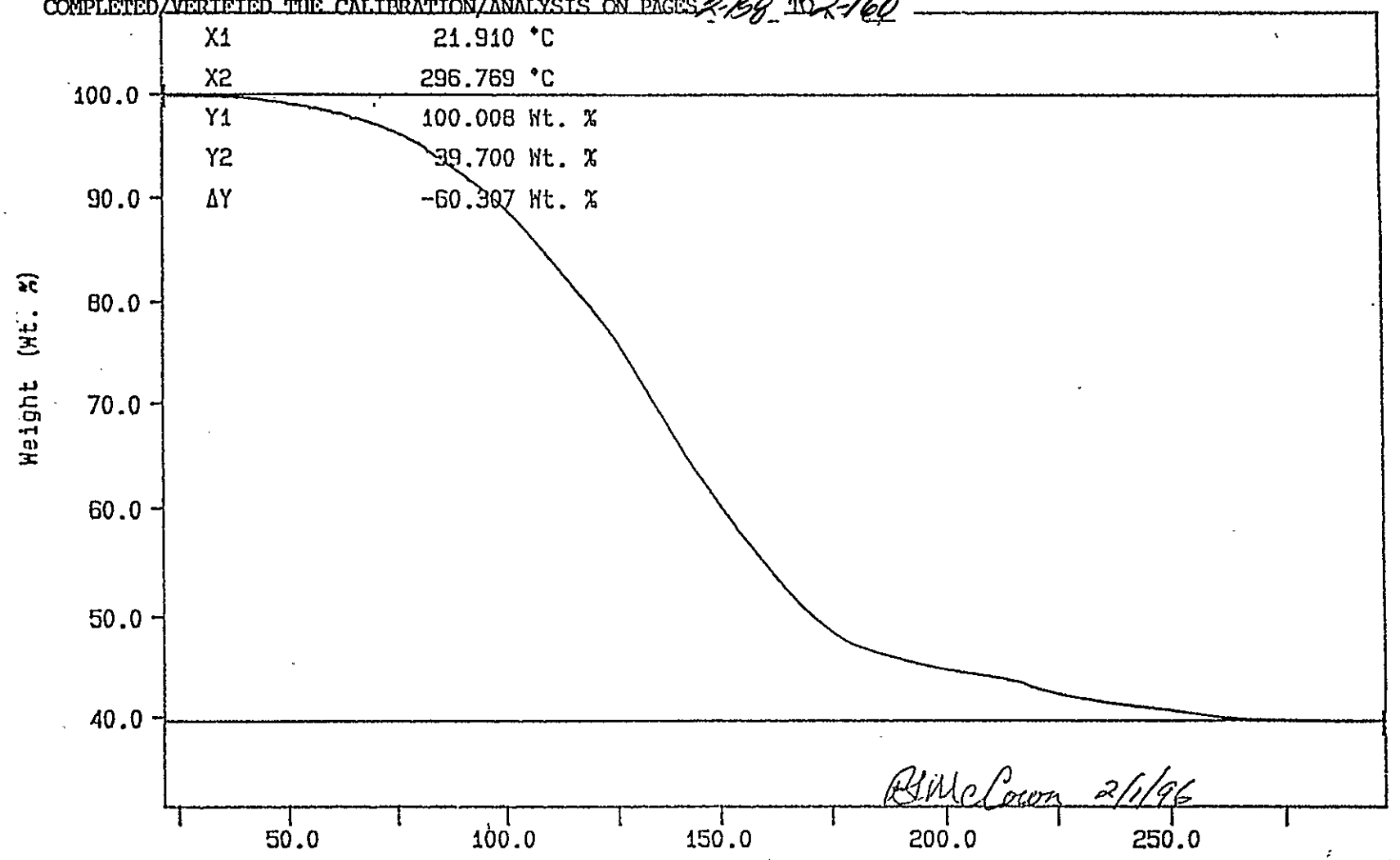
Verified by Blandina Valenzuela 2/27/96

Data Entry Comments: The results given are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TER020101 Thu Feb 1 00:33:43 1996
Sample Weight: 23.919 mg
TERLIQ 75N8A

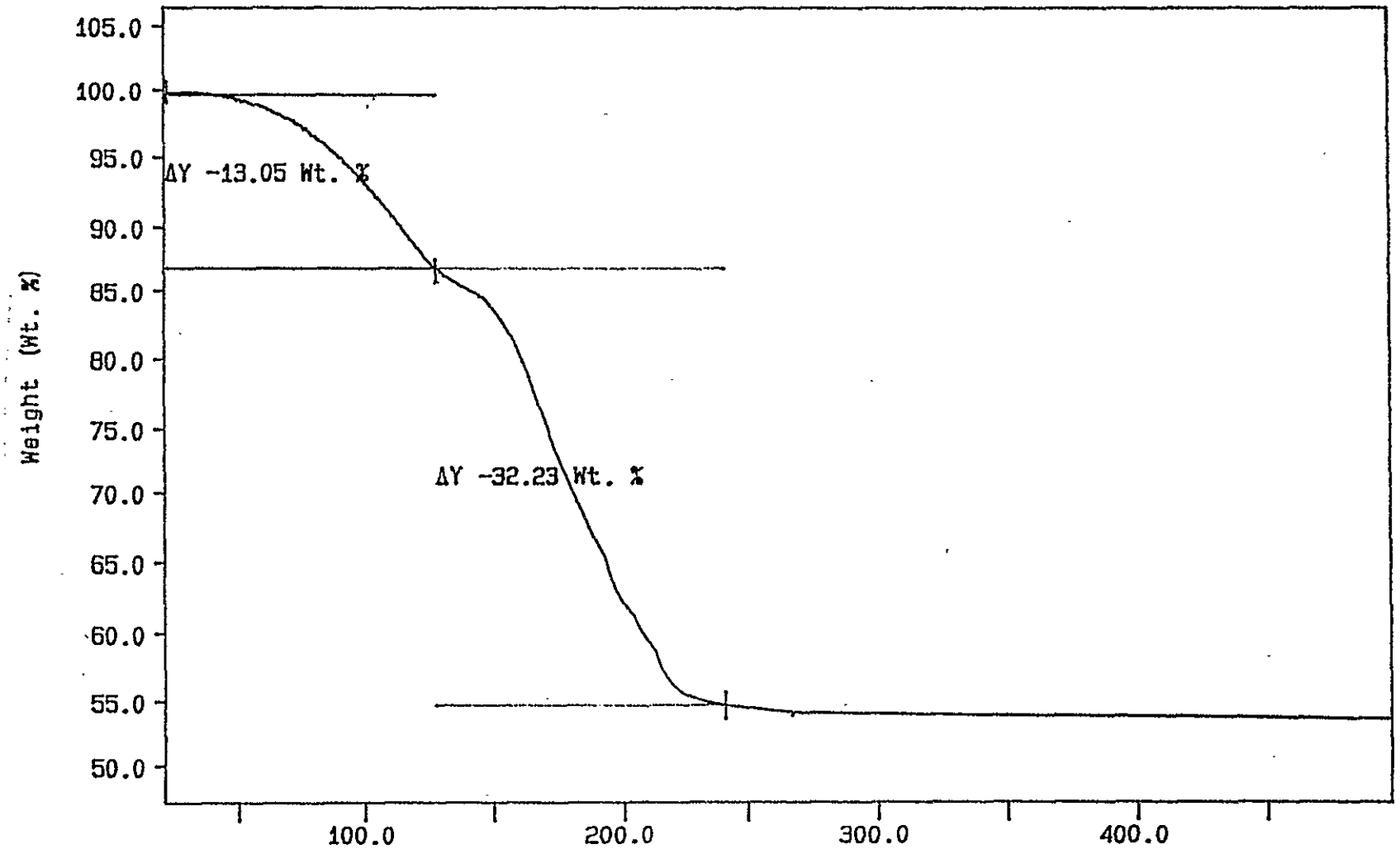
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-158 TO 2-160



N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 00:34:34 1996

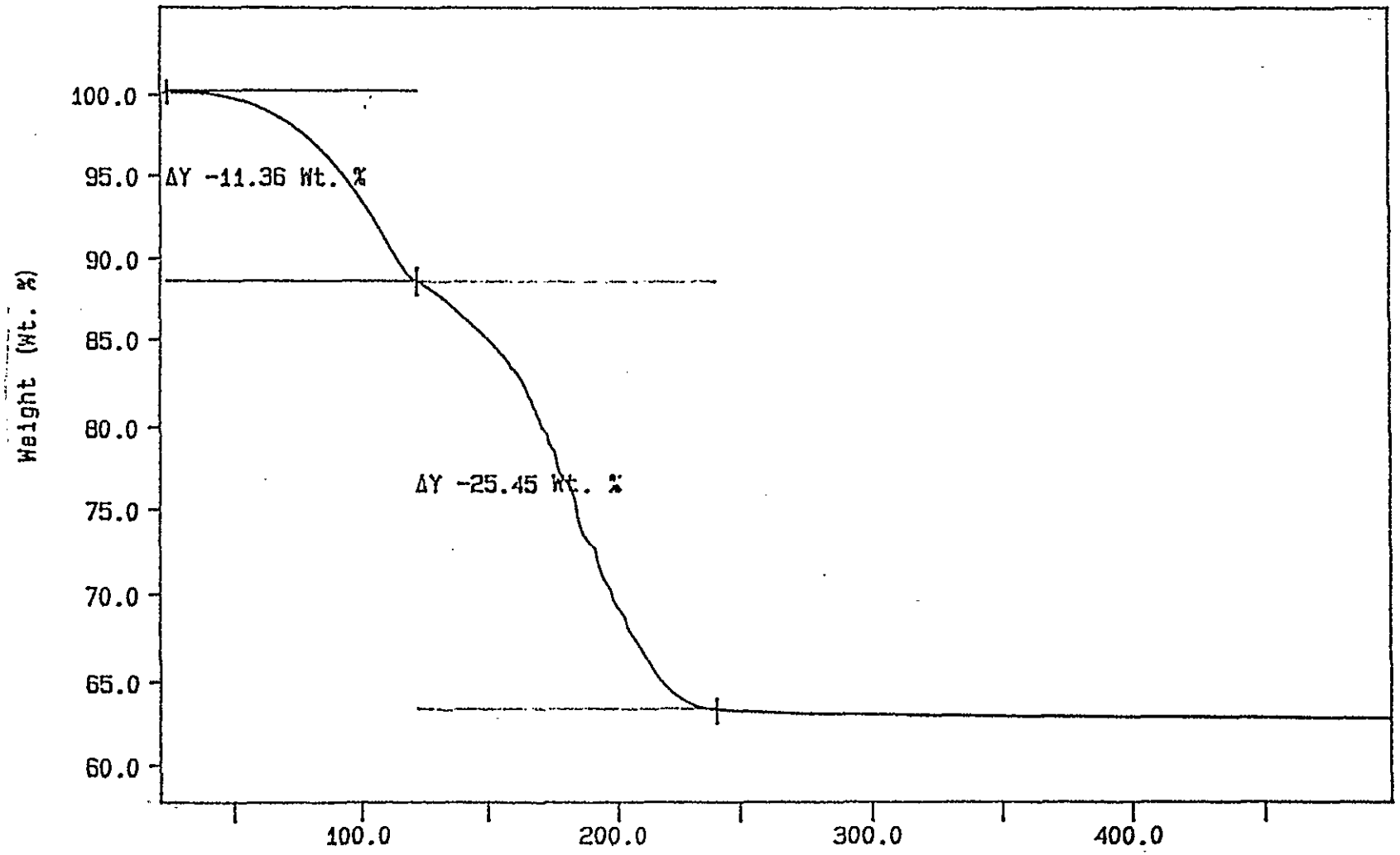
Curve 1: TGA
File info: SAM020101 Thu Feb 1 01:57:27 1996
Sample Weight: 28.845 mg
S96T000248



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 02:39:00 1996

Curve 1: TGA
File info: SAM020102 Thu Feb 1 03:34:52 1996
Sample Weight: 24.934 mg
S96T000248 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 1 03:42:20 1996

LABCORE Data Entry Template for Worklist# 5295

Analyst: SMF **Instrument:** TGA0 3 **Book #** 75N8A

Method: LA-514-114 Rev/Mod C-1

WHC-SD-WM-DP-103, REV. 1

Worklist Comment: Please run BY-106 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	LIQUID	59.2	59.91	N/A	%
95000229	BY-106	2 SAMPLE	S96T000279	0		TGA-03	LIQUID	N/A	99.88		%
95000229	BY-106	3 DUP	S96T000279	0		TGA-03	LIQUID	99.88	99.04	N/A	%

Final page for worklist # 5295

See attached for signatures

Analyst Signature Date 3/5/96

Analyst Signature Date

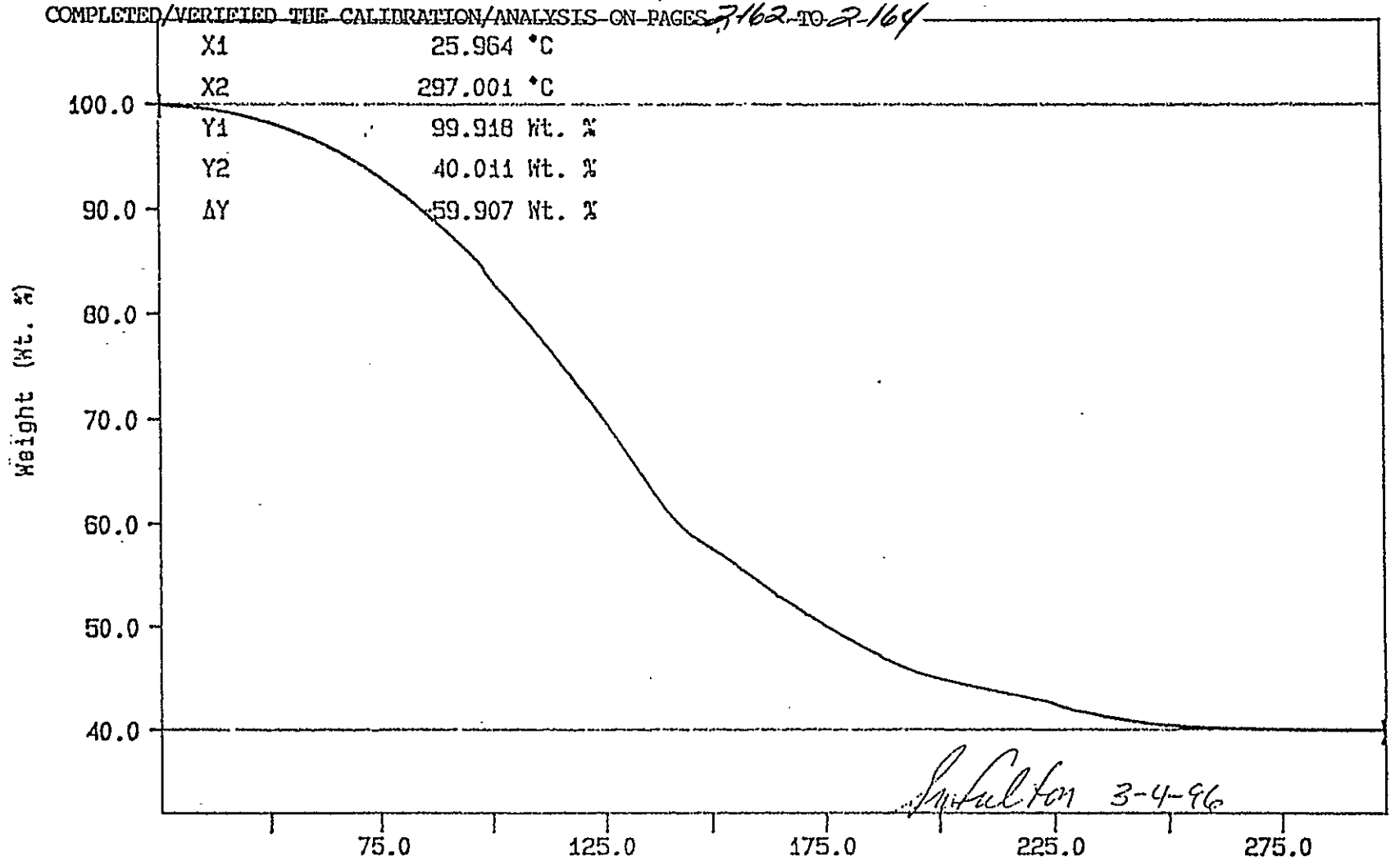
Verified by Blandina BDV Valenzuela 3/7/96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TER030401 Mon Mar 4 18:26:47 1996
Sample Weight: 19.837 mg
TERLIQ 75NBA

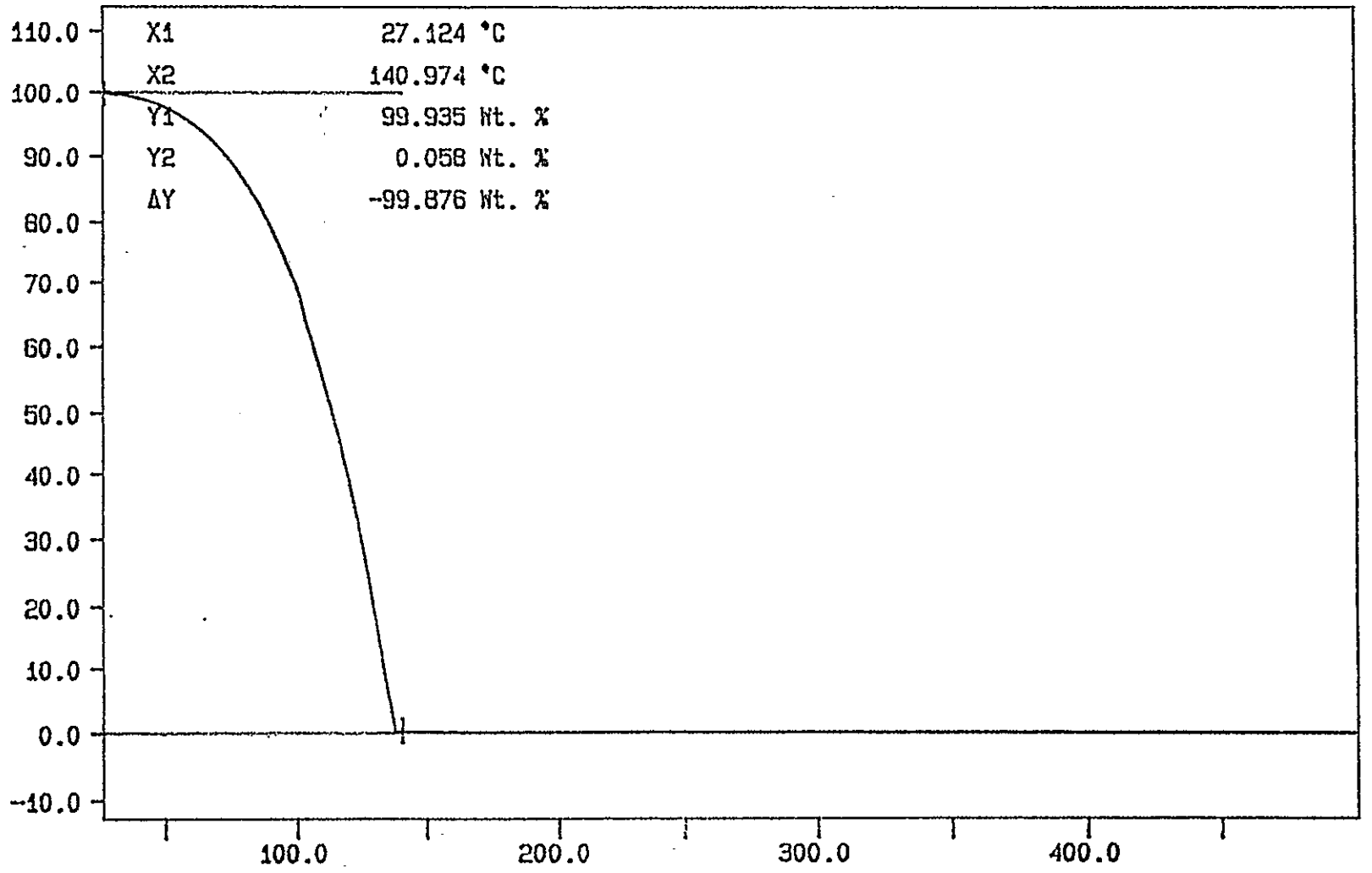
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/~~VERIFIED THE CALIBRATION/ANALYSIS ON PAGES~~ 2-162 ~~TO~~ 2-164



N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 4 18:27:11 1996

Curve 1: TGA
File info: SAM030401 Mon Mar 4 19:31:51 1996
Sample Weight: 10.114 mg
S96T000279

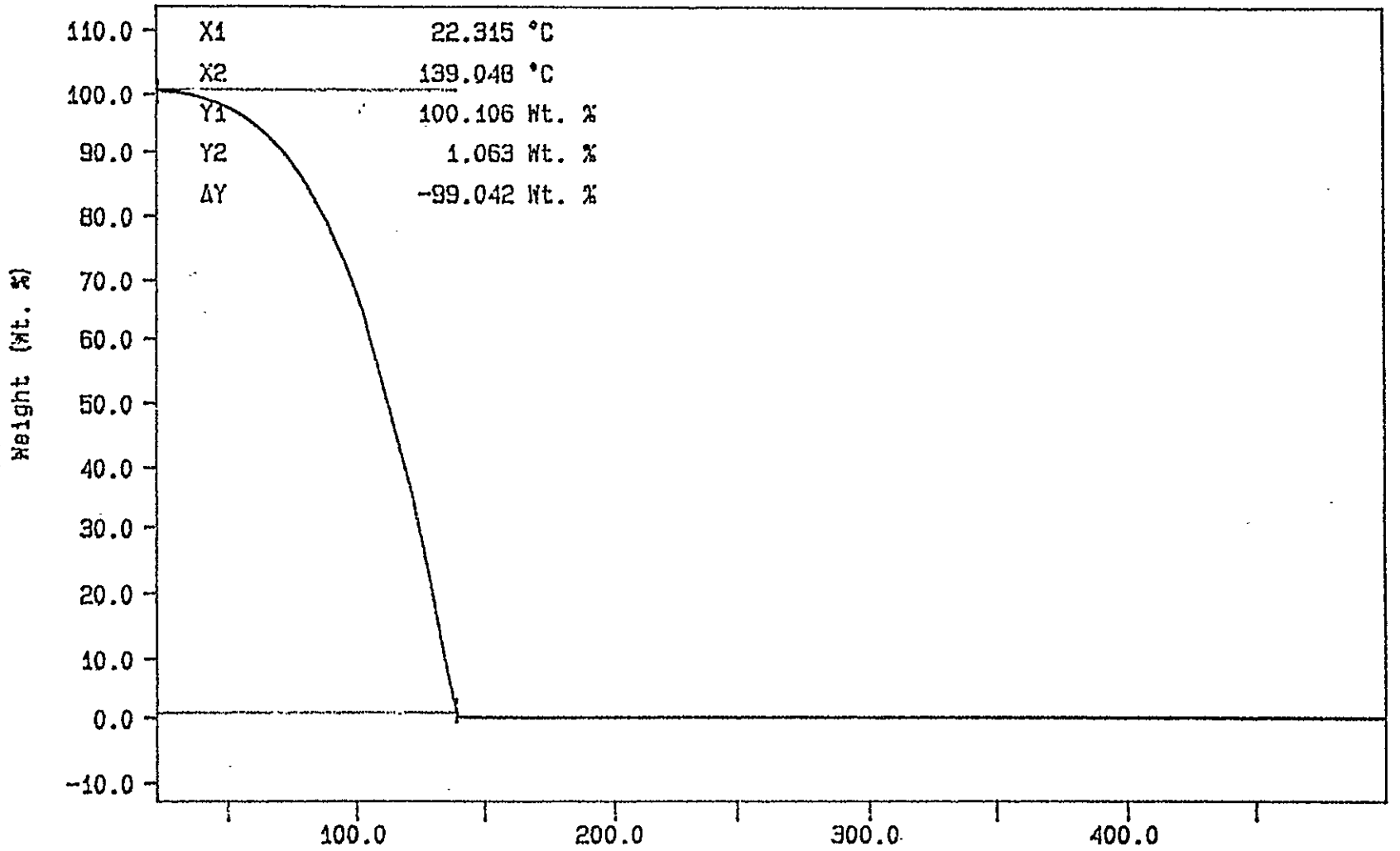


10C/MIN N2
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 4 20:36:30 1996

2-163

Curve 1: TGA
File info: SAM030402 Mon Mar 4 21:33:46 1996
Sample Weight: 10.741 mg
S96T000279



10C/MIN N2
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 4 21:45:09 1996

worklistrpt Version 2.1 05/15/95
02/14/96 10:52

WHC-SD-WM-DP-103 REV. 0B

LABCORE Data Entry Template for Worklist# 5678

Analyst: SMF **Instrument:** TGA0 1 **Book #** 75N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: Reruns for BY-106 TGA under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.2	60.19*	N/A	%
95000229	BY-106	2	SAMPLE	S95T004177	0		TGA-01	SOLID	N/A	36.63		%
95000229	BY-106	3	DUP	S95T004177	0		TGA-01	SOLID	36.63	37.00	N/A	%
95000229	BY-106	4	SAMPLE	S95T004178	0		TGA-01	SOLID	N/A	29.53		%
95000229	BY-106	5	DUP	S95T004178	0		TGA-01	SOLID	29.53	21.02	N/A	%

Final page for worklist # 5678

Blandina Valenzuela for SM Fulton
Analyst Signature Date 2/14/96

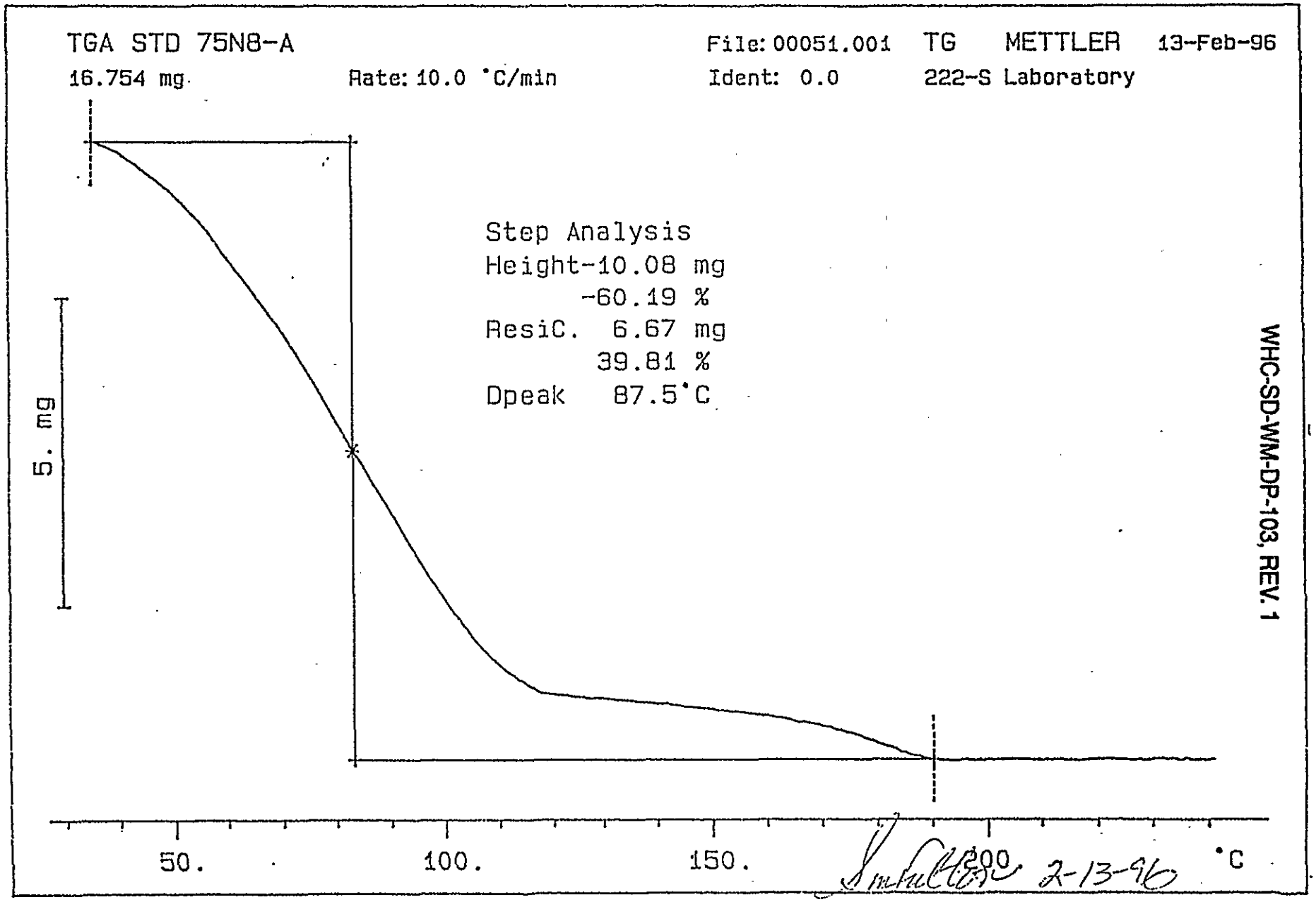
Analyst Signature Date 2-14-96

Verified by Blandina Valenzuela
2/15/96

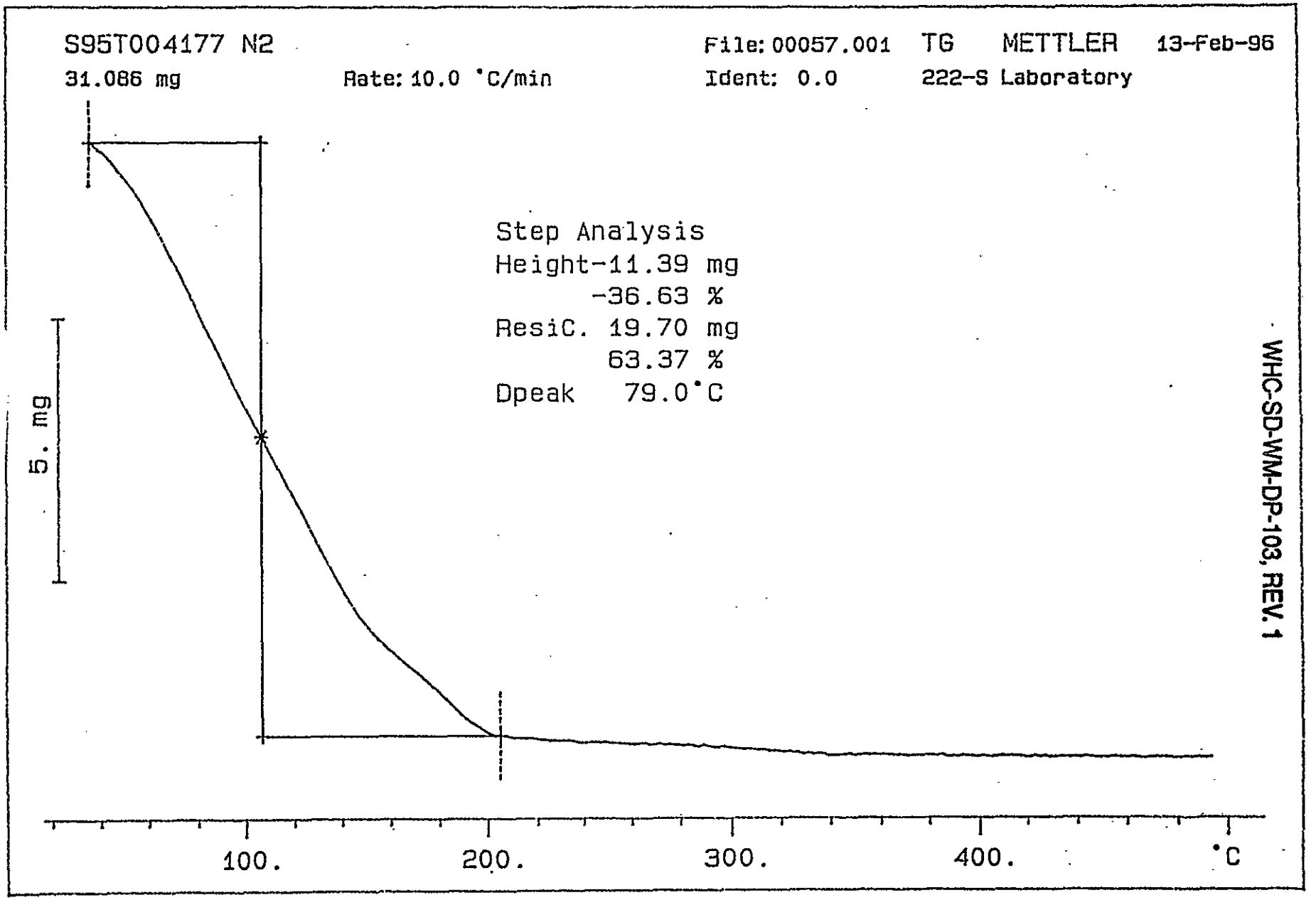
Data Entry Comments:

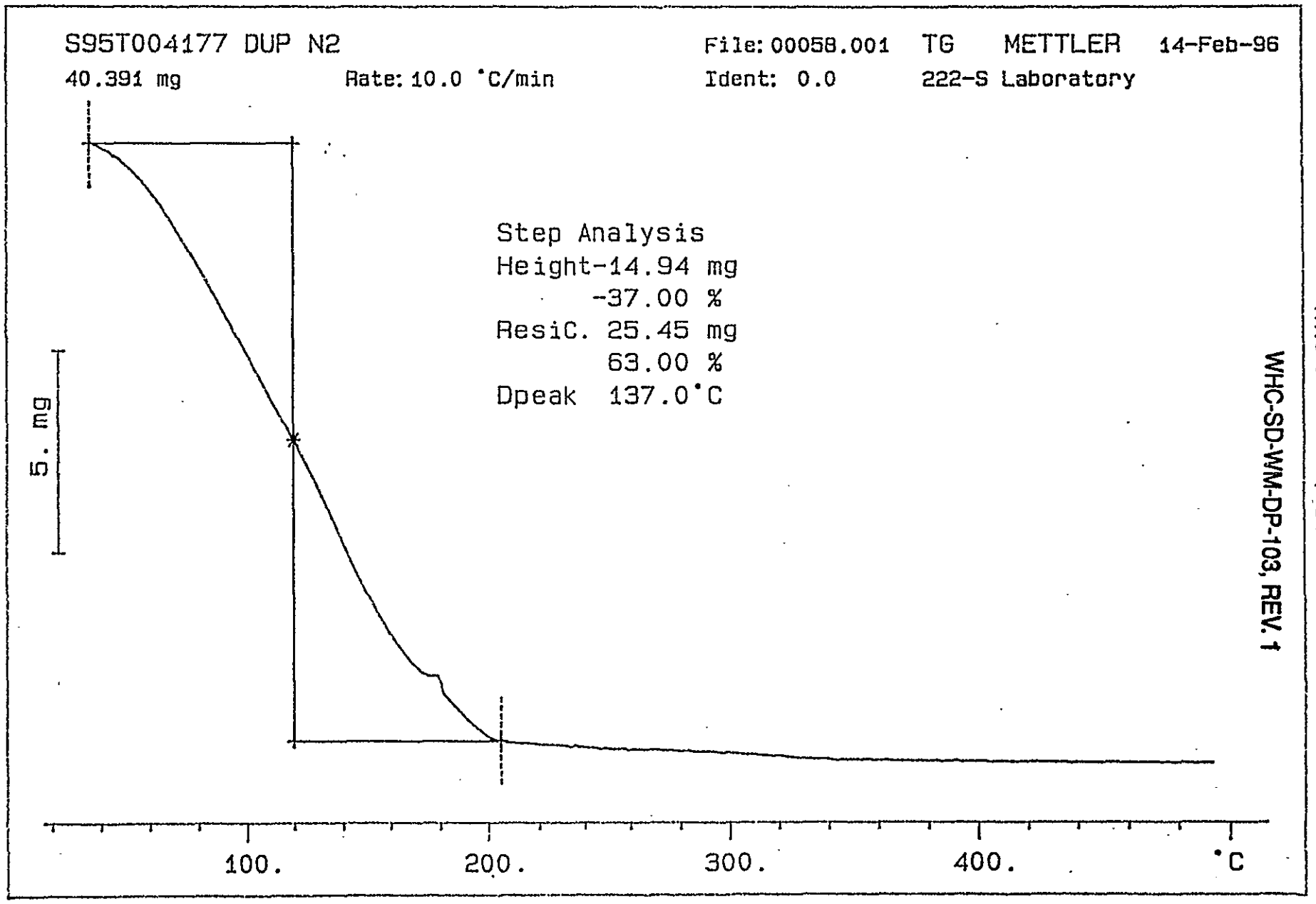
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-166 TO 2-170

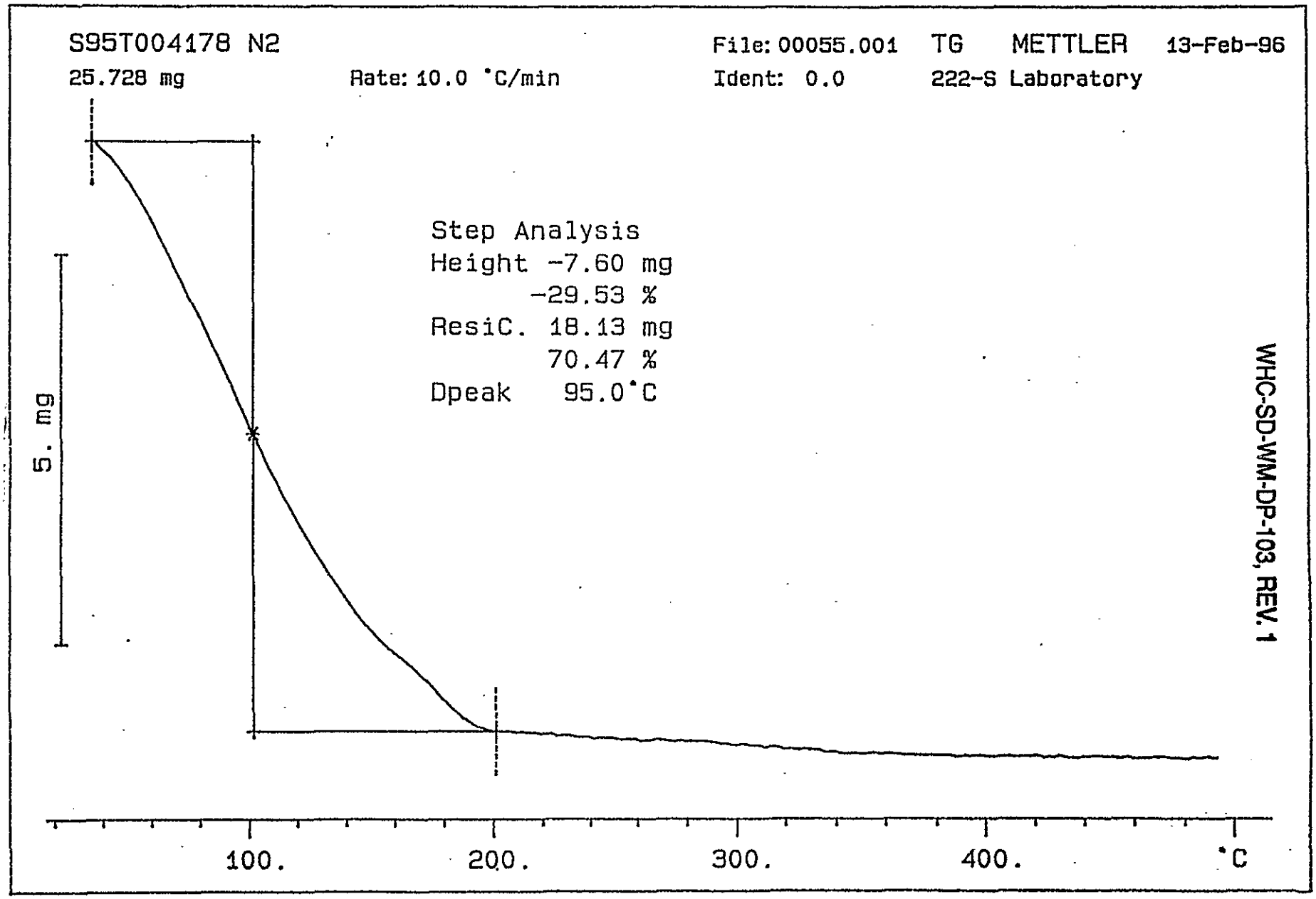


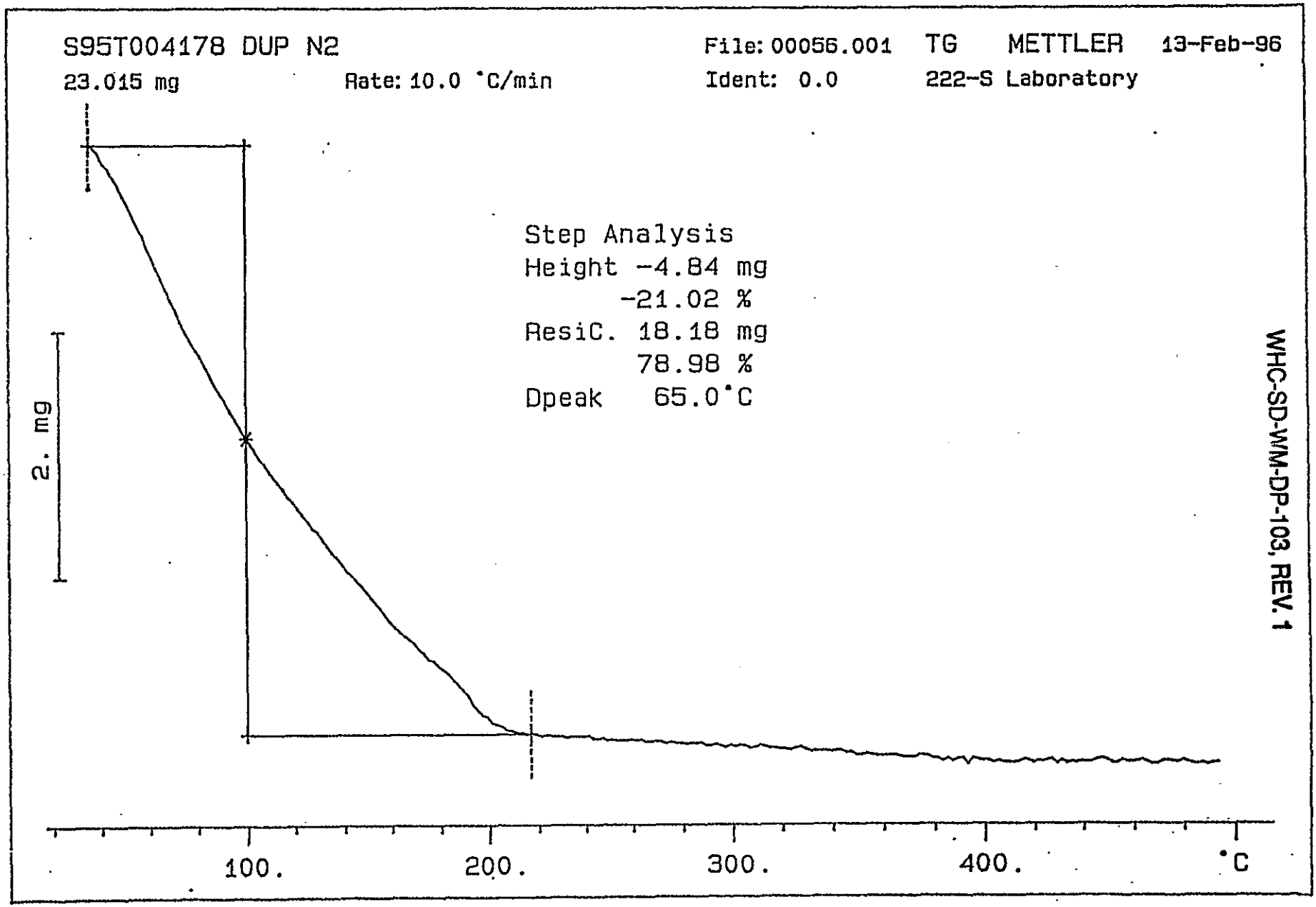
2-13-96


S95T004177 N2
31.086 mg
Rate: 10.0 °C/min
File: 00057.001
Ident: 0.0
TG
METTLER
222-S Laboratory
13-Feb-96
Step Analysis
Height-11.39 mg
-36.63 %
ResiC. 19.70 mg
63.37 %
Dpeak 79.0°C
5. mg
100.
200.
300.
400.
°C



WHC-SD-WM-DP-103, REV. 1


S95T004178 N2
25.728 mg
Rate: 10.0 °C/min
File: 00055.001
TG METTLER
13-Feb-96
Ident: 0.0
222-S Laboratory
Step Analysis
Height -7.60 mg
-29.53 %
ResiC. 18.13 mg
70.47 %
Dpeak 95.0°C
5. mg
100.
200.
300.
400.
°C


S95T004178 DUP N2
23.015 mg
Rate: 10.0 °C/min
File: 00056.001
Ident: 0.0
TG
METTLER
222-S Laboratory
13-Feb-96
Step Analysis
Height -4.84 mg
-21.02 %
ResiC. 18.18 mg
78.98 %
Dpeak 65.0°C
2. mg
100.
200.
300.
400.
°C

worklistrpt Version 2.1 05/15/95
02/28/96 10:41

LABCORE Data Entry Template for Worklist# 5872

Analyst: RDM Instrument: TGA0 3 Book # 75N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: Rerun. Please run BY-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	59.2	60.52	N/A	%
95000229	BY-106	2	SAMPLE	S96T000248	1		TGA-03	SOLID	N/A	48.82		%
95000229	BY-106	3	DUP	S96T000248	1		TGA-03	SOLID	48.82	48.86	N/A	%
		4	STD				TGA-03	SOLID	59.2	60.17	N/A	%
95000229	BY-106	5	SAMPLE	S96T000249	0		TGA-03	SOLID	N/A	48.24		%
95000229	BY-106	6	DUP	S96T000249	0		TGA-03	SOLID	48.24	48.93	N/A	%

Final page for worklist # 5872

See attached for signatures
Analyst Signature Date 2/28/96 BDV

E. Jones 7-23-96
Analyst Signature Date

Verified by Blandina Valenzuela 2/29/96

Data Entry Comments: S96T000248 results are the sum of two weight loss steps.
S96T000249 duplicate result is the sum of two weight loss st

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrpt Version 2.1 05/15/95
02/23/96 15:24

LABCORE Data Entry Template for Worklist# 5872

Analyst: [illegible] Instrument: TGA0 _____ Book # 75N8A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: Rerun. Please run BY-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000229	BY-106	2	SAMPLE	S96T000248	0		TGA-01	SOLID	N/A			%
95000229	BY-106	3	DUP	S96T000248	0		TGA-01	SOLID			N/A	%
95000229	BY-106	4	SAMPLE	S96T000249	0		TGA-01	SOLID	N/A			%
95000229	BY-106	5	DUP	S96T000249	0		TGA-01	SOLID			N/A	%

Final page for worklist # 5872

[illegible] 2/24/96
Analyst Signature Date

Analyst Signature Date

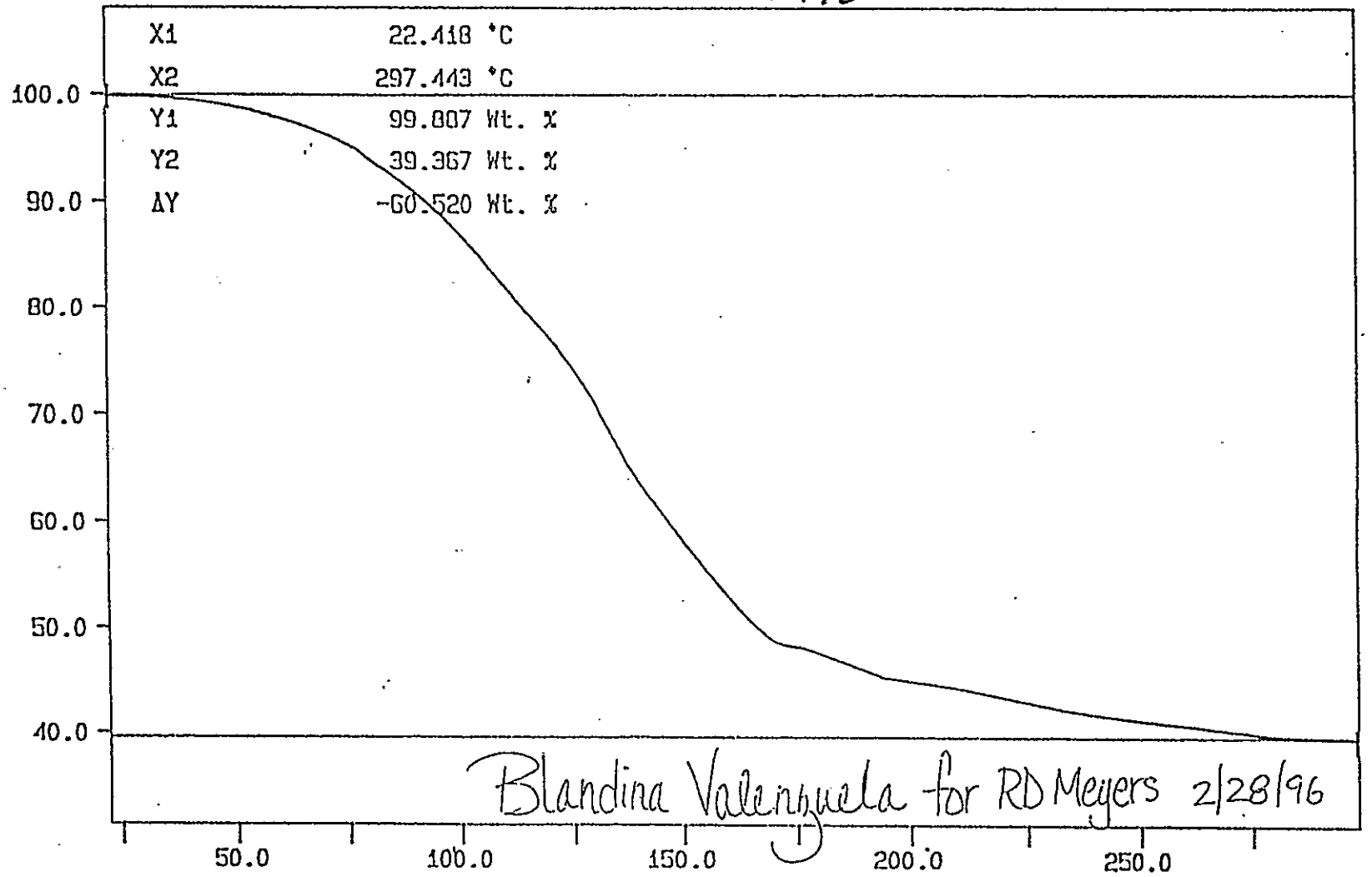
Other instrument was used.
2/26/96
BDV

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: ter022301 Fri Feb 23 19:37:41 1996
Sample Weight: 18.327 mg
TERLIQ 75NBA

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2173 TO 2178



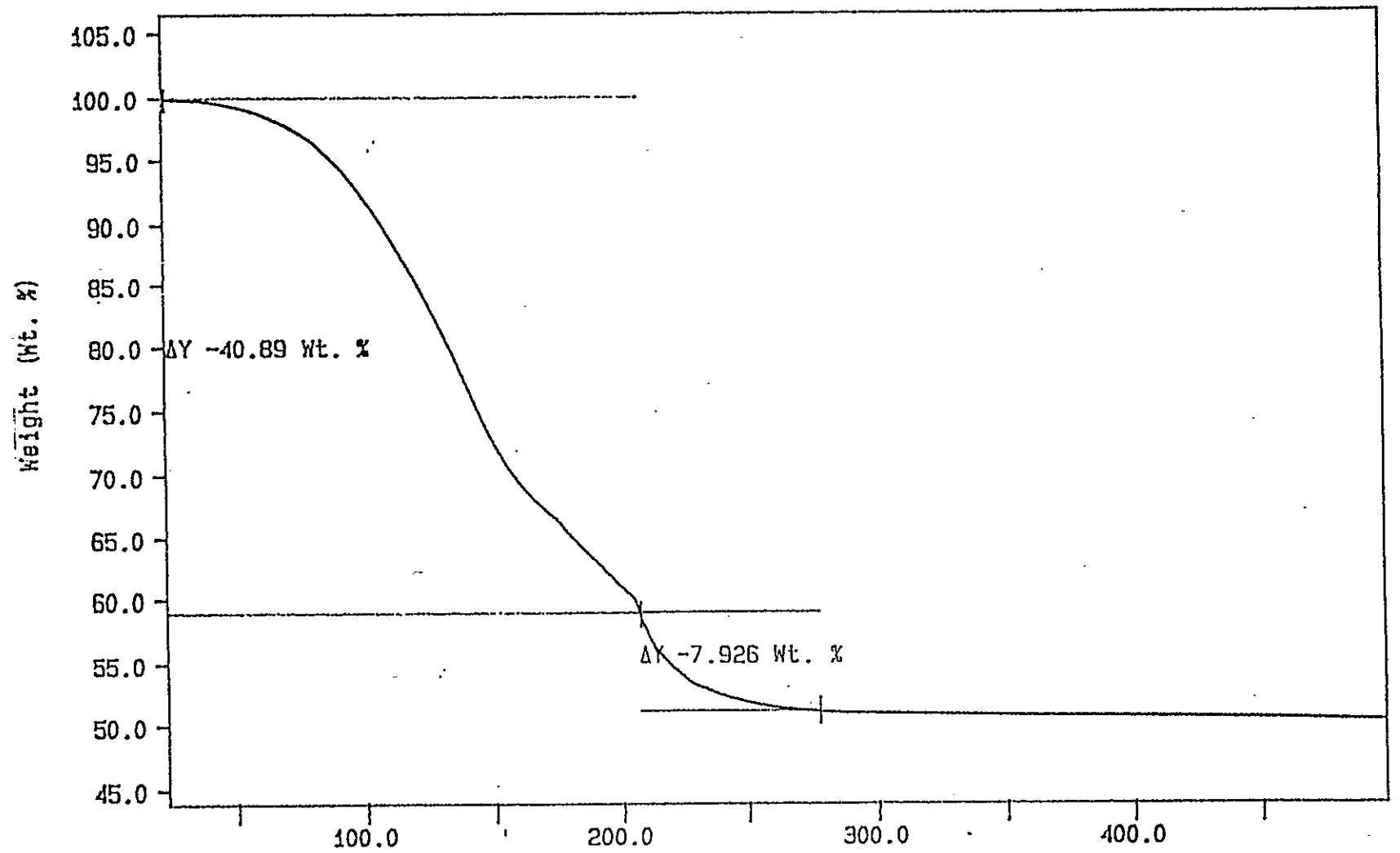
Blandina Valenzuela for RD Meyers 2/28/96

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Feb 23 19:47:09 1996

Curve 1: TGA
File info: sam022301 Fri Feb 23 23:07:52 1996
Sample Weight: 19.013 mg
S96T000248

BEST AVAILABLE COPY



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 28 10:09:30 1996

Curve 1: TGA
File info: gam022302 Sat Feb 24 01:55:07 1996
Sample Weight: 13.411 mg
S96T000248DUP

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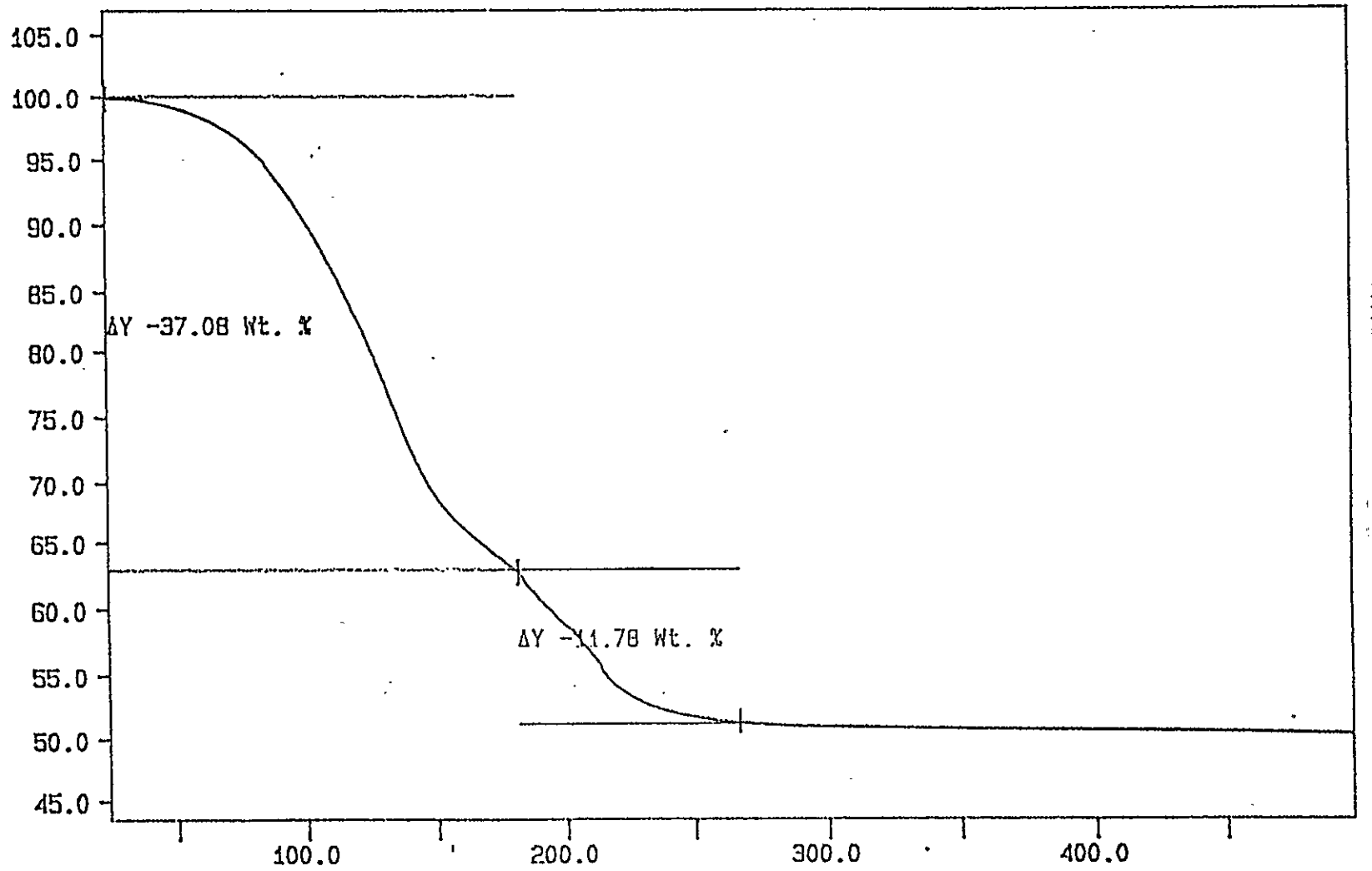
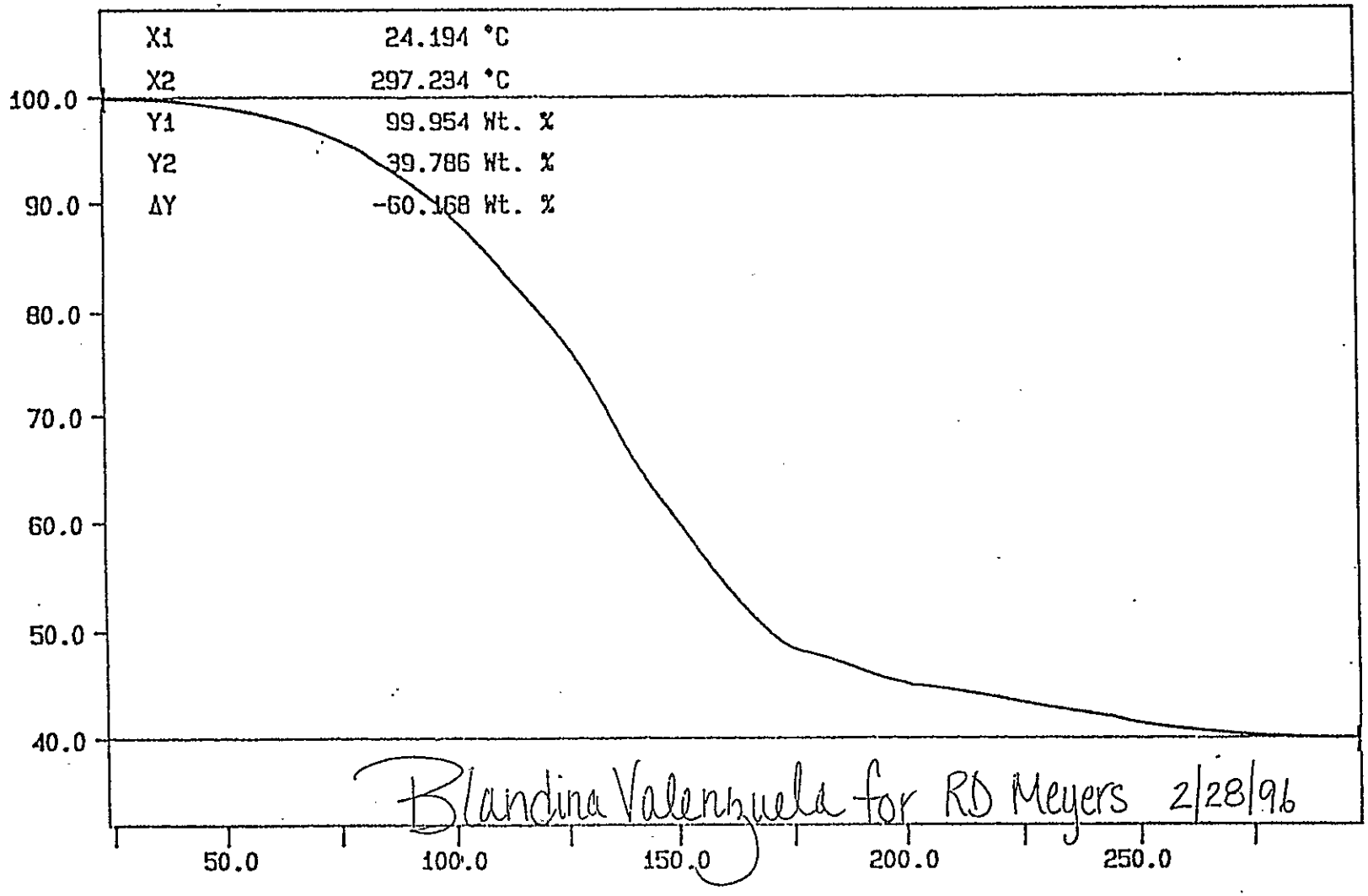


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 28 10:19:55 1996

Curve 1: TGA
File info: ter022401 Sat Feb 24 19:28:06 1996
Sample Weight: 18.100 mg
TERLIQ 75N8A

BEST AVAILABLE COPY



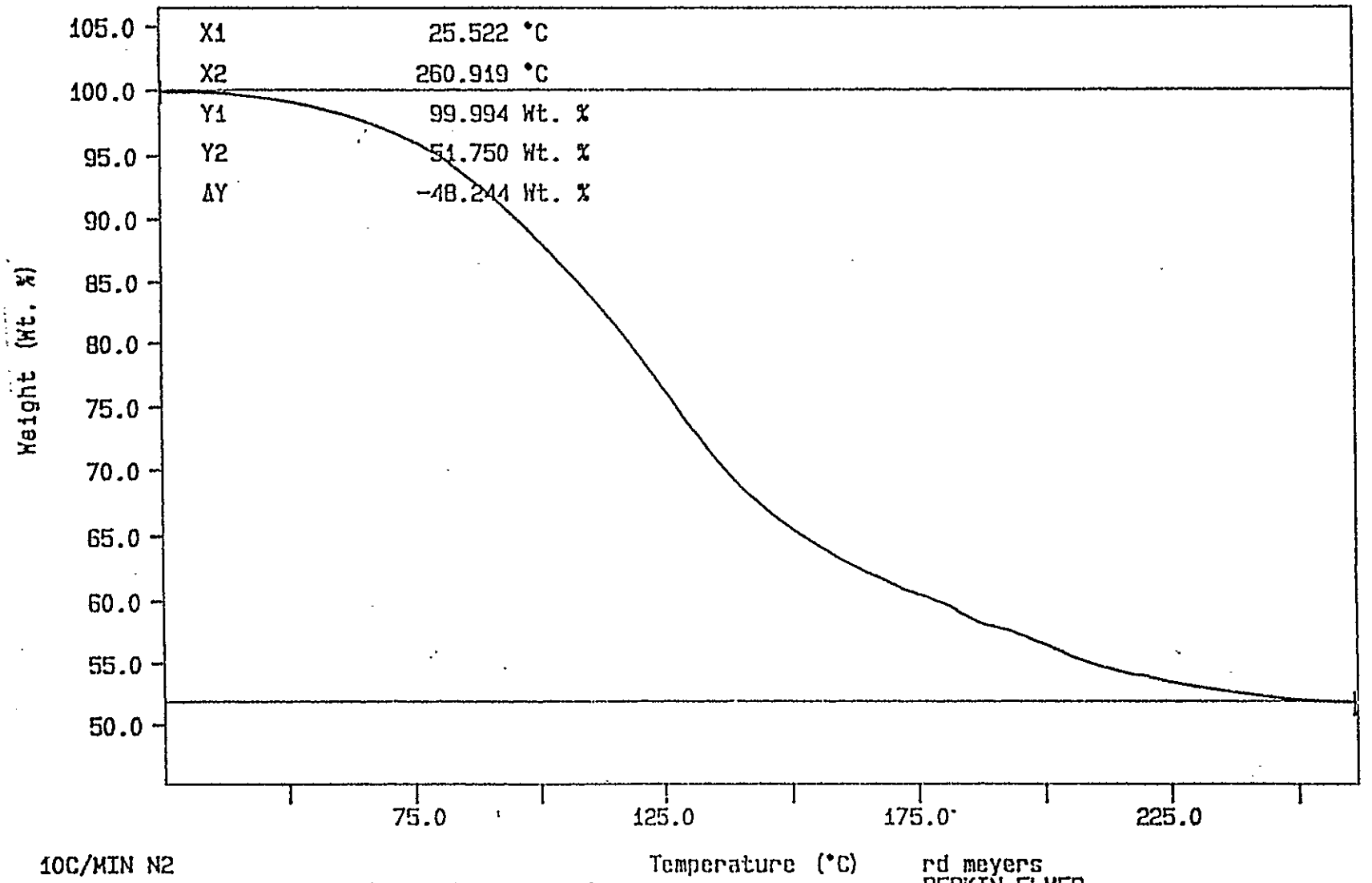
Blandina Valenzuela for RD Meyers 2/28/96

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Feb 24 19:33:25 1996

Curve 1: TGA
File info: sam022401 Sat Feb 24 22:43:04 1996
Sample Weight: 9.061 mg
S96T000249

BEST AVAILABLE COPY

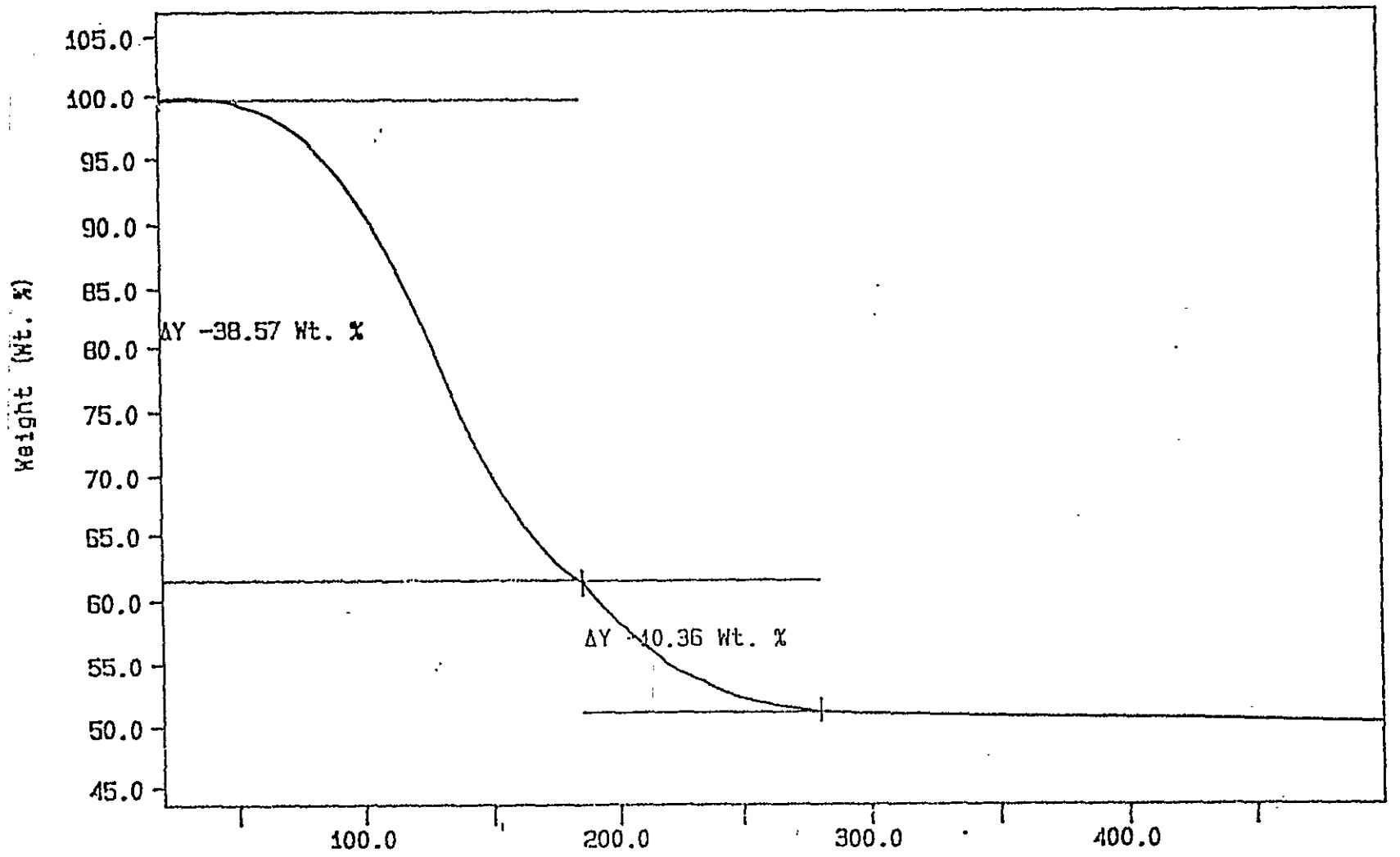


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Feb 25 00:47:49 1996

Curve 1: TGA
File info: sam022402 Sun Feb 25 02:12:13 1996
Sample Weight: 14.956 mg
S96T000249DUP

BEST AVAILABLE COPY



10C/MIN N2
TEMP1: 38.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 28 10:40:06 1996

LABCORE Data Entry Template for Worklist# 5956

Analyst: R. D. Instrument: TGA0 1 Book # 75N8A

Method: LA-560-112 Rev/Mod B-1 WHC-SD-WM-DP-103, REV. 1

Worklist Comment: BY-106 TGA-01 RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	LIQUID	59.2	59.62*	N/A	%
95000229	BY-106	2 SAMPLE	S96T000258	0		TGA-01	LIQUID	N/A	49.56		%
95000229	BY-106	3 DUP	S96T000258	0		TGA-01	LIQUID	49.56	51.38	N/A	%

Final page for worklist # 5956

Rae Ann Green 2-28-96
Analyst Signature Date

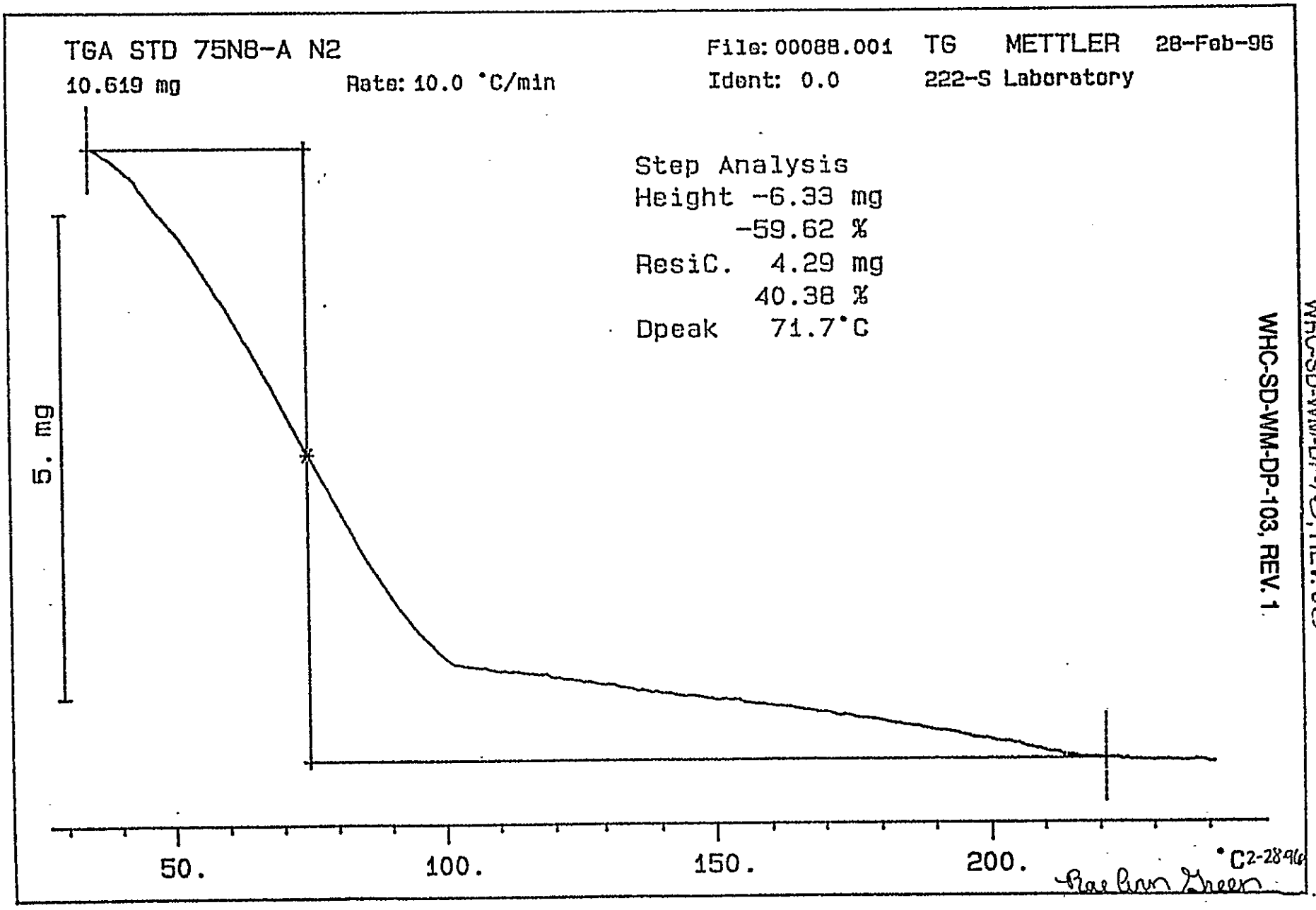
Tish Conlin 3/1/96
Analyst Signature Date

Verified by Blandina Valenzuela 3/7/96

Data Entry Comments: The results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

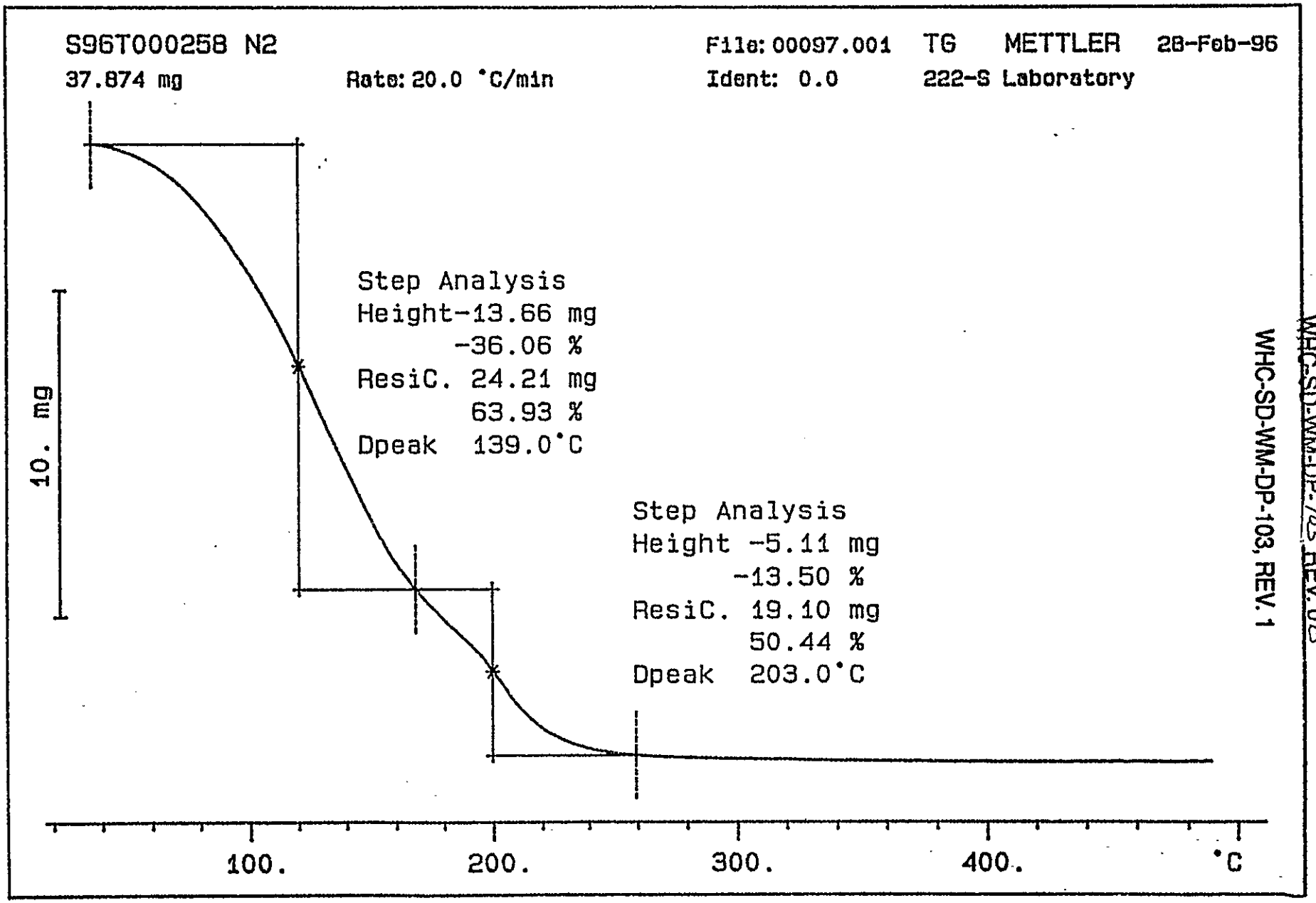
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-180 TO 2-182,

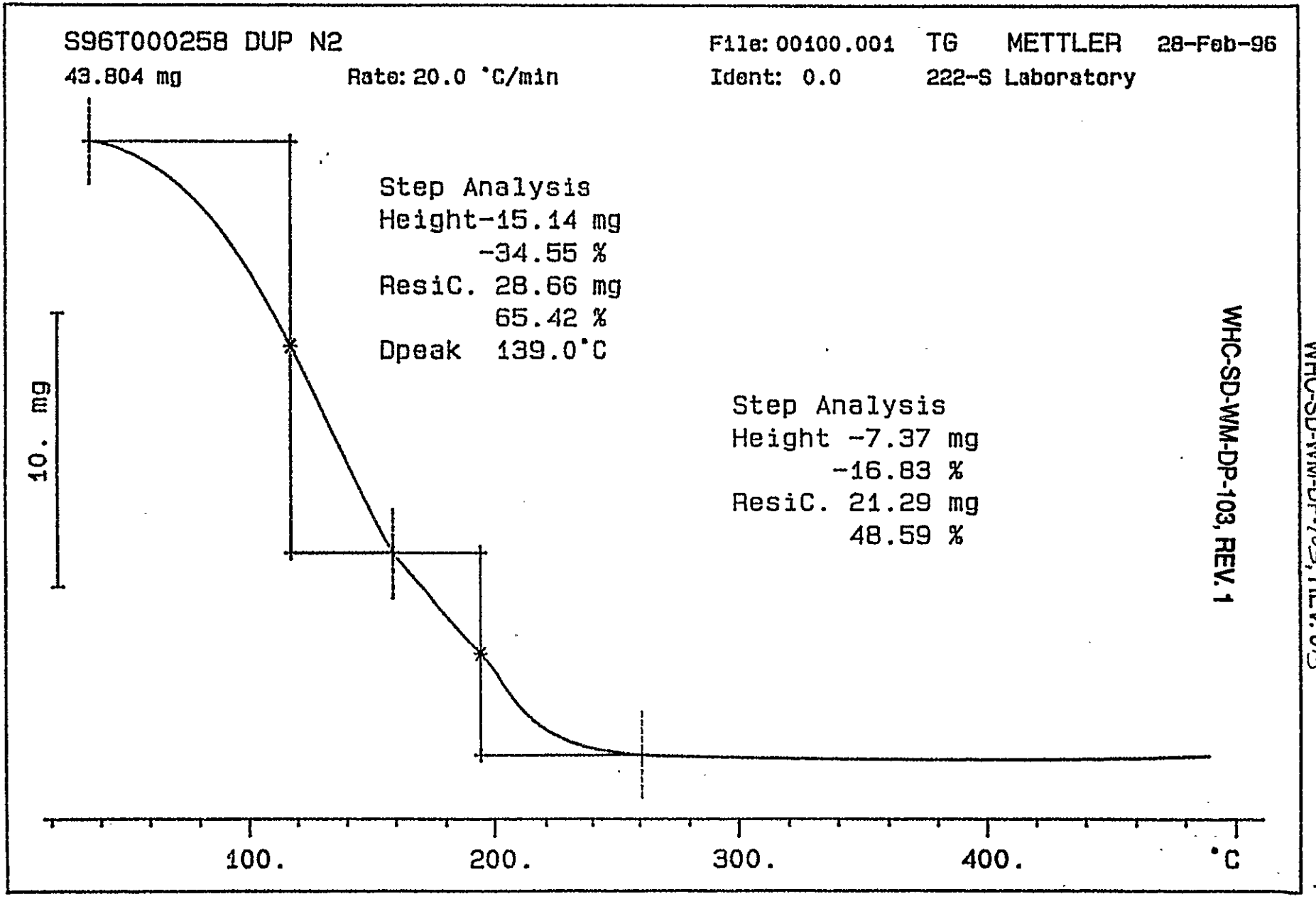


2-28-96
Raelynn Green

WHC-SD-WM-DP-103, REV. 0

WHC-SD-WM-DP-103, REV. 1


S96T000258 N2
37.874 mg
Rate: 20.0 °C/min
File: 00097.001
Ident: 0.0
TG
METTLER
28-Feb-96
222-S Laboratory
Step Analysis
Height -13.66 mg
-36.06 %
ResiC. 24.21 mg
63.93 %
Dpeak 139.0°C
Step Analysis
Height -5.11 mg
-13.50 %
ResiC. 19.10 mg
50.44 %
Dpeak 203.0°C
10. mg
100.
200.
300.
400.
°C


S96T000258 DUP N2
43.804 mg
Rate: 20.0 °C/min
File: 00100.001
TG
METTLER
28-Feb-96
Ident: 0.0
222-S Laboratory
Step Analysis
Height-15.14 mg
-34.55 %
ResiC. 28.66 mg
65.42 %
Dpeak 139.0°C
Step Analysis
Height -7.37 mg
-16.83 %
ResiC. 21.29 mg
48.59 %
10. mg
100.
200.
300.
400.
°C