

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

Document number: SD-WM-DP-099

Section 6 of 6

Title: FINAL REPORT FOR TANK 241-C-103 PUSH MODE  
SAMPLE CORES 63 and 66

Date: 9/29/95 Revision: 1

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PART II

WHC-SD-WM-DP-099, REV. 1

WHC-SD-WM-DP-099, REV. 0B

222-S ANALYTICAL SERVICES

90-DAY SAFETY SCREEN RESULTS FOR  
TANK 241-C-103, PUSH MODE  
CORE SAMPLES 63 AND 66

Date Printed:

MAY 12, 1995

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WHC-SD-WM-DP-099, REV. 1

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90-DAY SAFETY SCREEN RESULTS FOR TANK 241-C-103  
PUSH-MODE CORE SAMPLES 63 AND 66.

This is the 90-Day report for the fiscal year 1994/1995 tank 241-C-103 (C-103) push-mode characterization effort. It transmits additional primary analytical data and analytical results from secondary analyses performed when action limits, as defined in the C-103 tank characterization plan (TCP), Reference 1, were exceeded. Tank C-103 sample receipt, extrusion, breakdown, and the primary safety screening results, have been reported in Reference 2 and are not reproduced or discussed here. A final 216-Day report will be issued at a later date.

Summary

Reported below are the results for lithium (Li) and total organic carbon (TOC) analysis on two push-mode core samples from tank C-103. In accordance with Reference 1, secondary analyses for nitrite, nitrate, bromide, hydroxide, cyanide, and percent water by gravimetry were performed on selected samples and are reported below. Because samples from this tank have very high dose rates, analysis for nitrate, nitrite, and hydroxide were only performed on the upper half of each sludge core sample in order to comply with the As Low As Reasonably Achievable (ALARA) principal. Reference 1 requires that these analyses be performed on additional sludge samples. The analyses for hydroxide were performed on a water-digested aliquot of the sludge sample since a procedure for direct analysis on solid samples is not available. The notification limits for Li and bromide were exceeded on the sludge and drainable liquid of segment 4, core 66.

Analytical Results

Analytical results for Li, TOC, and the secondary analytes are presented in Table 1, which includes the LabCore sample number and segment portion. Column 2 of the table indicates the sample preparation used, if any. As shown, analyses on fused samples are marked with "F", samples marked with "W" indicate a water digestion, and samples marked with "D" indicate that an acid dilution was performed on the sample before analysis. Although the notification for differential scanning calorimetry (DSC) was exceeded on the lower half of segment 3 and drainable liquid of segment 4 of core 63, no secondary analysis for adiabatic calorimeter was performed. An exemption for this test was granted in Reference 3 due to the high dose rates and large endotherms associated with these samples.

Li by Inductively Coupled Plasma

The concentration of Li was determined by ICP using procedure LA-505-151, Rev. D-1 or LA-505-161, Rev. A-1. Analyses were performed on fusion digestions of the sludge samples, and on direct acid dilutions of liquid samples. The notification limit of 100 ug Li/g or 100 ug Li/mL was exceeded on the sludge and drainable liquid of segment 4, core 66.

Except for the sludge sample from segment 4 of core 66, results on all sludge samples are less than the detection limit. Radiation levels for this waste

were higher than those seen on typical tank waste samples, therefore smaller aliquots were taken for fusion dissolutions in an effort to reduce dose rates. Consequently, detection limits are higher than they might normally be due to large dilution factors. Concentrations of Li in the drainable liquid samples are generally well below the notification limit with the exception of the sample noted above. The relative percent difference (RPD) between the primary and duplicate analyses on segment 4, core 66 sludge is above the 10% TCP limit at 15.9%. It is unlikely that a re-run of the same fusion digest would improve the RPD, and to comply with the ALARA principle, no re-runs were performed. Samples will be re-digested and re-run at the customer's request.

#### Total Organic Carbon

Analyses for TOC were performed by direct persulfate oxidation on all sludge and drainable liquid samples from both cores per procedure LA-342-100, Rev. A-0. For comparative purposes, the drainable liquids from segments 1 and 2 of core 63 were also analyzed by the furnace oxidation method using procedure LA-344-105, Rev. B-3.

The TOC content in the sludge is similar from segment to segment and core to core. Results are in the 7,600 to 10,200 ug C/g range with the exception of segment 4, core 63, which was lower at 4,500 ug C/g. At 4,550 ug C/g, the drainable liquid in segment 4, core 63 also has a TOC content lower than that in the other drainable liquid samples. For both cores, there is a trend toward lower TOC levels in the drainable liquid with tank depth. Comparison of TOC values determined by the two methods is very favorable. The results for the drainable liquid in segment 1, core 63 are 7,370 ug C/mL by the persulfate method, and 7,710 ug C/mL by furnace oxidation. High RPD values of 19.8% and 16.0% are found between the sample and duplicate analyses on samples S95T000045 and S95T000225 respectively. No re-runs were performed since all results are significantly below the 30,000 ug C/g notification limit.

#### Hydroxide, Nitrite, and Nitrate

Analyses for hydroxide, nitrite, and nitrate were secondary and were performed because the energy equivalent (as described in Reference 1) of the TOC assay by the hot persulfate method was greater than 125% of any exotherm present as determined by DSC. This criterion was met for every sludge and liquid sample except the lower half sludge from segment 3, core 63 (S95T000046), although for ALARA reasons, analyses were only performed on the upper half sub-segments on the sludge samples.

##### Hydroxide:

The concentration of free hydroxide was determined on water digestions of C-103 sludge samples or directly on liquid samples using procedure LA-211-102, Rev. B-1. Reference 1 calls for direct analysis on sludge samples, however there is currently no procedure for direct analysis on a solid sample. The free hydroxide concentrations on the drainable liquid samples could not be determined and are not reported since there is apparently virtually no free hydroxide associated with these samples. As shown in the table below, each sample had an original pH of approximately 10.3 and was treated with the reagent BaCl<sub>2</sub> for removal of hydrolyzable anions. The resulting removal of

carbonate and/or phosphate from these samples resulted in a pH of approximately 8.80. The interpretation of these results is that the observed pH of 8.80 is the carbonate/bicarbonate endpoint of the acid titration curve, thus there is no free hydroxide ion. The total inorganic carbon and phosphate analyses of these samples are supporting data to this conclusion. For this reason, no less-than values are reported on these samples.

Sample #	Initial pH	pH After BaCl <sub>2</sub> Addition
S94T000200	10.22	8.80
S95T000049	10.38	8.82
S95T000052	10.48	8.79
S95T000214	10.21	8.75
S95T000218	10.24	8.85
S95T000220	10.25	8.85
S95T000222	10.30	8.89

Hydroxide analyses of all sludge samples resulted in less-than values and high detection limits. Spike recoveries are low presumably because the spike was being consumed by the sample. This fact and the shape of the titration curve indicate that there is essentially no free hydroxide in the sludge samples and that the sample contains carbonate and bicarbonate that consume any hydroxide added to the sample.

#### Nitrite:

The concentration of the nitrite ion was determined by ion chromatography on water digestions of sludge samples or directly on liquid samples using procedure LA-533-105, Rev. C-2. The amount of nitrite in sludge from core 63 dropped from 1.94E04 ug/g in segment 2 to 2.38E03 in segment 4. Segment 3, core 66 sludge had about four times more nitrite than the corresponding core 63 segment. Segment 4, core 66 sludge had about nine times more nitrite than the corresponding core 63 segment. Furthermore, there was a decrease in nitrite concentration from segment 3 to segment 4 in both cores. A decrease in nitrite concentration in drainable liquid from core 63 is also observed, albeit less pronounced. The core 66 drainable liquid was nearly constant ranging from 2.42E04 in segment 1 to 2.25E04 in segment 4.

Nitrite was run on an additional subsample (S95T000052) of the drainable liquid from segment 4, core 63 because of high detection limits on the initial sample. The detection limit improved on the second sample and the sample results were similar for both samples.

#### Nitrate:

The concentration of the nitrate ion was determined by ion chromatography on water digestions of sludge samples or directly on liquid samples using procedure LA-533-105, Rev. C-2. Concentrations of nitrate were nearly ten times less than nitrite levels for corresponding segment and core samples, therefore the variation of nitrate concentration with sample depth and core are similar to those for nitrite concentration.

Nitrate was run on an additional subsample (S95T000052) of the drainable liquid from segment 4, core 63 because of high detection limits on the initial

sample. The detection limit improved from 606 ug/mL to 101 ug/mL on the second sample so as to preclude the reporting of a less-than value.

### Bromide

The concentration of bromide was determined by ion chromatography on water digestions of sludge samples or directly on liquid samples using procedure LA-533-105, Rev. C-2. The analyses were secondary and were performed because the notification limit for Li was exceeded. Results are required on the sludge and drainable liquid of segment 4, core 66, however bromide is reported for all samples requiring nitrite and nitrate since these analytes are determined by ion chromatography as well and reporting the bromide results requires little additional effort. The notification limit of 1200 ug/g or 1200 ug/mL was exceeded on the sludge and drainable liquid of segment 4, core 66.

All bromide results are below the detection limit except for the sludge of segments 3 and 4 of core 66 and the drainable liquid from segment 4 of cores 63 and 66.

Bromide was run on an additional subsample (S95T000052) of the drainable liquid from segment 4, core 63 because of high detection limits on the initial sample. The detection limit did not improve on the second sample.

### Cyanide

Analysis for cyanide was performed directly according to procedure LA-695-102, Rev. C-0 as a secondary analysis on the lower half sub-segment of segment 3 and on the drainable liquid from segment 4 of core 63 because the notification limit for DSC was exceeded. Results on both samples are far below the notification limit of 39,000 ug/g or 39,000 ug/mL. For this reason, no re-run was performed on the segment 3 sample (S95T000863) even though the RPD was slightly above the 10% limit at 11.4% and the spike recovery was low at 83.8%. The spike recovery on sample S95T000051 was satisfactory.

### Percent Water by Gravimetry

Because a percent water measurement on the upper half sludge of segment 4, core 63 by thermogravimetric analysis (TGA) was found to be less than 17%, percent water was also determined by gravimetry using procedure LA-564-101, Rev. F-1. The average of two runs gave 25.15% water. This compares very well with the measurements by TGA, which gave 23.2% as the average of three runs (Reference 2).

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- References: (1) WHC-SD-WM-TP-207, Rev. 1, "Tank 241-C-103 Tank Characterization Plan", dated January 24, 1995, Westinghouse Hanford Company, Richland, WA 99352
- (2) WHC-SD-WM-DP-099, Rev. 0A, "45-Day Safety Screen Results for Tank 241-C-103, Cores 63 and 66", March 23, 1995, Westinghouse Hanford Company, Richland, Washington 99352
- (3) "Adiabatic Calorimetry on C-103 Samples", cc:Mail from R. J. Cash to K. E. Bell, dated March 31, 1995.

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SAMPLE DATA SUMMARY

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 63  
SEGMENT #: 1

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000200			Tot. Organic Carbon by Coul.	ug/ml	97.67	<5.000	7.81e+03	7.61e03	7.71e+03	2.59	93.30	155.0	n/a
S94T000200			TOC by Persulfate/Coulometry	ug/ml	94.33	32.00	7.63e+03	7.11e3	7.37e+03	7.06	n/a	40.00	n/a
S94T000200	D		Lithium-ICP-Acid Dil.	ug/ml	97.31	2.00e-03	6.71e-01	0.6424	0.657	4.33	n/a	1.10e-01	n/a
S94T000200			Nitrate by IC - Dionex 4000i	ug/ml	105.5	<1.000	2.59e+03	2.63E3	2.61e+03	1.53	n/a	1.11e+03	n/a
S94T000200			Nitrite by IC - Dionex 4000i	ug/ml	100.0	<8.00e-01	2.64e+04	2.55E4	2.60e+04	3.47	n/a	888.8	n/a
S94T000200			Bromide by Ion Chromatograph	ug/ml	105.6	<8.00e-01	< 888.8	<888	n/a	n/a	n/a	888.8	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 63  
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

XG 5/12/95

Sample#	R A#	Analyte	Unit	Standard Z	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000045		TOC by Persulfate/Coulometry	ug/g	90.67	42.00	7.65e+03	9.33E03	8.49e+03	19.8	n/a	80.00	n/a
S95T000054	F	Lithium -ICP-Fusion	ug/g	99.40	4.00e-03	< 95.2	< 95.2	n/a	n/a	n/a	95.20	n/a
S95T000525	W	Oil- by Pot. Titration	ug/g	101.1	n/a	< 2.77e4	n/a	n/a	n/a	n/a	2.77e+04	n/a
S95T000072	W	Oil- by Pot. Titration	ug/g	97.66	<125.0	< 4.90e+3	< 4.67e+3	n/a	n/a	n/a	4.90e+03	n/a
S95T000072	W	Bromide by Ion Chromatograph	ug/g	101.8	<8.00e-01	< 1.569e2	< 149.4	n/a	n/a	n/a	156.9	n/a
S95T000072	W	Nitrite by IC - Dionex 4000i	ug/g	97.37	<8.00e-01	1.96e+04	1.93e4	1.94e+04	1.54	n/a	156.9	n/a
S95T000072	W	Nitrate by IC - Dionex 4000i	ug/g	101.4	<1.000	1.69e+03	1.71e3	1.70e+03	1.18	n/a	196.2	n/a

L Lower Half of Segment: L Lower Half of Segment

XG 5/12/95

Sample#	R A#	Analyte	Unit	Standard Z	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000038		TOC by Persulfate/Coulometry	ug/g	93.67	22.50	1.07e+04	9.79e3	1.02e+04	0.88	55.70	80.00	n/a
S95T000053	F	Lithium -ICP-Fusion	ug/g	99.40	4.00e-03	< 96.1	< 93.4	n/a	n/a	n/a	96.10	n/a

Drainable Liquid: Drainable Liquid

Sample#	R A#	Analyte	Unit	Standard Z	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000049		TOC by Persulfate/Coulometry	ug/ml	90.67	29.40	7.37e+03	7.42e3	7.40e+03	0.68	n/a	80.00	n/a
S95T000049	D	Lithium-ICP-Acid Dil.	ug/ml	103.8	4.00e-03	3.190	3.05	3.120	4.49	97.20	1.010	n/a
S95T000049		Nitrate by IC - Dionex 4000i	ug/ml	106.9	<1.000	2.63e+03	2.60e03	2.62e+03	1.15	96.40	1.11e+03	n/a
S95T000049		Nitrite by IC - Dionex 4000i	ug/ml	102.9	<1.000	2.44e+04	2.39e04	2.42e+04	2.07	107.1	2.12e+03	n/a
S95T000049		Bromide by Ion Chromatograph	ug/ml	105.2	<1.000	<1.11e03	<1.11e03	n/a	n/a	100.3	1.11e+03	n/a
S95T000112		Tot. Organic Carbon by Coul.	ug/ml	97.67	<5.000	7.56e+03	7.66e03	7.61e+03	1.31	n/a	155.0	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 63  
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

*2/8 5/12/95*

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000047			TOC by Persulfate/Coulometry	ug/g	90.67	42.00	7.34e+03	7.85E03	7.60e+03	6.71	n/a	80.00	n/a
S95T000056	F		Lithium -ICP-Fusion	ug/g	99.60	2.00e-03	< 02.5	< 88.6 16-4	n/a	n/a	107.6	82.50	n/a
S95T000526	W		OH- by Pot. Titration	ug/g	101.1	n/a	< 1.70e4	< 3.78e5	n/a	n/a	n/a	1.70e+04	n/a
S95T000871	W		OH- by Pot. Titration	ug/g	97.66	<125.0	< 6.59e+3	< 6.37e+3	n/a	n/a	n/a	6.59e+03	n/a
S95T000871	W		Bromide by Ion Chromatograph	ug/g	101.8	<8.00e-01	< 2.109e2	< 203.8	n/a	n/a	105.4	210.9	n/a
S95T000871	W		Nitrite by IC - Dionex 4000i	ug/g	97.37	<8.00e-01	7.25e+03	7.52e3	7.38e+03	3.60	95.10	2.32e+03	n/a
S95T000871	W		Nitrate by IC - Dionex 4000i	ug/g	101.4	<1.000	688.0	6.43e2	6.66e+02	6.76	94.10	263.6	n/a

L Lower Half of Segment: L Lower Half of Segment

*2/8 5/12/95*

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000046			TOC by Persulfate/Coulometry	ug/g	90.67	42.00	8.86e+03	8.94E03	8.90e+03	0.90	n/a	80.00	n/a
S95T000055	F		Lithium -ICP-Fusion	ug/g	99.60	2.00e-03	< 71.2	< 91.6 19.5	n/a	n/a	94.80	71.20	n/a
S95T000863			Cyanide by Microdist. & Spec.	ug/g	104.3	4.10e-01	92.80	104	98.40	11.4	83.80	3.200	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 63  
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%
S95T000048		TOC by Persulfate/Coulometry	ug/g	89.67	27.00	4.36e+03	4.65e3	4.50e+03	6.44	83.60	80.00	n/a
S95T000057	F	Lithium -ICP-Fusion	ug/g	98.41	4.00e-03	< 81.6200	<75.0000	n/a	n/a	n/a	81.60	n/a
S95T000527	W	OH- by Pot. Titration	ug/g	101.1	n/a	< 1.51e4	n/a	n/a	n/a	n/a	1.51e+04	n/a
S95T000527	W	Bromide by Ion Chromatograph	ug/g	101.4	<8.00e-01	< 292.2	<275.2	n/a	n/a	n/a	292.2	n/a
S95T000527	W	Nitrite by IC - Dionex 4000i	ug/g	97.92	<8.00e-01	2.34e+03	2.41e03	2.38e+03	2.95	n/a	292.2	n/a
S95T000527	W	Nitrate by IC - Dionex 4000i	ug/g	104.8	<1.000	< 365.3	<346.1	n/a	n/a	n/a	365.3	n/a
S95T000007		% Water by Gravimetric	%	96.67	n/a	25.30	25.0	25.15	1.19	n/a	1.00e-02	n/a

Drainable Liquid: Drainable Liquid

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000051		Cyanide by Microdist. & Spec.	ug/ml	95.53	1.00e-01	26.60	27.2	26.90	2.23	97.60	7.000	n/a
S95T000051	D	Lithium-ICP-Acid Dil.	ug/ml	98.40	2.00e-03	19.90	19.9	19.90	0.00	n/a	9.10e-01	n/a
S95T000051		Nitrate by IC - Dionex 4000i	ug/ml	106.9	<1.000	<606	<606	n/a	n/a	n/a	606.0	n/a
S95T000051		Nitrite by IC - Dionex 4000i	ug/ml	102.9	<1.000	6.22e+03	6.31e03	6.26e+03	1.64	n/a	606.0	n/a
S95T000051		Bromide by Ion Chromatograph	ug/ml	105.2	<1.000	<606	<606	n/a	n/a	n/a	606.0	n/a
S95T000052		TOC by Persulfate/Coulometry	ug/ml	90.67	29.40	4.56e+03	4.54e3	4.55e+03	0.64	n/a	80.00	n/a
S95T000052		Nitrate by IC - Dionex 4000i	ug/ml	105.5	<1.000	339.0	3.22E2	3.30e+02	5.14	n/a	101.0	n/a
S95T000052		Nitrite by IC - Dionex 4000i	ug/ml	100.0	<8.00e-01	6.70e+03	6.70E3	6.70e+03	0.00	n/a	888.8	n/a
S95T000052		Bromide by Ion Chromatograph	ug/ml	105.6	<8.00e-01	268.0	2.60E2	2.64e+02	3.03	n/a	80.00	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 66  
SEGMENT #: 1

SEGMENT PORTION: Drainable Liquid

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Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000218			TOC by Persulfate/Coulometry	ug/ml	96.67 n/a	33.8 n/a	7.20e+03	7.34 e 3 n/a	7.27 e 3 n/a	1.93 n/a	n/a	80.00	n/a
S95T000218	D		Lithium-ICP-Acid Dil.	ug/ml	99.40	1.00e-03	4.080	4.22	4.150	3.37	95.74	7.10e-01	n/a
S95T000218			Nitrate by IC - Dionex 4000i	ug/ml	100.7	<1.000	2.51e+03	2.47e03	2.49e+03	1.61	97.00	1.11e+03	n/a
S95T000218			Nitrite by IC - Dionex 4000i	ug/ml	96.62	<0.00e-01	2.42e+04	2.41e04	2.42e+04	0.41	105.3	888.8	n/a
S95T000218			Bromide by Ion Chromatograph	ug/ml	101.0	<0.00e-01	< 0.09e02	<0.09e02	n/a	n/a	100.9	888.8	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 66  
SEGMENT #: 2

*NR 5/12/95*

SEGMENT PORTION: Drainable Liquid

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000214		TOC by Persulfate/Coulometry	ug/ml	96.67 n/a	33.8 n/a	7.13e+03	6.80e3 n/a	6.96e3 n/a	1.7 n/a	84.7 n/a	80.00	n/a
S95T000214		Nitrate by IC - Dionex 4000i	ug/ml	105.5	<1.000	2.43e+03	2.42E3	2.42e+03	0.00	n/a	1.11e+03	n/a
S95T000214		Nitrile by IC - Dionex 4000i	ug/ml	100.0	<8.00e-01	2.29e+04	2.38E4	2.34e+04	3.85	n/a	888.8	n/a
S95T000214		Bromide by Ion Chromatograph	ug/ml	105.6	<8.00e-01	< 888	<888	n/a	n/a	n/a	888.8	n/a
S95T000217	D	Lithium-ICP-Acid Dil.	ug/ml	99.60	1.00e-03	2.080	2.17	2.125	4.24	n/a	7.10e-01	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 66  
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

*NR 5/12/95*

Sample#	R	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000224			TOC by Persulfate/Coulometry	ug/g	100.0	27.50	8.76e+03	9.05e3	8.90e+03	3.26	n/a	80.00	n/a
S95T000226	F		Lithium -ICP-Fusion	ug/g	98.60	4.00e-03	< 79.4	< 71.8 n/a	n/a	n/a	91.20	79.40	n/a
S95T000528	W		OH- by Pot. Titration	ug/g	97.66	<125.0	< 8.57e+3	< 8.72e+3	n/a	n/a	77.30	8.57e+03	n/a
S95T000528	W		Bromide by Ion Chromatograph	ug/g	100.7	< 8.00e-01	413.0	3.29e2	3.71e+02	22.6	101.7	364.0	n/a
S95T000528	W		Nitrite by IC - Dionex 4000i	ug/g	96.44	< 8.00e-01	3.23e+04	2.65e4	2.94e+04	19.7	95.30	4.00e+03	n/a
S95T000528	W		Nitrate by IC - Dionex 4000i	ug/g	98.28	< 1.000	3.27e+03	2.71e3	2.99e+03	18.7	111.8	455.0	n/a

Drainable Liquid: Drainable Liquid

*NR 5/12/95*

Sample#	R	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000220			TOC by Persulfate/Coulometry	ug/ml	93.33 n/a	21.0 n/a	6.75e+03	6.76e3 n/a	6.76e3 n/a	0.15 n/a	n/a	80.00	n/a
S95T000220			Nitrate by IC - Dionex 4000i	ug/ml	102.8	< 1.000	2.37e+03	2.37e03	2.37e+03	0.00	n/a	1.11e+03	n/a
S95T000220			Nitrite by IC - Dionex 4000i	ug/ml	97.03	< 8.00e-01	2.40e+04	2.40e04	2.40e+04	0.00	n/a	888.8	n/a
S95T000220			Bromide by Ion Chromatograph	ug/ml	101.0	< 8.00e-01	< 8.89e02	< 8.89e02	n/a	n/a	n/a	888.8	n/a
S95T000221	D		Lithium-ICP-Acid Dil.	ug/ml	99.40	1.00e-03	22.10	22.3	22.20	0.90	n/a	7.10e-01	n/a

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Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 66  
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000225			TOC by Persulfate/Coulometry	ug/g	100.0	27.50	8.46e+03	9.93e3	9.20e+03	16.0	n/a	80.00	n/a
S95T000227	F		Lithium -ICP-Fusion	ug/g	102.8	1.00e-02	91.08	106.8107	98.95	15.9	91.65	81.70	n/a
S95T000529	W		OH- by Pot. Titration	ug/g	97.66	<125.0	< 7.76e+3	<7.55e+3	n/a	n/a	n/a	7.76e+03	n/a
S95T000529	W		Bromide by Ion Chromatograph	ug/g	100.7	<8.00e-01	1.74e+03	1.68e3	1.71e+03	3.51	n/a	248.0	n/a
S95T000529	W		Nitrite by IC - Dionex 4000i	ug/g	96.44	<8.00e-01	2.23e+04	2.10e4	2.16e+04	6.00	n/a	2.73e+03	n/a
S95T000529	W		Nitrate by IC - Dionex 4000i	ug/g	98.28	<1.000	2.19e+03	2.02e3	2.10e+03	8.08	n/a	110.0	n/a

Drainable Liquid: Drainable Liquid

7/8.5/12/95

Sample#	R	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000222			TOC by Persulfate/Coulometry	ug/ml	96.67 n/a	33.8 n/a	5.95e+03	6.07e3 n/a	6.01e3 n/a	1.0 n/a	n/a	80.00	n/a
S95T000222			Nitrate by IC - Dionex 4000i	ug/ml	102.8	<1.000	2.23e+03	2.29e03	2.26e+03	2.65	n/a	1.11e+03	n/a
S95T000222			Nitrite by IC - Dionex 4000i	ug/ml	97.03	<8.00e-01	2.28e+04	2.22e04	2.25e+04	2.67	n/a	888.8	n/a
S95T000222			Bromide by Ion Chromatograph	ug/ml	101.0	<8.00e-01	2.82e+03	2.81e03	2.82e+03	0.36	n/a	888.8	n/a
S95T000223	D		Lithium-ICP-Acid Dil.	ug/ml	99.40	1.00e-03	227.0	223	225.0	1.78	n/a	7.10e-01	n/a

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A-0002-1

Table 1. C-103 90-Day Report Analytical Summary  
C-103

CORE NUMBER: 66  
SEGMENT #: field blank

SEGMENT PORTION: Drainable Liquid

Sample#	R	AN	Analyte	Unit	Standard Z	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000212			Tot. Organic Carbon by Coul.	ug/ml	97.67	<5.000	< 5.50	<5.50	n/a	n/a	n/a	5.000	n/a
S95T000212			Nitrate by IC - Dionex 4000i	ug/ml	101.4	<1.000	< 1	<1	n/a	n/a	n/a	9.99e-01	n/a
S95T000212			Nitrite by IC - Dionex 4000i	ug/ml	97.36	<1.000	< 1	<1	n/a	n/a	n/a	1.000	n/a
S95T000212			Bromide by Ion Chromatograph	ug/ml	101.7	<1.000	< 1	<1	n/a	n/a	n/a	1.000	n/a

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Westinghouse  
Hanford Company

P.O. Box 1970 Richland, WA 99352

**PART III**

WHC-SD-WM-DP-199, REV. 1

WHC-SD-WM-DP-099, REV. 0

**222-S ANALYTICAL SERVICES**

**PROJECT: 45-DAY SAFETY SCREEN RESULTS FOR  
TANK 241-C-103, PUSH-MODE CORE SAMPLES 63 AND 66**

**TANK: 241-C-103**

**Date Printed: MARCH 22, 1995**

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WHC-SD-WM-DP-099, REV. 1

NARRATIVE

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**45-DAY SAFETY SCREEN RESULTS FOR TANK 241-C-103  
PUSH-MODE CORE SAMPLES 63 AND 66.**

This is the final 45-Day report for the fiscal year 1994/1995 Tank 241-C-103 (C-103) push-mode characterization effort. It supersedes an earlier 45-Day report (Reference 1) which transmitted the safety-screen data for segment 1 of core 63.

Included are copies of the differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA) scans as requested in References 2 and 3. Also included are copies of any immediate notification documentation. Other pertinent documentation will be included in the C-103 216-day report.

Summary

Two core samples from tank C-103, obtained by the push-mode core sampling method, were received, extruded, and analyzed by the 222-S Laboratories in accordance with References 2 (core 63) or 3 (core 66). Drainable liquids were analyzed at the segment level for a separable organic layer, energetics by DSC, and percent water by TGA. Sludge samples were analyzed at the half-segment level by DSC, TGA, and for total alpha. Notification limits were exceeded for the following: (1) presence of a separable organic layer in the drainable liquid of segment 1, cores 63 and 66, and segment 2 of core 63; (2) DSC exotherm greater than 481 J/g on the lower half of segment 3 and drainable liquid of segment 4 of core 63; and (3) percent water less than 17% on the upper half of segment 4 of core 63.

Sample Receipt and Extrusion

C-103 Core 63, Segment 1

Segment 1 of core 63 was removed from riser 2 of tank C-103 on 10/28/94, received at the 222-S Laboratory on 10/31/94, and extruded on 11/04/94. Approximately 5 mL of liner liquid was collected prior to extrusion, but was not analyzed. Segment 1 consisted entirely of drainable liquid yielding 225.8 g, or approximately 220 mL. Percent recovery based on an expected sample length of 9.25 inches was estimated at 71%. An immediate notification was made due to a separable, presumably organic, layer of dark brown liquid floating on top of a light brown, presumably aqueous, layer. The volume of organic liquid measured roughly 20 mL and it was separated from the aqueous layer. A subsample of the aqueous layer was submitted for safety screening analysis.

C-103 Core 63, Segment 2

Segment 2 was removed from the tank on 1/17/95, shipped to the 222-S Laboratory on 1/19/95, and received on the same day. Extrusion took place on 1/23/95. A small amount (2 mL) of liner liquid was collected and there were no problems with the extrusion. Collected were 173.62 g, or approximately 150 mL, of dark brown, drainable liquid and 160.30 g of dark brown, moist sludge. The percent recovery was an estimated 95%. An immediate notification was made since the drainable liquid appeared to separate into two layers. The sludge was divided into half-segment portions. Radiation levels for this waste were

higher than those seen on typical tank waste samples, therefore separate aliquots were taken for direct analysis and fusion dissolution in an effort to reduce sample sizes and dose rates. Samples from the upper and lower half were submitted for analysis.

#### C-103 Core 63, Segment 3

The third segment was removed from C-103 on 1/17/95. It was sent to the laboratory on 1/19/95 and received the same day. Roughly 4 mL of liner liquid was collected prior to extrusion on 1/24/95. The sample consisted entirely of soft, dark brown sludge, which was partitioned into upper and lower halves. The lower half portion appeared to be slightly drier and there was some pitting on the surface of the lower half subsample. The yield was 405.6 g, giving an estimated sample recovery of 100%. For each half segment subsample, separate aliquots were taken for direct analysis and fusion dissolution.

#### C-103 Core 63, Segment 4

The final segment from core 63 was received by the 222-S Laboratory on 1/19/95. It was removed from C-103 on 1/18/95, and shipped the following day. Approximately 7 g of liner liquid was collected before extrusion on 1/24/95. Collected after extrusion was 73.06 g (roughly 60 mL) of dark brown, drainable liquid followed by 236.60 g of moist, sludge from the upper half of the segment. Although the outside of the sludge was dark brown, the interior of the sample was cream-colored and appeared to be somewhat drier than the dark material. Recovery was estimated at 84%. Two subsamples of the drainable liquid were removed for analysis. A subsample of the sludge was removed for direct analysis and fusion digestion.

#### C-103 Core 66, Segment 1

There were no problems during the extrusion of the first segment of core 66, which was taken from C-103 on 2/6/95. It was received at 222-S on 2/9/95 and extruded on 2/27/95. Collected before extrusion was 11.85 mL of liner liquid. The sampler contained 195.55 g (approximately 200 mL) of drainable liquid resulting in an estimated 100% recovery based on the expected 12.5 inch sample length. An immediate notification was made due to a separable, presumably organic, layer of dark brown liquid floating on top of a light brown, presumably aqueous, layer. The volume of organic liquid measured roughly 25 mL and it was separated from the aqueous layer. A subsample of the aqueous layer was submitted for safety screening analysis.

#### C-103 Core 66, Segment 2

Segment 2 was collected from the field on 2/6/95. It was shipped and received on 2/9/95. No liner liquid was observed prior to extrusion on 2/27/95. The sampler contained 330.36 g (approximately 310 mL) of light brown, drainable liquid, which was collected in two jars. The sampler efficiency was estimated at 100%. In order to comply with the ALARA (As Low As Reasonably Achievable) principle, two subsamples of the drainable liquid from one of the parent sample jars were removed for analysis in an effort to reduce radiation dose rates.

#### C-103 Core 66, Segment 3

Received at the laboratory on 2/9/95 was segment 3 of core 66. This segment was taken on 2/7/95 and shipped on 2/9/95. Before extrusion on 2/27/95, 4.85

g of liner liquid was collected. The sampler was found to contain both sludge and drainable liquid. The sampler efficiency was estimated at 95%. The dark brown drainable liquid was collected in two jars to give a recovery of 280.19 g (approximately 240 mL). Two subsamples from one of the parent sample jars were removed for analysis. Also collected from the upper half of the sampler was 43.66 g of soft, dark brown sludge. Separate aliquots of this material were taken for direct analysis and fusion dissolution.

#### C-103 Core 66, Segment 4

Segment 4 was removed from C-103 on 2/7/95. It was shipped to and received at the laboratory on 2/9/95. Extrusion took place on 2/27/95. The sampler valve was found to be closed, however 125.19 g of olive-green liner liquid was collected. The sampler contained both drainable liquid and sludge. The drainable liquid measured 89.80 g (roughly 85 mL) and was medium to dark brown in color. The moist, dark brown sludge was collected from the upper half of the sampler and measured 58.24 g. The estimated sampler efficiency was 80% based on an expected 11.65 inch sample. Two subsamples from the drainable liquid were submitted for analysis. Likewise, separate aliquots of the sludge material were taken for direct analysis and fusion dissolution.

#### C-103 Core 66, Field Blank

The field blank was created on 2/7/95, shipped to the laboratory on 2/9/95, and received on the same day. Extrusion took place on 2/24/95. There was no liner liquid observed. As expected, the sampler contained clear, colorless drainable liquid to yield 255.19 g that was collected in two jars. No safety screening analyses were performed on subsamples of the field blank.

#### Analytical Results

The safety screening analytical results are presented in Tables 1 and 2, which include the LabCore sample number. They also include the upper or lower action limits as defined in the References 2 and 3. The limit selected for immediate notification is highlighted in greybar. Column 2 of the tables indicates the sample preparation used, if any. As shown, analyses on fused samples are marked with "F".

#### DSC (Energetics Content)

Analyses by DSC were performed under a nitrogen atmosphere using procedure LA-514-113, Rev. B-1. No exotherms are observed for the sample or duplicate of the aqueous, drainable liquid, with the exception of the liquid from segment 4 of core 63 (sample S95T000052). The results in Table 1 indicate a high relative percent difference (RPD) between the sample and duplicate results for that sample. Not shown in the table, but provided with the raw data, is the result from a second duplicate, or third sample, that was run. The result of the third run is 46.2 J/g, consistent with the duplicate result. The sample result of 156.8 J/g exceeds the notification limit of 481 J/g when calculated on a dry-weight basis, and immediate notification was made. Exotherms were observed on sludge from segments 2 and 3 of core 63, while sludge from core 66 exhibited no exothermic behavior. The calculated dry-weight result on sample S95T000046 exceeds the notification limit of 481 J/g and immediate notification was made. A RPD of greater than 10% exists on samples S95T000045 and S95T000046. Re-runs were not performed due to the high

dose rates associated with these samples. Re-runs will be made at the customer's request.

#### TGA (Moisture Content)

Weight percent water by TGA was performed under a nitrogen atmosphere using procedure LA-560-112, Rev. A-2. Results on the drainable liquid samples are well above the notification limit of <17% water, being in the 80-90% range. Results on the sludge samples are also significantly above the <17% notification limit with the exception of sample S95T000048 from the upper half of segment 4. An immediate notification was made per Reference 2 since the sample result is less than 17%, although the duplicate result and a second duplicate result of 29.70% (not shown in Table 2) are above the limit. The third run was made due to the high relative percent difference (RPD) between the sample and duplicate and is in good agreement with the duplicate result. Samples S95T000046 and S95T000224 also demonstrated high RPD values. Additional runs were not made on these samples due to the high dose rate of the samples as mentioned above, and because the results were well above the notification limit. The high RPD values are indicative of sample heterogeneity at the 15-30 mg level, the sample size required for the TGA instrument used.

#### Total Alpha

Total alpha analyses were performed on fusion digestions of all sludge subsamples using procedure LA-508-101, Rev. D-2. All results are well below the notification limit of 41 uCi/g. Results on aliquots of segments 2 and 3 from core 63 and segment 4 from core 66 are in the 11 to 19 uCi/g range. The alpha activity in the remaining sludge samples is substantially lower. The average ranges from 1.73 to 5.85 uCi/g. A RPD of greater than 10% exists on samples S95T000057, S95T000226, and S95T000227, with the highest being 30.1%. Reruns of these samples were not requested due to the very high beta to alpha activity ratio in these samples. Large dilutions are necessary to reduce the beta activity to acceptable levels and, consequently, detection limits are high such that the alpha activity is only on the order of ten times the detection limit. The spike recovery on sample S95T000057 is slightly below the limit of 90%. Partial dissolution of the sample mount was observed, most likely due to the reaction of chloride in the sample with the nitric acid in the spiking solution, which lead to corrosion of the mount. The solids thus formed caused sample self-absorption and low spike recoveries.

- References: (1) WHC-SD-WM-DP-080, Rev. 0, "45-Day Safety Screening for C-103 Push Mode Sample, Riser 2," dated December 13, 1994, Westinghouse Hanford Company, Richland, Washington 99352
- (2) WHC-SD-WM-TP-207, Rev. 0, "Tank 241-C-103 Tank Characterization Plan," dated October 3, 1994, Westinghouse Hanford Company, Richland, WA 99352
- (3) WHC-SD-WM-TP-207, Rev. 1, "Tank 241-C-103 Tank Characterization Plan," dated October 3, 1994, Westinghouse Hanford Company, Richland, WA 99352

**WHC-SD-WM-DP-099, REV. 1**

**SAMPLE DATA SUMMARY**

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Table 1. Analytical Summary of C-103 Drainable Liquid  
 C-103

CORE NUMBER: 63  
 SEGMENT #: 1

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S94T000200			% Water by TGA using Mettler	%	17.000	n/a	99.56	n/a	88.29	88.57	88.43	0.32	n/a	0.000	n/a
S94T000200			DSC Exotherm using Mettler	Joules/g	n/a	n/a	94.90	n/a	0	0	0.000	n/a	n/a	0.000	n/a

=> Limit violated  
 => Selected Limit

797

WMC-SD-MM-DP-099, REV. 1

Table 1. Analytical Summary of C-103 Drainable Liquid  
C-103

CORE NUMBER: 63  
SEGMENT #: 2

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S95T000049			% Water by TGA using Mettler	%	17.000	n/a	98.97	n/a	81.66	87.30	84.48	6.68	n/a	0.000		n/a
S95T000049			DSC Exotherm using Mettler	Joules/g	n/a	n/a	101.6	n/a	0	0	0.000	n/a	n/a	0.000		n/a

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⇒ Selected Limit

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WHC-SD-WM-DP-099, REV. 1

Table 1. Analytical Summary of C-103 Drainable Liquid  
 C-103

CORE NUMBER: 63  
 SEGMENT #: 4

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000052			% Water by TGA using Mettler	%	17.000	n/a	98.97	n/a	82.12	77.85	79.98	5.34	n/a	0.000	n/a
S95T000052			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	481.000	n/a	n/a	784	263 n/a	523 n/a	99.6 n/a	n/a	0.000	n/a
S95T000052			DSC Exotherm using Mettler	Joules/g	n/a	n/a	101.6	n/a	156.8	52.7	104.8	99.4	n/a	0.000	n/a

713 3/22/95

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WHC-SD-WM-DP-099, REV 1

Table 1. Analytical Summary of C-103 Drainable Liquid  
C-103

CORE NUMBER: 66  
SEGMENT #: 1

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S95T000218			% Water by TGA using Mettler	%	17.000	n/a	97.80	n/a	87.79	88.10	87.94	0.35	n/a	0.000		n/a
S95T000218			DSC Exotherm using Mettler	Joules/g	n/a	n/a	97.01	n/a	0	0	0.000	n/a	n/a	0.000		n/a

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 => Selected Limit

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WHC-SD-WM-DP-099, REV. 1

Table 1. Analytical Summary of C-103 Drainable Liquid  
C-103

CORE NUMBER: 66  
SEGMENT #: 2

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S951000214			% Water by TGA using Mettler	%	17.000	n/a	99.05	n/a	87.86	87.28	87.57	0.66	n/a	0.000	n/a
S951000214			DSC Exotherm using Mettler	Joules/g	n/a	n/a	96.31	n/a	0	0	0.000	n/a	n/a	0.000	n/a

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WHC-SD-WM-DP-099, REV 1

Table 1. Analytical Summary of C-103 Drainable Liquid  
C-103

CORE NUMBER: 66  
SEGMENT #: 3

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000220			% Water by TGA using Mettler	%	17.000	n/a	99.05	n/a	87.47	86.99	87.23	0.55	n/a	0.000	n/a
S95T000220			DSC Exotherm using Mettler	Joules/g	n/a	n/a	96.31	n/a	0	0	0.000	n/a	n/a	0.000	n/a

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 => Selected Limit

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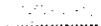
WHC-SD-WM-DP-099, REV 1

Table 1. Analytical Summary of C-103 Drainable Liquid  
C-103

CORE NUMBER: 66  
SEGMENT #: 4

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000222			% Water by TGA using Mettler	%	17.000	n/a	99.32	n/a	89.5	89.38	89.44	0.13	n/a	0.000	n/a
S95T000222			DSC Exotherm using Mettler	Joules/g	n/a	n/a	103.0	n/a	0	0	0.000	n/a	n/a	0.000	n/a

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 => Selected Limit

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WHC-SD-WM-DP-099, REV. 1

Table 2. Analytical Summary of C-103 Sludge.  
C-103

CORE NUMBER: 63  
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000045			% Water by TGA using Mettler	%	17.000	n/a	97.08	n/a	63.09	61.30	62.20	2.88	n/a	0.000	n/a
S95T000045			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	481.000	n/a	n/a	253	316	284.5	22.1	n/a	0.000	n/a
S95T000045			DSC Exotherm using Mettler	Joules/g	n/a	n/a	101.6	n/a	95.8	119.4	107.6	21.9	n/a	0.000	n/a
S95T000054	F		Alpha of Digested Solid	uCi/g	n/a	41.000	105.3	n/a	1.36E+1	1.29E+1	1.32e+01	5.28	109.5	0.751	10.5

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000038			% Water by TGA using Mettler	%	17.000	n/a	97.08	n/a	56.63	54.05	55.34	4.66	n/a	0.000	n/a
S95T000038			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	481.000	n/a	n/a	218	227	222.5	4.04	n/a	0.000	n/a
S95T000038			DSC Exotherm using Mettler	Joules/g	n/a	n/a	101.6	n/a	97.3	101.4	99.35	4.13	n/a	0.000	n/a
S95T000053	F		Alpha of Digested Solid	uCi/g	n/a	41.000	105.3	n/a	1.41E+1	1.38E+1	1.39e+01	2.15	103.7	0.825	11.0

=> Limit violated  
=> Selected Limit

708

WHC-SD-WM-DP-099, REV. 1

Table 2. Analytical Summary of C-103 Sludge.  
 C-103

CORE NUMBER: 63  
 SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S95T000047			% Water by TGA using Mettler	%	17.000	n/a	98.29	n/a	49.75	51.26	50.50	2.99	n/a	0.000		n/a
S95T000047			DSC Exotherm using Mettler	Joules/g	n/a	n/a	99.12	n/a	0	0	0.000	n/a	n/a	0.000		n/a
S95T000056	F		Alpha of Digested Solid	uCi/g	n/a	41.000	100.0	n/a	1.85e+1	1.96e+1	1.91e+01	5.77	91.90	3.370		21.6

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S95T000046			% Water by TGA using Mettler	%	17.000	n/a	98.29	n/a	30.82	44.04	37.43	35.3	n/a	0.000		n/a
S95T000046			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	481.000	n/a	n/a	0	540	270.0	n/a	n/a	0.000		n/a
S95T000046			DSC Exotherm using Mettler	Joules/g	n/a	n/a	99.12	n/a	0	337.6	168.8	20.0%	n/a	0.000		n/a
S95T000055	F		Alpha of Digested Solid	uCi/g	n/a	41.000	100.0	n/a	1.32e+1	1.44e+1	1.38e+01	8.70	98.00	2.910		26.9

*HB 3/22/95*

 => Limit violated  
 => Selected Limit

805

WHC-SD-MM-DP-099, REV. 1

Table 2. Analytical Summary of C-103 Sludge.  
C-103

CORE NUMBER: 63  
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S95T000048		% Water by TGA using Mettler	%	17.000	n/a	99.54	n/a	13.47	26.37	19.92	64.8	n/a	0.000	n/a
S95T000048		DSC Exotherm using Mettler	Joules/g	n/a	n/a	102.3	n/a	0	0	0.000	n/a	n/a	0.000	n/a
S95T000057	F	Alpha of Digested Solid	uCi/g	n/a	41.000	92.75	n/a	1.90e+0	1.57e+0	1.73e+00	19.0	87.30	0.273	21

 => Limit violated  
 => Selected Limit

806

WHC-SD-VM-LP-099, REV 1

Table 2. Analytical Summary of C-103 Sludge.  
 C-103

CORE NUMBER: 66  
 SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S95T000224		% Water by TGA using Mettler	%	7.000	n/a	99.71	n/a	79.15	69.13	74.14	13.5	n/a	0.000	n/a
S95T000224		DSC Exotherm using Mettler	Joules/g	n/a	n/a	104.4	n/a	0	0	0.000	n/a	n/a	0.000	n/a
S95T000226	F	Alpha of Digested Solid	uCi/g	n/a	41.000	79.93	n/a	6.73	4.97	5.850	30.1	98.10	0.700	14.6

=> Limit violated  
 => Selected Limit

807

WHC-SD-WM-DP-099, REV 1

Table 2. Analytical Summary of C-103 Sludge.  
C-103

CORE NUMBER: 66  
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S95T000225			% Water by TGA using Mettler	%	17.000	n/a	99.71	n/a	76.46	73.49	74.97	3.96	n/a	0.000		n/a
S95T000225			DSC Exotherm using Mettler	Joules/g	n/a	n/a	104.4	n/a	0	0	0.000	n/a	n/a	0.000		n/a
S95T000227	F		Alpha of Digested Solid	uCi/g	n/a	41.000	79.93	n/a	1.12e+1	1.27e+1	1.19e+01	12.6	n/a	0.728		11.6

 => Limit violated  
 => Selected Limit

808

WHC-SD-WM-DP-099, REV. 1

**WHC-SD-WM-DP-099, REV. 1**

**IMMEDIATE NOTIFICATION DOCUMENTATION**

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23] From: Kevin E Bell at -WHC225 11/7/94 1:49PM (1392 bytes: 13 ln)  
o: David A Turner at -WHC129, Harry Babad at -WHC142, Ruth D Schreiber at  
-WHC163, Susan J Eberlein at -WHC163, David R Bratzel at -WHC268,  
.Pratap Sathyanarayana at -WHC140, Nicholas W (Nick) Kirch at -WHC140  
c: John G Kristofzski at -WHC168, John L Deichman at -WHC321, Kevin E Bell,  
Troy F Dale at -WHC32  
Subject: SAFETY LIMIT EXCEEDED ON C-103

----- Message Contents -----

Core 63, Segment 1 of tank C-103 was extruded on 11/4/94. As required by the C-103 TCP (WHC-SD-WM-TP-207, Rev. 0), an immediate notification was made by T. F. Dale of the 222-S Laboratory to the East Farm Shift Manager at 1510 hours on 11/4/94 due to the presence of a separable liquid layer; presumably an organic liquid. This cc:Mail is the required follow-up written notification of that initial notification.

Approximately 220 mL of drainable liquid was recovered from segment 1, core 63 of C-103. The upper, presumably organic, layer was approximately 20 mL in volume and was dark brown in color.

WHC-SD-WM-DP-099, REV 1

Author: Kevin E Bell at -WHC225  
Date: 1/26/95 11:47 AM  
Priority: Normal  
Subject: SAFETY LIMIT EXCEEDED ON C-103

WHC-SD-WM-DP-099, REV. 1

----- Message Contents -----

Segment 2, Core 63 of tank C-103 was extruded on 1/23/95. As required by the C-103 TCP (WHC-SD-WM-TP-207, Rev. 1), an immediate notification was made by Mr. D. Hardy of the 222-S Laboratory to the East Farm Shift Manager at 1005 hours on 1/26/95 due to the presence of a separable liquid layer; presumably an organic liquid. This cc:Mail is the required follow-up written notification of that initial notification.

Approximately 150 mL of drainable liquid was recovered from segment 2, core 63 of C-103. At the time of extrusion, this liquid was inspected for the presence of an organic layer and none was observed. During subsampling on 1/25 however, the sample appeared to exist as two liquid layers. Both layers are dark brown, although the upper layer is slightly less dark.

An attempt was made to remove the upper, presumably organic, layer with marginal success. The similarity in color coupled with what seems to be similar densities makes it difficult to distinguish between the two layers. This would also explain why the two phases were not discovered at extrusion, as sample agitation either mixed the two layers or made observation of them difficult.

Please call me at 373-1629 if you have any questions.

Kevin Bell,  
C-103 Project Coordinator

Author: Kevin E Bell at -WHC225

Date: 3/1/95 7:28 AM

Priority: Normal

Subject: SAFETY LIMIT EXCEEDED ON C-103, CORE 66, SEG.1

WHC-SD-WM-DP-099, REV. 1

----- Message Contents -----

Segment 1, Core 66 of tank C-103 was extruded on 2/27/95. As required by the C-103 TCP (WHC-SD-WM-TP-207, Rev. 1), an immediate notification was made by Mr. T. Dale of the 222-S Laboratory to the East Tank Farms Operations Shift Manager on 2/28/95 due to the presence of a separable liquid layer; presumably an organic liquid. This cc:Mail is the required follow-up written notification of that initial notification.

Approximately 200 mL of drainable liquid was recovered from segment 1, core 66 of C-103. Two phases were clearly present. The upper, presumably organic, phase was dark brown and measured roughly 25 mL in volume. The lower, presumably aqueous, phase was light brown in color and clear.

Please call me at 373-1629 if you have any questions.

Kevin Bell,  
C-103 Project Coordinator

Author: Kevin E Bell at -WHC225

Date: 3/21/95 1:35 PM

Priority: Normal

WHC-SD-WM-DP-099, REV 1

Subject: DSC ACTION LIMIT VIOLATED ON C-103, CORE 63

----- Message Contents -----

The notification limit of >481 J/g (dry-weight basis) by differential scanning calorimetry (DSC) was violated on the lower half of segment 3, core 63 of tank C-103 and on the drainable liquid from segment 4, core 63 of tank C-103. As required by the C-103 TCP (WHC-SD-WM-TP-207, Rev. 1), an immediate notification was made by Mr. D. Hardy of the 222-S Laboratory to the East Tank Farms Operations Shift Manager (Mr. J. Carlson) at 1200 hours on 3/21/95. This cc:Mail is the required follow-up written notification of that initial, verbal notification.

The results for the segment 3 sludge sample are 0 J/g for the sample and 540 J/g on the duplicate. The results for the drainable liquid sample are 784 J/g for the sample and 263 J/g on the duplicate. A third run was performed with a result of 231 J/g. These results are on a dry-weight basis. They are corrected values calculated using the DSC value and the percent water by thermogravimetric analysis (TGA) on the respective wet sample. Large correction factors were used on the drainable liquid sample where the average percent water by TGA was 79.98%. Therefore, the DSC value was increased by a factor of almost 5 to arrive at the dry-weight value. The sludge sample was not re-run due to a very high dose rate on this sample. The dose rate was measured at 42 Roentgen (corrected) on the 0.756 g sample and was analyzed under a special Radiation Work Permit.

Please call me at 373-1629 if you have any questions.

Kevin Bell,  
C-103 Project Coordinator

Author: Kevin E Bell at -WHC225

Date: 3/17/95 3:02 PM

Priority: Normal

Subject: TGA ACTION LIMIT VIOLATED ON C-103, CORE 63, SEG. 4

WHC-SD-WM-DP-099, REV 1

----- Message Contents -----

The notification limit of <17% water by thermogravimetric analysis (TGA) was violated on the upper half of segment 4, core 63 of tank C-103. As required by the C-103 TCP (WHC-SD-WM-TP-207, Rev. 1), an immediate notification was made by Mr. P. Kempf of the 222-S Laboratory to the East Tank Farms Operations Shift Manager on 3/17/95. This cc:Mail is the required follow-up written notification of that initial, verbal notification.

The sample results are 13.47 and 26.37% water for the sample and duplicate, respectively. A second TGA standard run was performed to ensure the instrument was in control followed by a second duplicate (third sample), which gave a value of 29.70% water. The discrepancy between the sample and duplicate is most likely due to sample heterogeneity at the 15 to 30 mg level, the sample size required for the TGA instrument used.

Please call me at 373-1629 if you have any questions.

Kevin Bell,  
C-103 Project Coordinator

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WHC-SD-WM-DP-099, REV. 1

UNDIGESTED ANALYSES - DIRECT

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# LABCORE Data Entry Template for Worklist# 163

Analyst: DWS Instrument: DSC01 \_\_\_\_\_ Method: LA-514-113 B-1

Worklist Comment: S94T000200, please run under N2. JMF C-103 PM AQUILA DIR

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	12 N14-A		DSC-01	LIQUID	28.45	27.0	N/A	Joule
2 SAMPLE	S94T000200	0	DSC-01	LIQUID	N/A	0		Joule
3 DUP	S94T000200	0	DSC-01	LIQUID	0	0	N/A	Joule

Final page for worklist # 163

  
Analyst Signature

11-17-94  
Date

WHC-SD-WM-DP-099, REV. 1

*Verified 11/28/94. J. M. Fuge*

Data Entry Comments:

*S94T 000200 has an endotherm of 15.77 J/g at 110.7°C;  
duplicate has an endotherm of 16.30 J/g at 117.5°C JMF*

Units shown for QC (SPK) may not reflect the actual units.

Page: 1

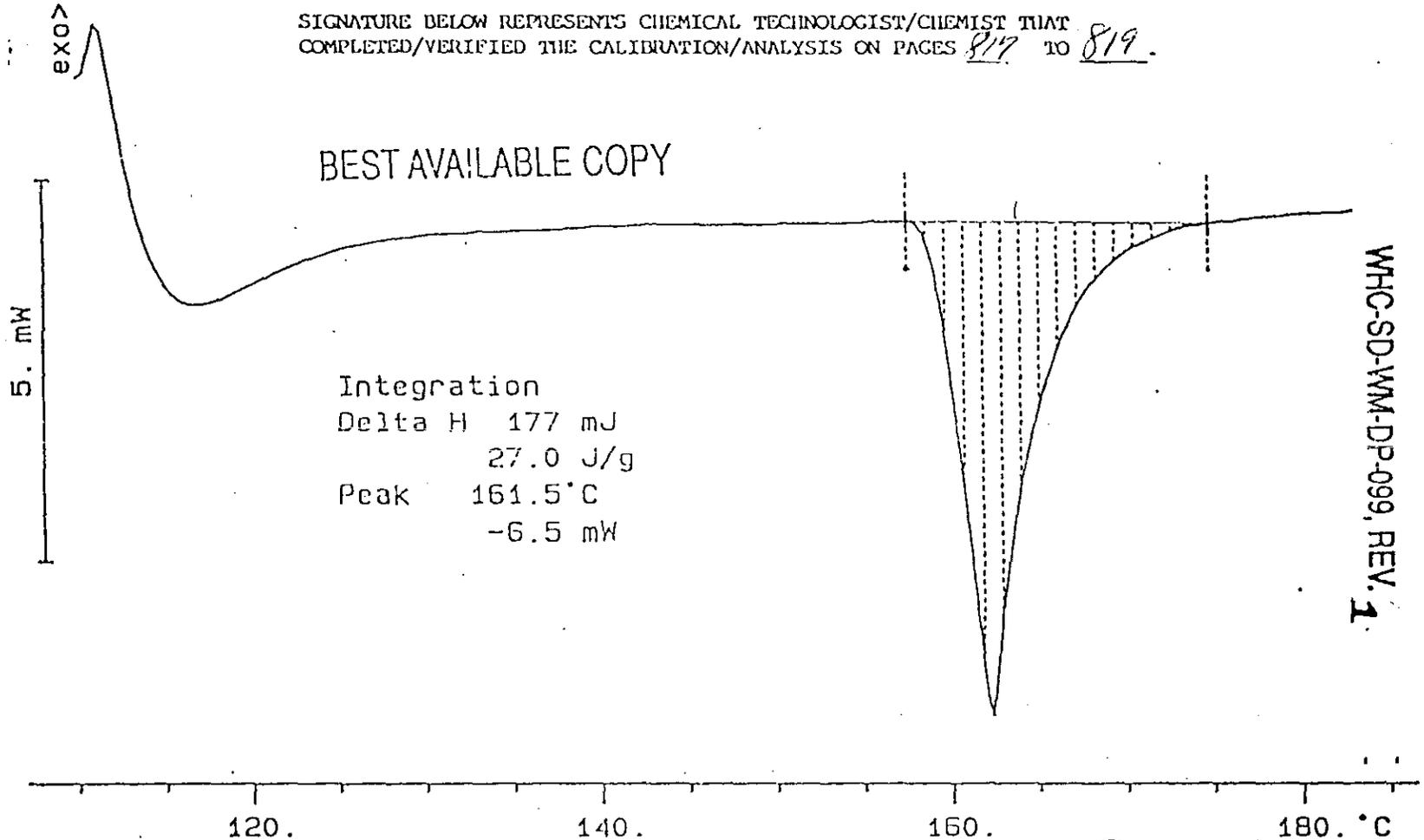
DSC STD  
6.571 mg

Rate: 10.0 °C/min

File: 00106.001 DSC METTLER 17-Nov-94  
Ident: 0.0 222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 817 TO 819.

BEST AVAILABLE COPY



817

*[Handwritten Signature]*  
11-20-94  
DSC

S94T000200 N2

10.821 mg

Rate: 10.0 °C/min

File: 00107.001

DSC METTLER

17-Nov-94

Ident: 0.0

222-S Laboratory

> exo

50. mW

BEST AVAILABLE COPY

Integration

Delta H 16639 mJ

1537.7 J/g

Peak 110.7 °C

-92.8 mW

WHC-SD-WM-DP-099, REV. 1

100.

200.

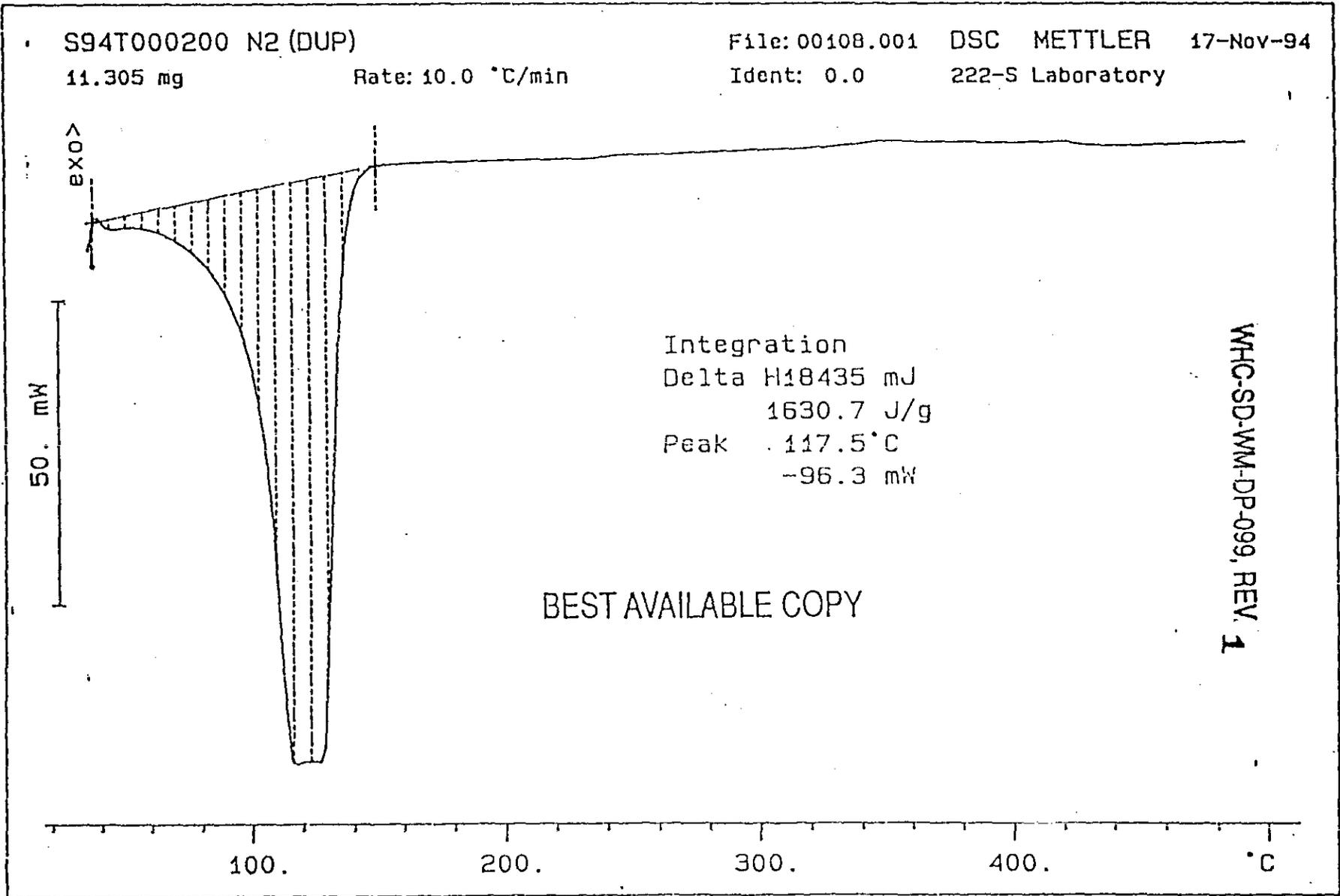
300.

400.

°C

818

819





# LABCORE Data Entry Template for Worklist# 591

Analyst: SUF Instrument: DSC01 Method: LA-514-113/B-1

Worklist Comment: Please run C-103 DSC under N2. bdv WHC-SD-WM-DP-099, REV. 1

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD			DSC-01	LIQUID	<sup>316/95 BW</sup> 28.45 <del>28.3</del>	28.3	N/A	Joule
2 SAMPLE	S95T000052	0	DSC-01	LIQUID	N/A			Joule
3 DUP	S95T000052	0	DSC-01	LIQUID			N/A	Joule
4 SAMPLE	S95T000049	0	DSC-01	LIQUID	N/A			Joule
5 DUP	S95T000049	0	DSC-01	LIQUID			N/A	Joule

Final page for worklist # 591

*Susie M. Fulton*  
Analyst Signature

3-3-95  
Date

Data Entry Comments: Dark brown liquid w/ small amount  
fine solids

DSC STD 12N14A

6.688 mg

Rate: 10.0 °C/min

File: 00163.001

Ident: 0.0

DSC METTLER

02-Mar-95

222-S Laboratory

exo ^

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 822 TO 828.

10. mW

Integration  
Delta H 189 mJ  
28.3 J/g  
Peak 158.6 °C  
-13.1 mW

WHC-SD-WM-DP-099, REV 1

120.

140.

160.

180. °C

*Laurie M. Fulton* 3/8/95

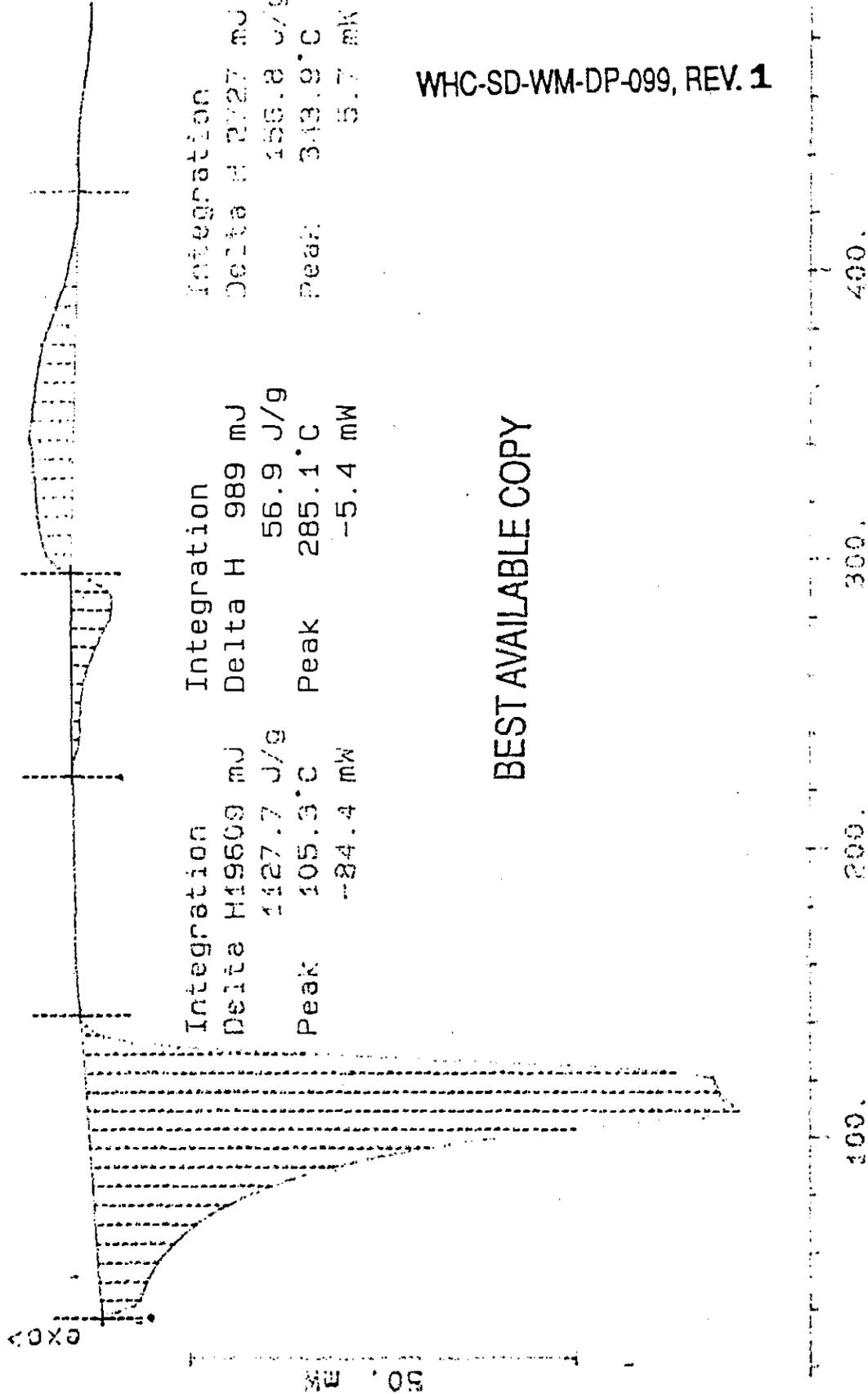
822

S95T000052 (N2)

17.988 mg

File: 00:54.001 DSC METTLER 03-Jan-95

Rate: 10.0 °C/min Ident: 0.0 222-5 Laboratory



WHC-SD-WM-DP-099, REV. 1

BEST AVAILABLE COPY

BEST AVAILABLE COPY

S95T.000052 DUP (N2)

9.751 mg

Rate: 10.0 °C/min

File: 00165.001

DSC METTLER

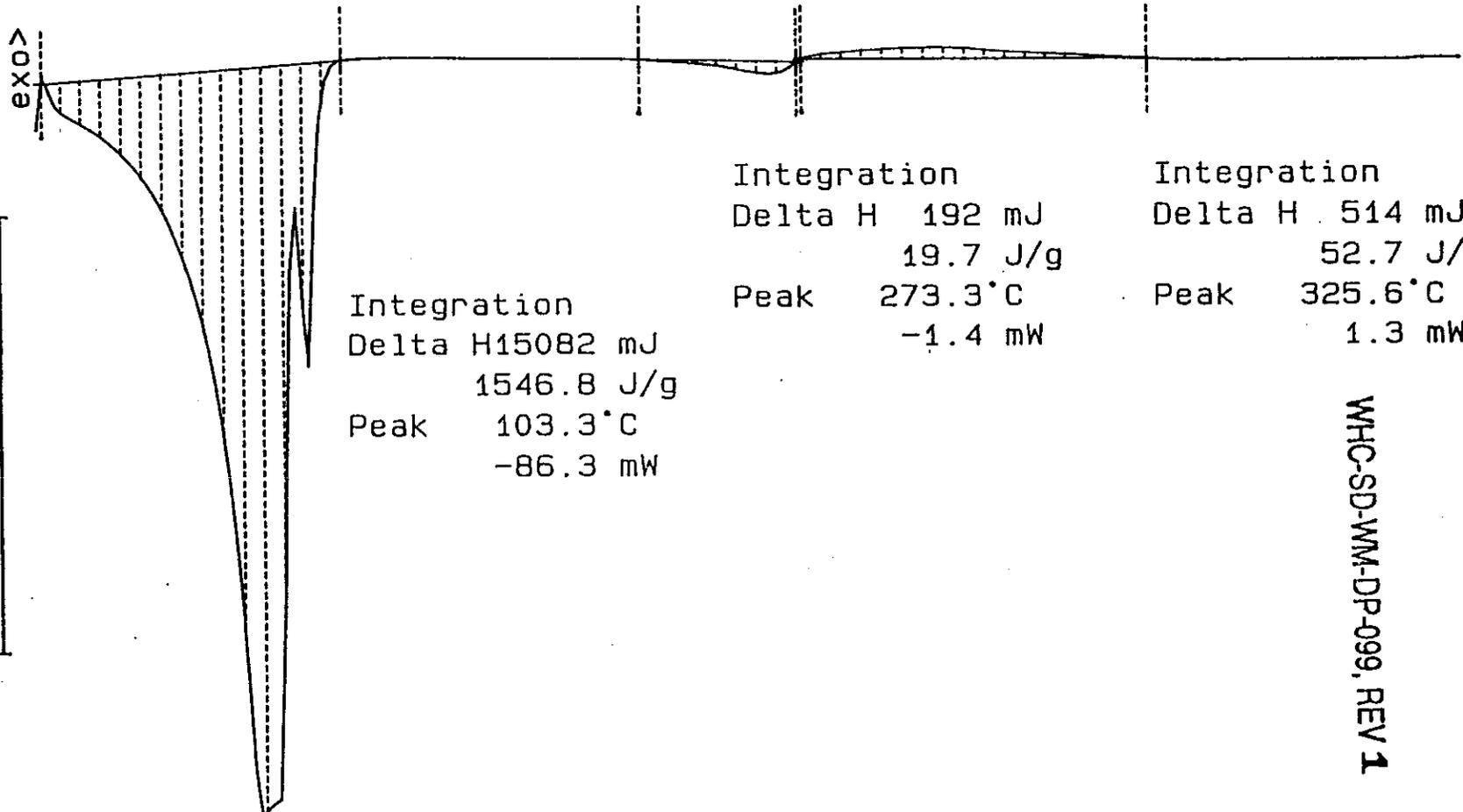
03-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW



Integration  
 Delta H 15082 mJ  
 1546.8 J/g  
 Peak 103.3 °C  
 -86.3 mW

Integration  
 Delta H 192 mJ  
 19.7 J/g  
 Peak 273.3 °C  
 -1.4 mW

Integration  
 Delta H 514 mJ  
 52.7 J/g  
 Peak 325.6 °C  
 1.3 mW

WHC-SD-WM-DP-099, REV 1

821

S95T000052 DUP2 (N2)

10.616 mg

Rate: 10.0 °C/min

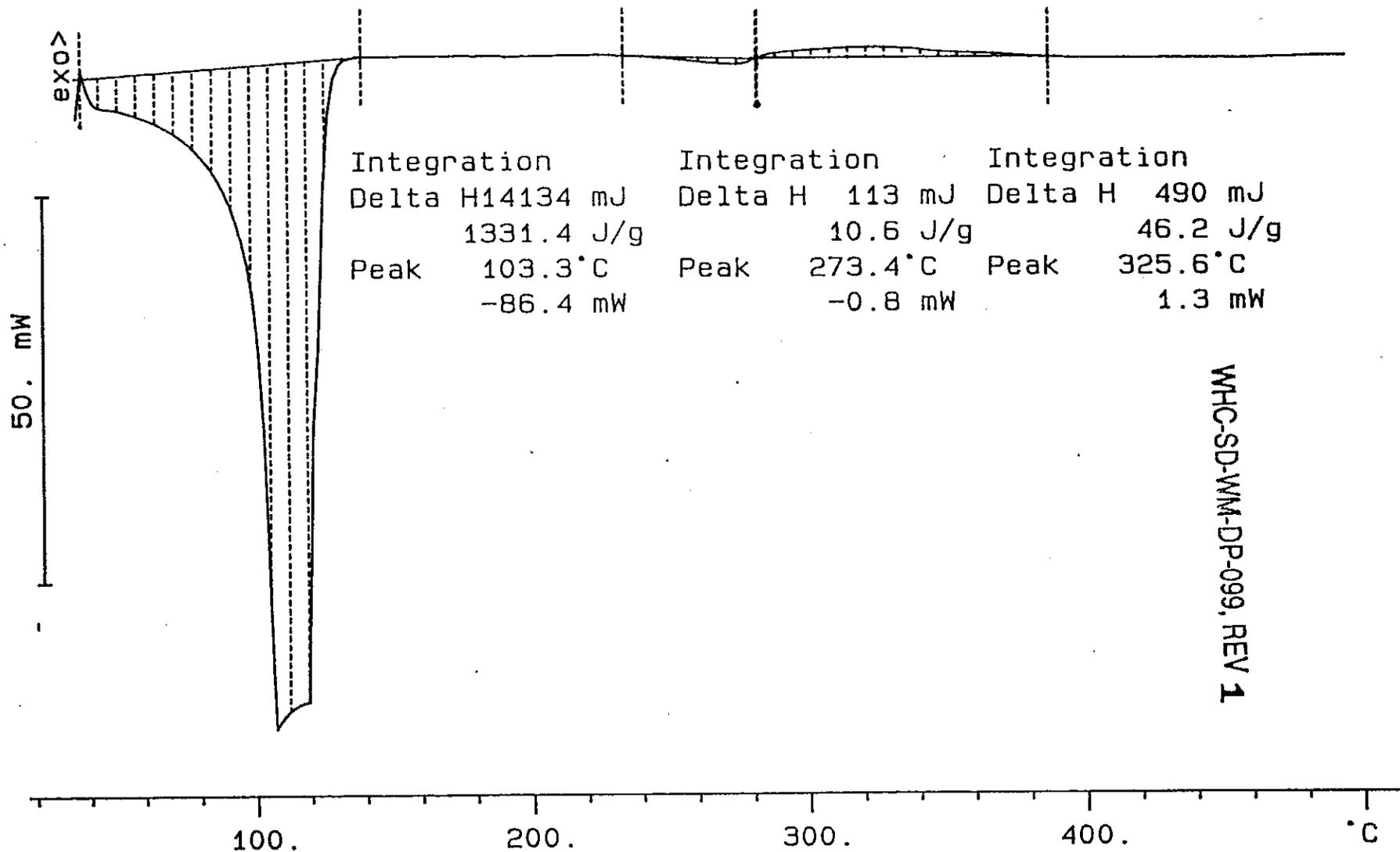
File: 00167.001

DSC METTLER

03-Mar-95

Ident: 0.0

222-S Laboratory



825

WHC-SD-WM-DP-099, REV 1

DSC STD 12N14A

6.688 mg

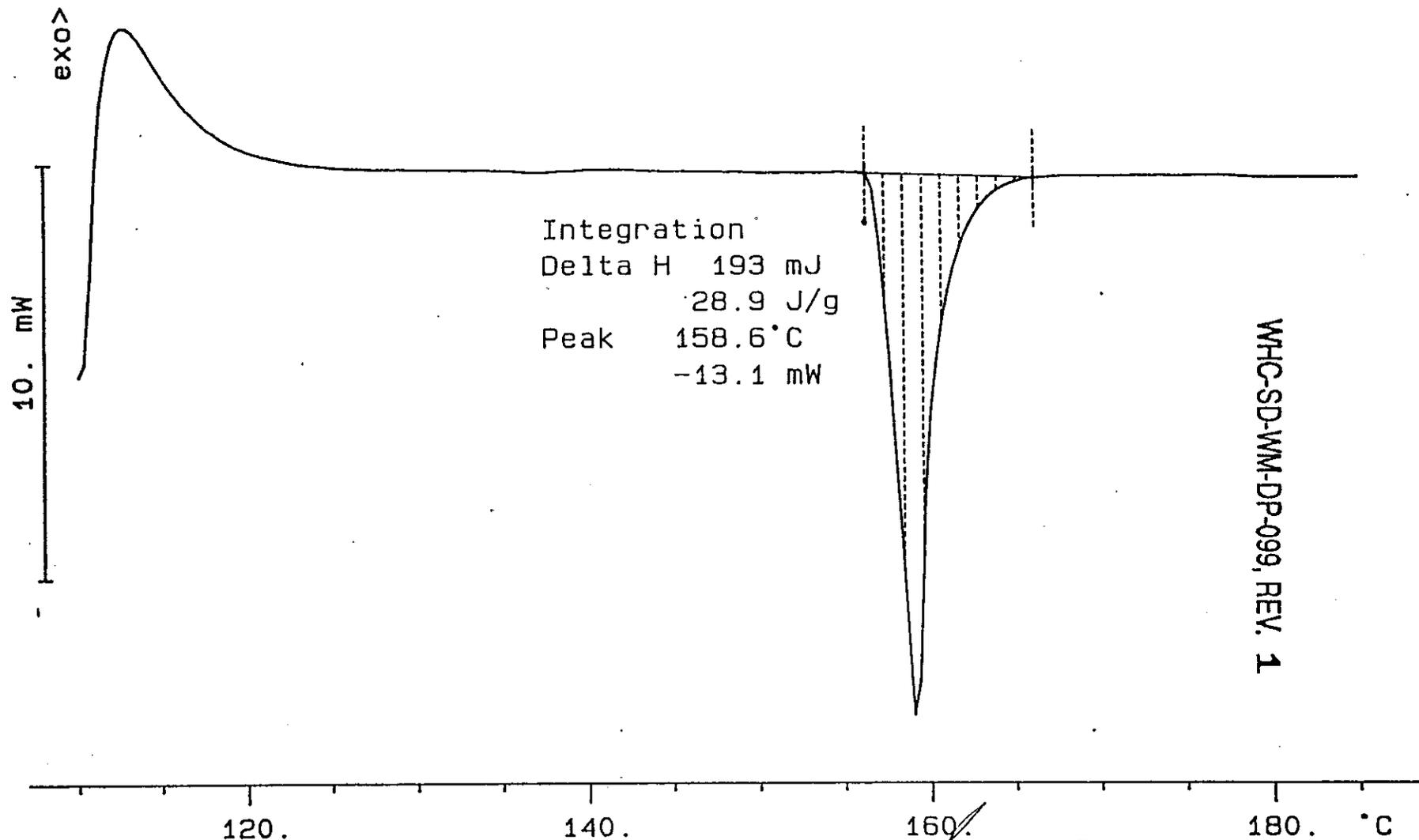
Rate: 10.0 °C/min

File: 00169.001

DSC METTLER 03-Mar-95

Ident: 0.0

222-S Laboratory



WHC-SD-WM-DP-099, REV. 1

*Lusie M. Fuller* 3/8/95 BDN

823

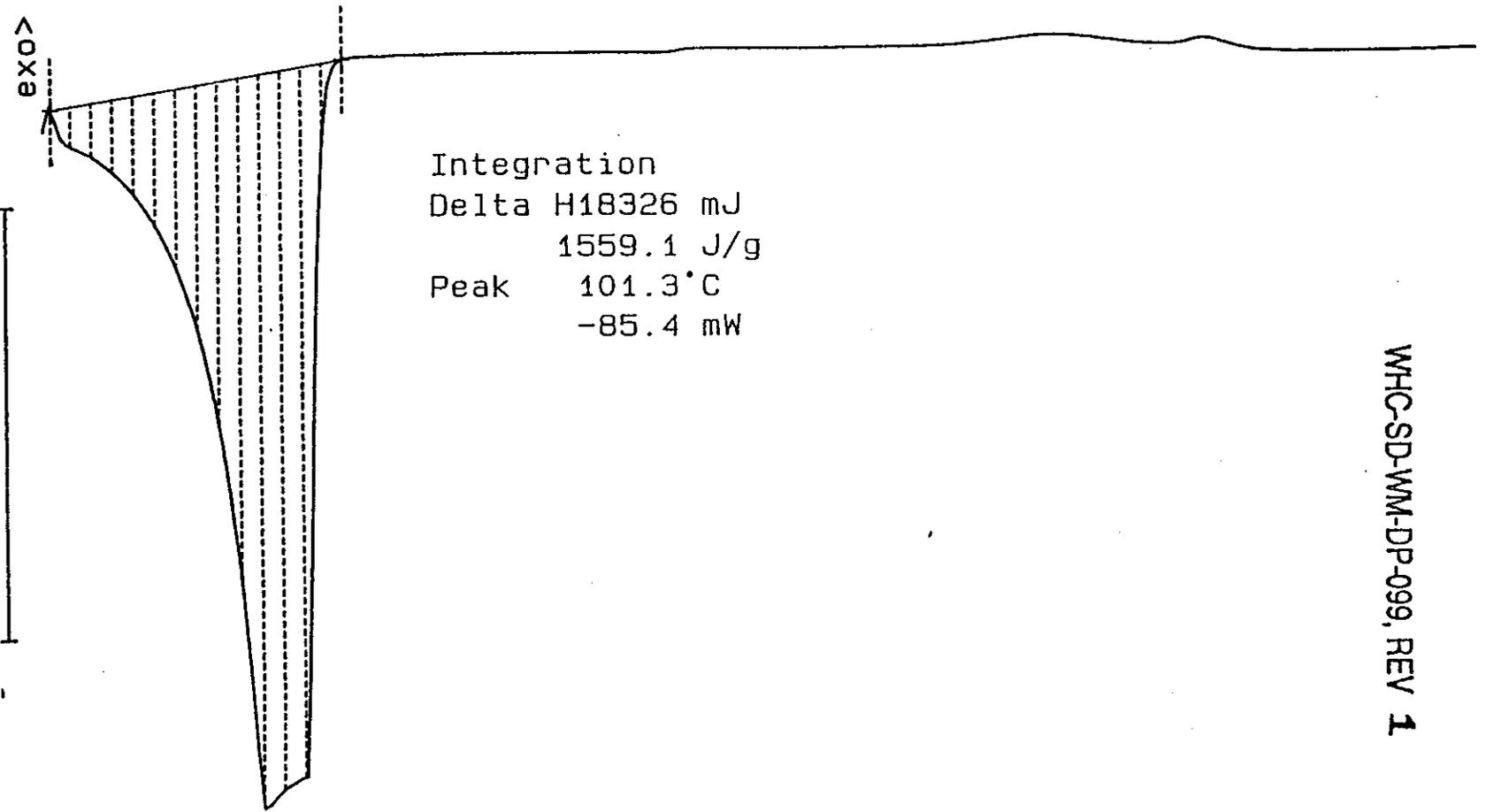
S95T000049 (N2)

11.754 mg

Rate: 10.0 °C/min

File: 00171.001 DSC METTLER 03-Mar-95

Ident: 0.0 222-S Laboratory



WHC-SD-WM-DP-099, REV 1

827

S95T000049 DUP (N2)

12.405 mg

Rate: 10.0 °C/min

File: 00173.001

DSC METTLER

04-Mar-95

Ident: 0.0

222-S Laboratory

exo

50. mW

Integration

Delta H 16416 mJ

1323.4 J/g

Peak 101.3 °C

-83.4 mW

WHC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

828

# LABCORE Data Entry Template for Worklist# 658

Analyst: DJS Instrument: DSC01 Book # 12N14-A

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

Worklist Comment: Please run C-103 DSC under N2. bdv WHC-SD-WM-DP-099, REV 1

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD	<u>12N14-A</u>		DSC-01	LIQUID	<u>28.45</u>	<u>27.6</u> <u>27.4</u> <sup>3/14/95</sup>	<u>N/A</u>	Joules/g
95000013	C-103	2 SAMPLE	S95T000218	0	DSC-01	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
95000013	C-103	3 DUP	S95T000218	0	DSC-01	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 658

[Signature] 3-14-95  
Analyst Signature Date

Verified by  
Blandina Valenzuela 3-15-95  
Analyst Signature Date

Data Entry Comments: S95T000218 produced one endotherm at 105.3°C with  
a delta H of 1653.3 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.

DSC STD 12N14-A

6.438 mg

Rate: 10.0 °C/min

File: 00213.001

DSC METTLER

14-Mar-95

Ident: 0.0

222-S Laboratory

exo ^

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 830 TO 832.

10.0 mW

Integration  
Delta H 178 mJ  
27.6 J/g  
Peak 159.1 °C  
-11.9 mW

WHC-SD-WM-DP-099, REV. 1

*Charles D. Smith*

3-14-95

120.

140.

160.

180. °C

830

S95T000218 N2

10.924 mg

Rate: 10.0 °C/min

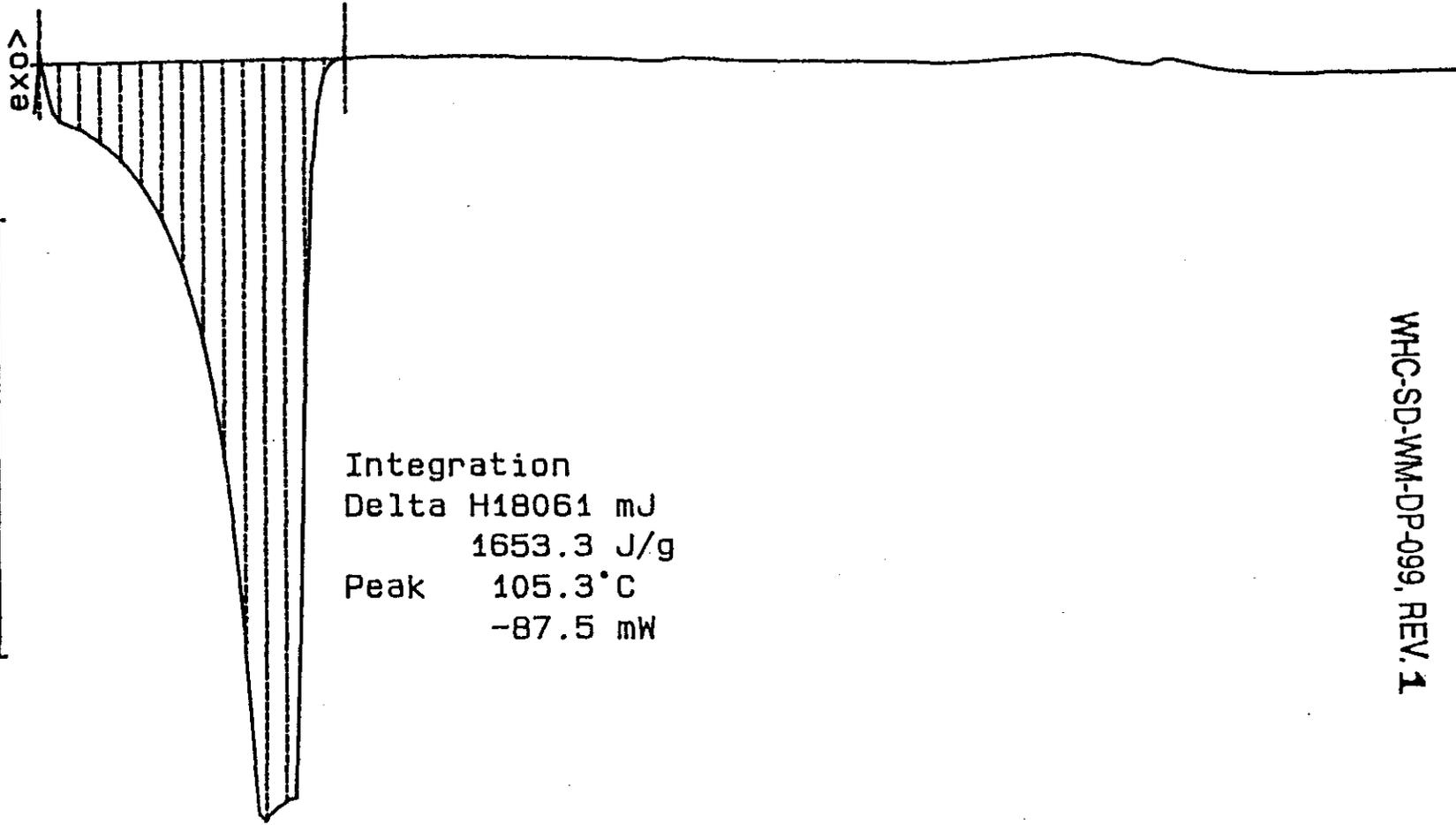
File: 00215.001

DSC METTLER

14-Mar-95

Ident: 0.0

222-S Laboratory



Integration  
Delta H18061 mJ  
1653.3 J/g  
Peak 105.3°C  
-87.5 mW

WHC-SD-WM-DP-099, REV. 1

831

S95T000218 (DUP) N2

File: 00219.001 DSC METTLER 14-Mar-95

10.629 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

exo >

50. mW

Integration  
Delta H14775 mJ  
1390.1 J/g  
Peak 103.3 °C  
-87.5 mW

WHC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

# LABCORE Data Entry Template for Worklist# 657

Analyst: DWS Instrument: DSC01 Book # 12K14-FF

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

Worklist Comment: Please run C-103 DSC under N2. bdv WHC-SD-WM-DP-099, REV. 1

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>27.4</u>	<u>N/A</u>	Joules/g
95000013	C-103	2 SAMPLE	S95T000214	0	DSC-01	LIQUID	<u>N/A</u>	<u>∅</u>		Joules/g
95000013	C-103	3 DUP	S95T000214	0	DSC-01	LIQUID	<u>∅</u>	<u>∅</u>	<u>N/A</u>	Joules/g
95000013	C-103	4 SAMPLE	S95T000220	0	DSC-01	LIQUID	<u>N/A</u>	<u>∅</u>		Joules/g
95000013	C-103	5 DUP	S95T000220	0	DSC-01	LIQUID	<u>∅</u>	<u>∅</u>	<u>N/A</u>	Joules/g

Final page for worklist # 657

[Signature] 3-10-95  
Analyst Signature Date

[Signature] 3-13-95  
Analyst Signature Date

Verified by Blandina D. Valenzuela

3-13-95

Data Entry Comments: S95T000214 produced one endotherm at 105.3°C with a delta H of 1531.5 J/g. S95T000220 produced one endotherm at 103.3°C with a delta H of 1578.5 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.

DSC STD 12N14-A

File: 00189.001

DSC METTLER

10-Mar-95

6.672 mg

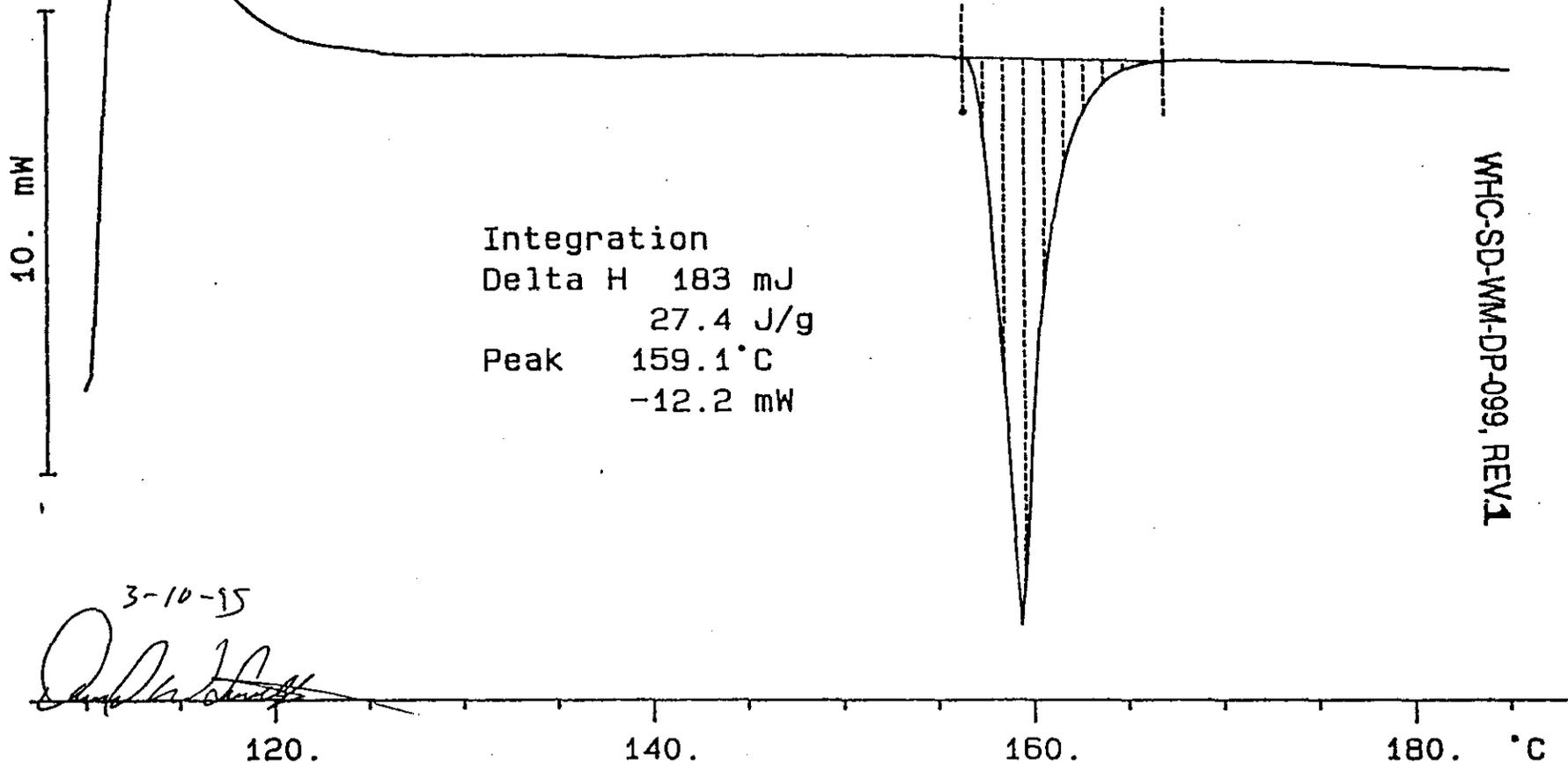
Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 834 TO 838.

EXO



834

S95T000214 N2

10.500 mg

Rate: 10.0 °C/min

File: 00190.001

DSC METTLER

10-Mar-95

Ident: 0.0

222-S Laboratory

EXO

50. mW

Integration

Delta H16081 mJ

1531.5 J/g

Peak 105.3 °C

-89.9 mW

WHC-SD-WM-DP-099, REV 1

100.

200.

300.

400.

°C

835

S95T000214 (DUP) N2

10.165 mg

Rate: 10.0 °C/min

File: 00192.001

DSC METTLER

10-Mar-95

Ident: 0.0

222-S Laboratory

<exo>

50. mW

Integration

Delta H16132 mJ

1587.0 J/g

Peak 103.3 °C

-88.3 mW

WHC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

836

S95T000220 N2

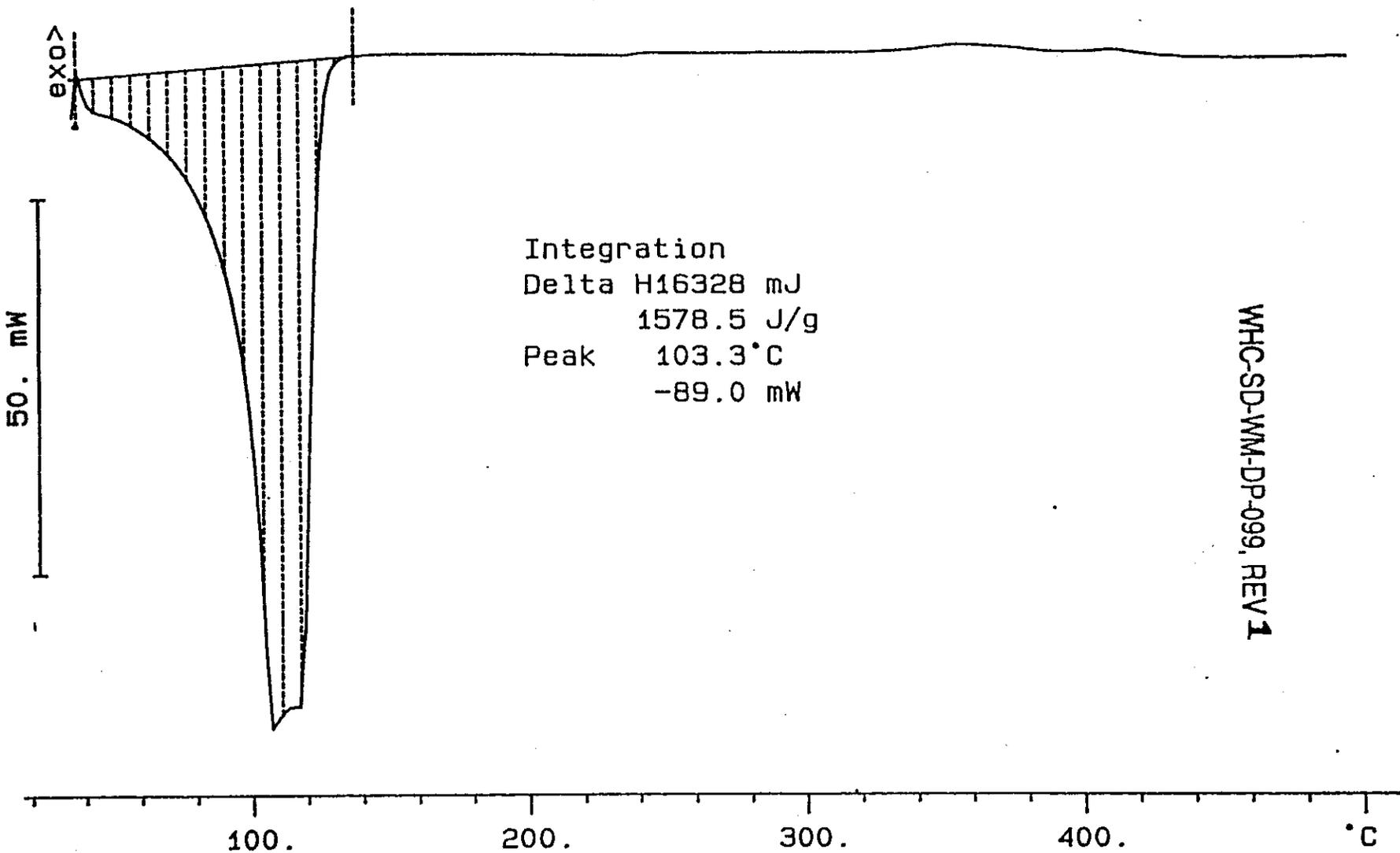
10.344 mg

Rate: 10.0 °C/min

File: 00194.001 DSC METTLER 10-Mar-95

Ident: 0.0

222-S Laboratory



837

S95T000220 (DUP) N2

11.524 mg

Rate: 10.0 °C/min

File: 00196.001

DSC METTLER

10-Mar-95

Ident: 0.0

222-S Laboratory

EXO >

50. mW

Integration

Delta H17555 mJ

1523.3 J/g

Peak 103.3 °C

-88.5 mW

WHC-SD-MM-DP-099, REV. 1

100.

200.

300.

400.

°C

838

# LABCORE Data Entry Template for Worklist# 659

Analyst: SMF Instrument: DSC01 Book # 12 N14A

Method: LA-514-113 Rev/Mod B1

Worklist Comment: Please run C-103 DSC under N2. bdv WHC-SD-WM-DP-099, REV. 1

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>29.3</u>	<u>N/A</u>	Joules/g
95000013	C-103	2 SAMPLE	S95T000222 0		DSC-01	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
95000013	C-103	3 DUP	S95T000222 0		DSC-01	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 659

Susie M. Fulton 3-9-95  
Analyst Signature Date

St. Peter 3/13/95  
Analyst Signature Date

Verified by Blandina Valenzuela

3/14 3/15/95  
3/15/95  
BDV

Data Entry Comments: Honey Brown liquid, S95T000222 produced  
one endotherm at 103.3°C with a delta H of 1214.4 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.

4

DSC STD 12N14A

File: 00180.001

DSC METTLER

09-Mar-95

6.718 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 840 TO 842.

EXO

10. mW

Integration  
Delta H 197 mJ  
29.3 J/g  
Peak 158.2 °C  
-14.6 mW

WHC-SD-WM-DP-099, REV. 1

120.

140.

160.

180.

°C 3/10/95

*Lusie M. Fulton*

840

S95T000222 N2

11.495 mg

Rate: 10.0 °C/min

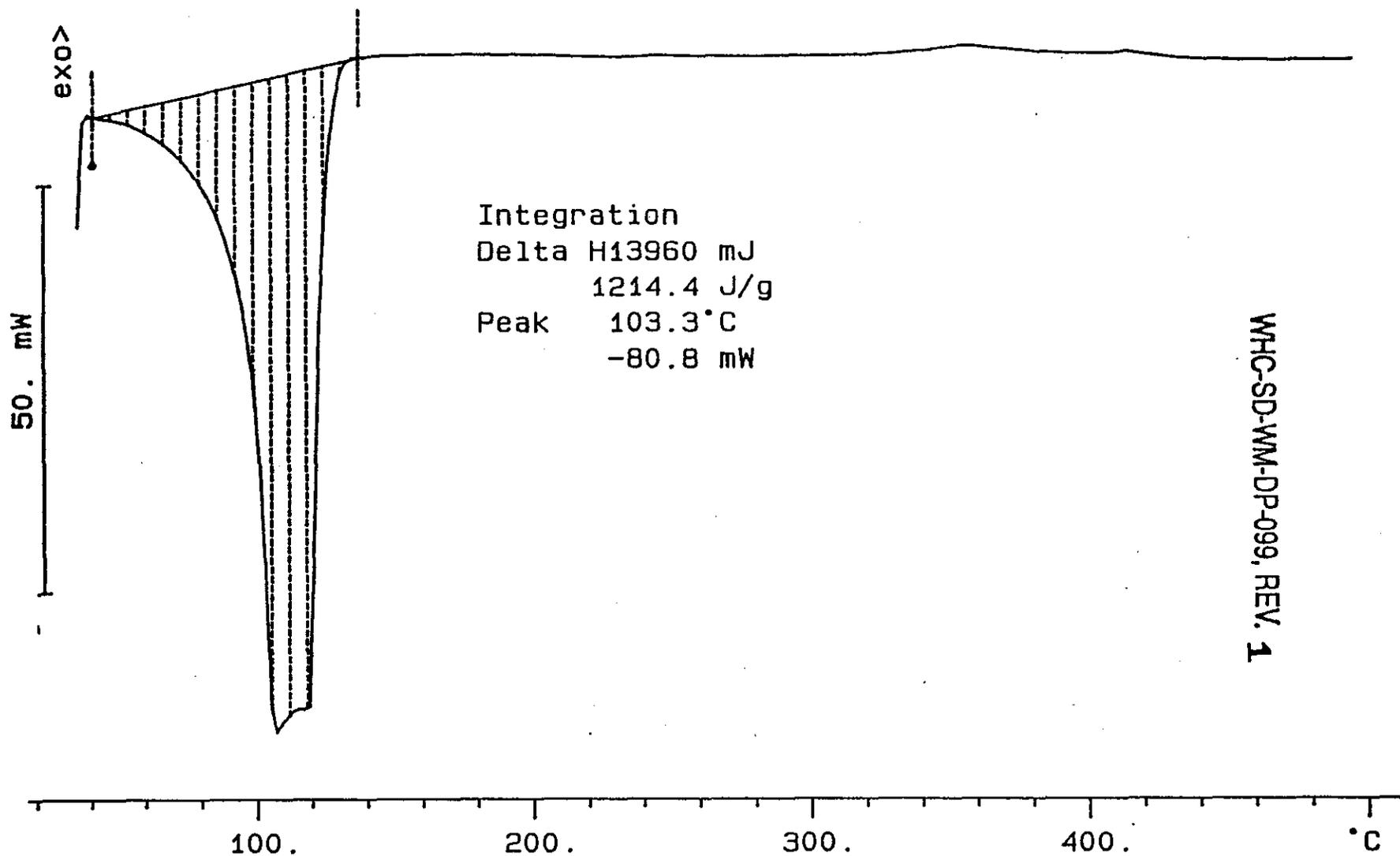
File: 00182.001

DSC METTLER

09-Mar-95

Ident: 0.0

222-S Laboratory



843

WHC-SD-WM-DP-099, REV. 1

S95T000222(DUP) N2 3/10/95 BDV

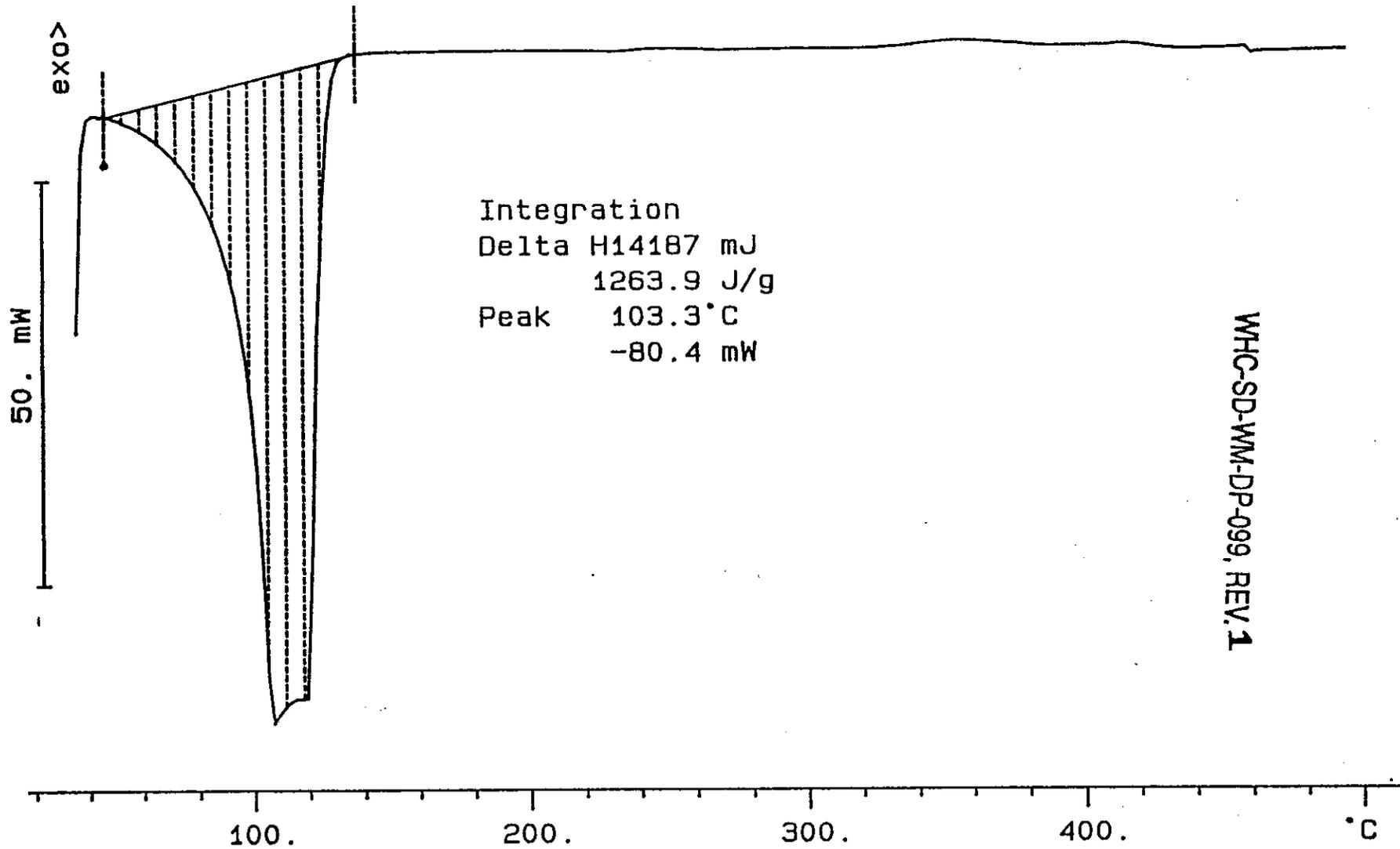
File: 00184.001 DSC METTLER 09-Mar-95

11.225 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory



WHC-SD-WM-DP-099, REV.1

842

# LABCORE Data Entry Template for Worklist# 485

Analyst: SMF Instrument: DSC01 \_\_\_\_\_ Method: LA-514-113/B-1

Worklist Comment: Please run C-103 DSC under N2. bdv

WHC-SD-WM-DP-099, REV. 1

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD				DSC-01	SOLID	<u>28.45</u>	<u>28.9</u>	N/A	Joule
2	SAMPLE	S95T000038	0		DSC-01	SOLID	<u>N/A</u>	<u>97.3</u>		Joule
3	DUP	S95T000038	0		DSC-01	SOLID	<u>97.3</u>	<u>101.4</u>	N/A	Joule
4	SAMPLE	S95T000045	0		DSC-01	SOLID	<u>N/A</u>	<u>95.8</u>		Joule
5	DUP	S95T000045	0		DSC-01	SOLID	<u>95.8</u>	<u>119.4</u>	N/A	Joule

Final page for worklist # 485

*Susie M. Fulton*  
Analyst Signature

3-2-95  
Date

*R. Jones*

3-7-95

3-9-95

Verified by Blandina Valenzuela

Data Entry Comments:

Sample thin, dark brown muck or sludge

S95T000038 produced one endotherm at 112.9°C with a delta H of

1072.3 J/g. S95T000045 produced one endotherm at 115.6°C with a

Units shown for QC (SPK) may not reflect the actual units. delta H of 1190.4 J/g

Page: 1

DSC STD 12N14A

File: 00141.001

DSC METTLER

02-Mar-95

6.688 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 844 TO 848.

exo >

10. mW

Integration  
Delta H 193 mJ  
28.9 J/g  
Peak 158.9 °C  
-12.3 mW

WHC-SD-WM-DP-099, REV.1

BEST AVAILABLE COPY

120.

140.

160

180. °C

*Susie M. Fulton*  
3/6/95 BDN

844

S95T000038 N2

14.894 mg

Rate: 10.0 °C/min

File: 00142.001

DSC METTLER

02-Mar-95

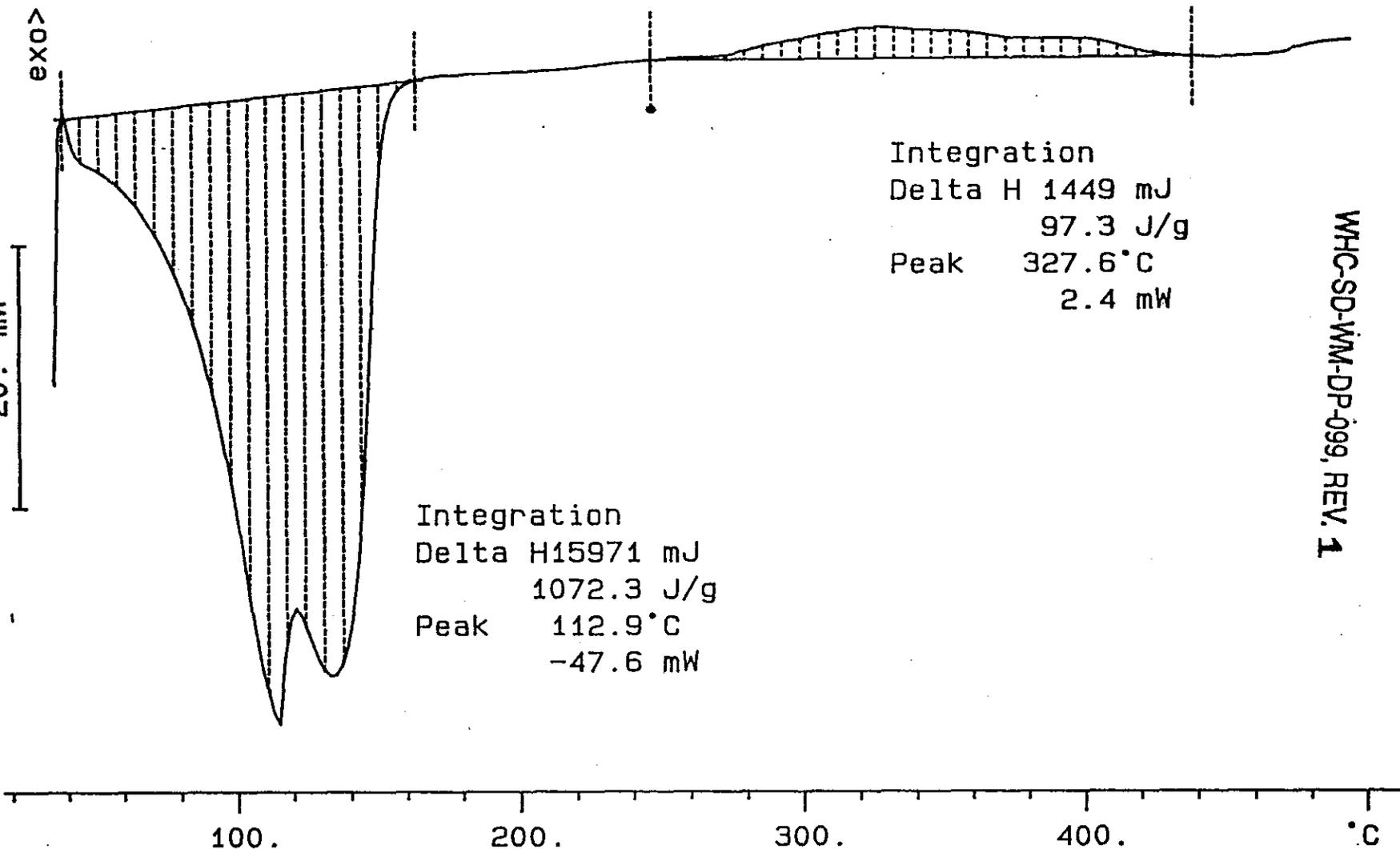
Ident: 0.0

222-S Laboratory

exo >

845

20. mW



Integration

Delta H 1449 mJ

97.3 J/g

Peak 327.6 °C

2.4 mW

Integration

Delta H 15971 mJ

1072.3 J/g

Peak 112.9 °C

-47.6 mW

WMC-SD-WM-DP-099, REV. 1

S95T000038 (DUP) N2

19.039 mg

Rate: 10.0 °C/min

File: 00144.001 DSC METTLER 02-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW

Integration  
Delta H 22126 mJ  
1162.2 J/g  
Peak 113.3 °C  
-82.2 mW

Integration  
Delta H 1930 mJ  
101.4 J/g  
Peak 335.7 °C  
2.8 mW

WHC-SD-WM-DP-099, REV 1

100.

200.

300.

400.

°C

846

S95T000045 N2

14.532 mg

Rate: 10.0 °C/min

File: 00146.001 DSC METTLER 02-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW

Integration

Delta H 1392 mJ

95.8 J/g

Peak 299.6 °C

2.0 mW

Integration

Delta H 17299 mJ

1190.4 J/g

Peak 115.6 °C

-77.3 mW

WHC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

847

S95T000045 (DUP) N2

26.000 mg

Rate: 10.0 °C/min

File: 00148.001

DSC METTLER

02-Mar-95

Ident: 0.0

222-S Laboratory

EXO >

50. mW

100.

200.

300.

400.

°C

Integration

Delta H 3104 mJ

119.4 J/g

Peak 333.8 °C

4.3 mW

Integration

Delta H 27055 mJ

1040.6 J/g

Peak 105.3 °C

-82.9 mW

WHC-SD-WM-DP-099, REV. 1

848

# LABCORE Data Entry Template for Worklist# 486

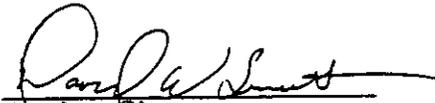
Analyst: DWS Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run C-103 DSC under N2. bdv

WHC-SD-WM-DP-099, REV. 1

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	12NH-A			DSC-01	SOLID	28.45	28.2	N/A	Joule
2	SAMPLE	S95T000046	0		DSC-01	SOLID	N/A	∅		Joule
3	DUP	S95T000046	0		DSC-01	SOLID	∅	337.6	N/A	Joule
4	SAMPLE	S95T000047	0		DSC-01	SOLID	N/A	∅		Joule
5	DUP	S95T000047	0		DSC-01	SOLID	∅	∅	N/A	Joule

Final page for worklist # 486

  
Analyst Signature

3-3-95  
Date

Data entered and verified by  
Blandina D. Valenzuela

3-9-95

Data Entry Comments: S95T000046 produced one endotherm at 107.3°C with a delta of 797.1J/g. S95T000046 was not run a third time due to an ALARA decision, this sample had a dose of 42 Rad, the exotherm produced

Units shown for QC (SPK) may not reflect the actual units. ~~was a slow release of heat it was not a large exothermic~~ 3/8/95 DOW Page: 1

S95T000047 produced one endotherm 644.6J/g at 103.3°C 849

DSC STD 12N14-A

6.688 mg

Rate: 10.0 °C/min

File: 00150.001

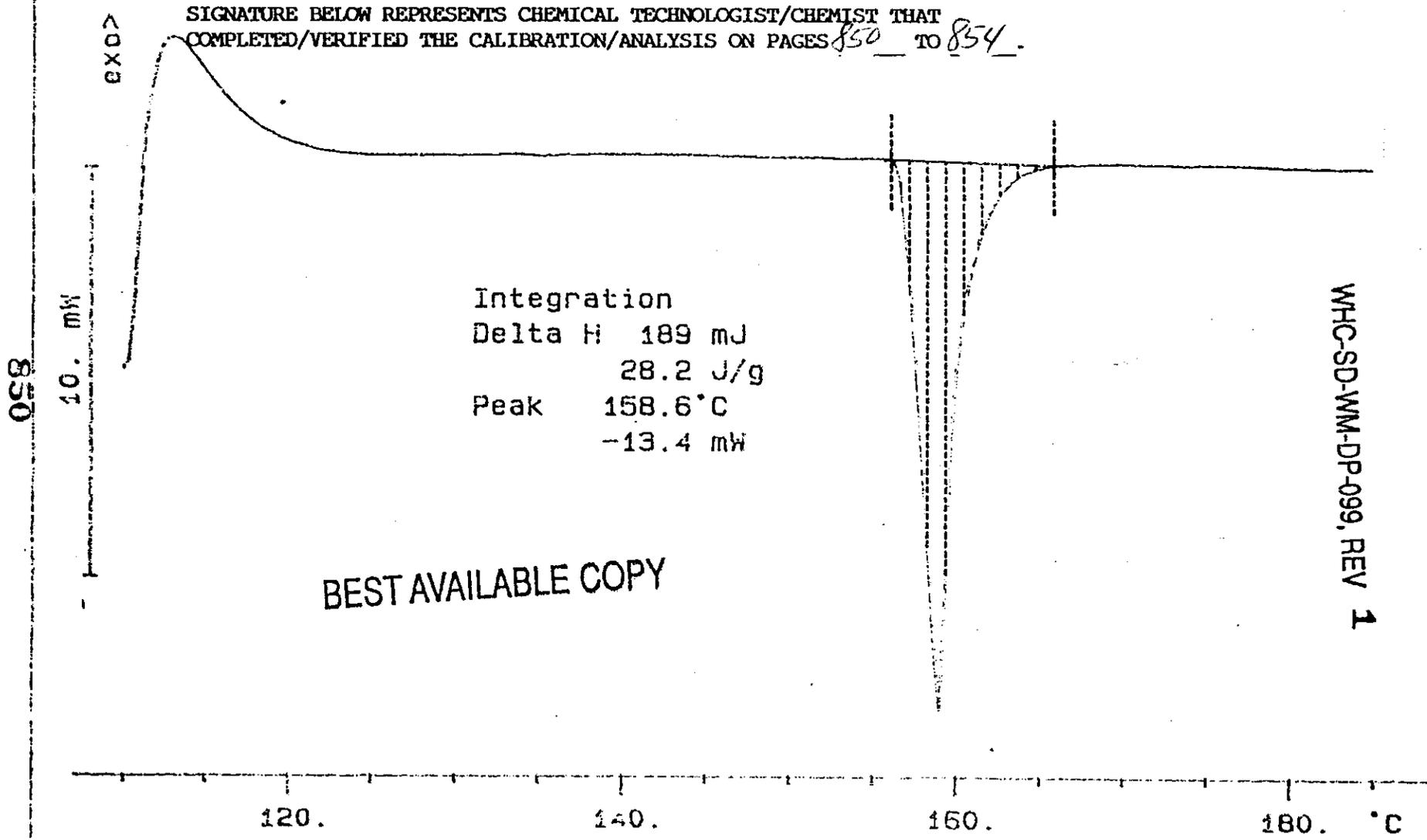
Ident: 0.0

DSC METTLER

02-Mar-95

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 850 TO 854.



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WHC-SD-MM-DP-099, REV 1

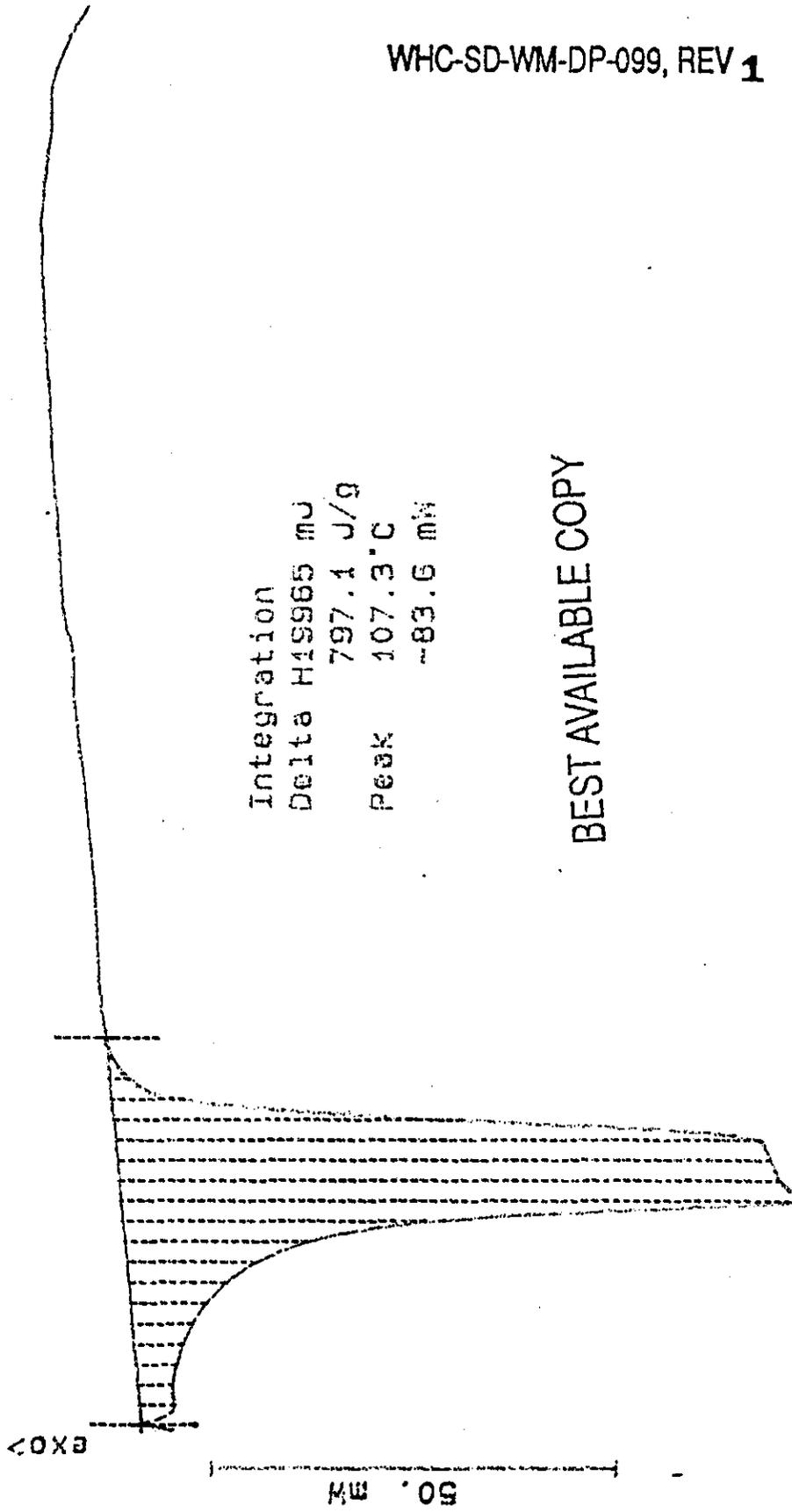
*David W. Smith* 3.3 J

S95T000046 N2  
25.049 mg

Rate: 10.0 °C/min

File: 00152.001 DSC METTLER 02-Mar-95  
Ident: 9.0 222-S Laboratory

EXO



WHC-SD-WM-DP-099, REV 1

BEST AVAILABLE COPY

100. 200. 300. 400. °C

S95T000046 (DUP) N2

28.826 mg

Rate: 10.0 °C/min

File: 00154.001

DSC METTLER

02-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW

852

Integration  
Delta H 26578 mJ  
922.0 J/g  
Peak 101.3 °C  
-80.1 mW

Integration  
Delta H 9732 mJ  
337.6 J/g  
Peak 332.2 °C  
12.5 mW

WHC-SD-WM-DP-099, REV 1

100.

200.

300.

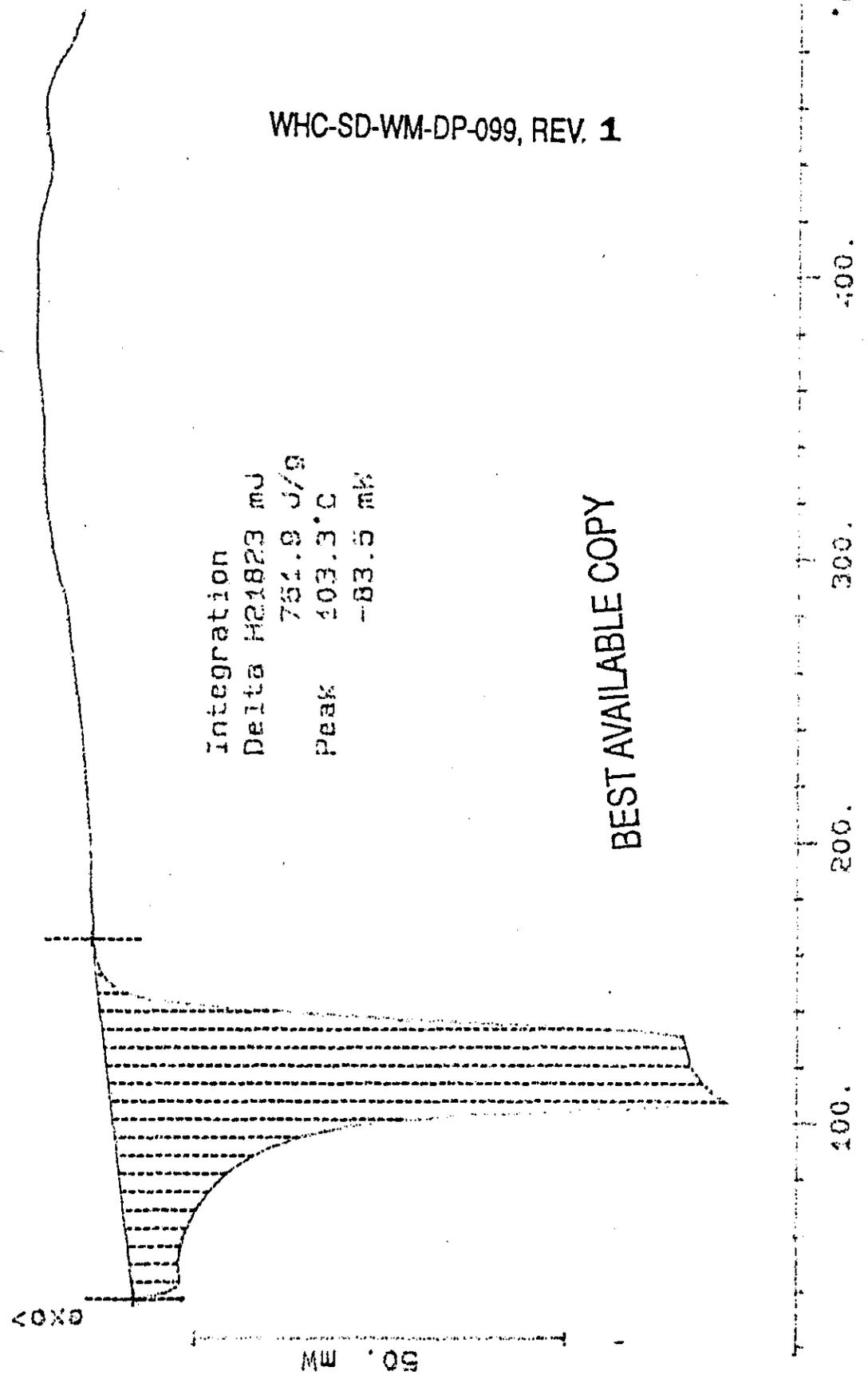
400.

°C

S95T000047 02  
29.023 mg

Rate: 10.0 °C/min

File: 00155.001 DSC KETTLER 02-Mar-95  
Identi: 0.0 222-S Laboratory



WHC-SD-WM-DP-099, REV. 1

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S95T000047 (DUP) N2

45.660 mg

Rate: 10.0 °C/min

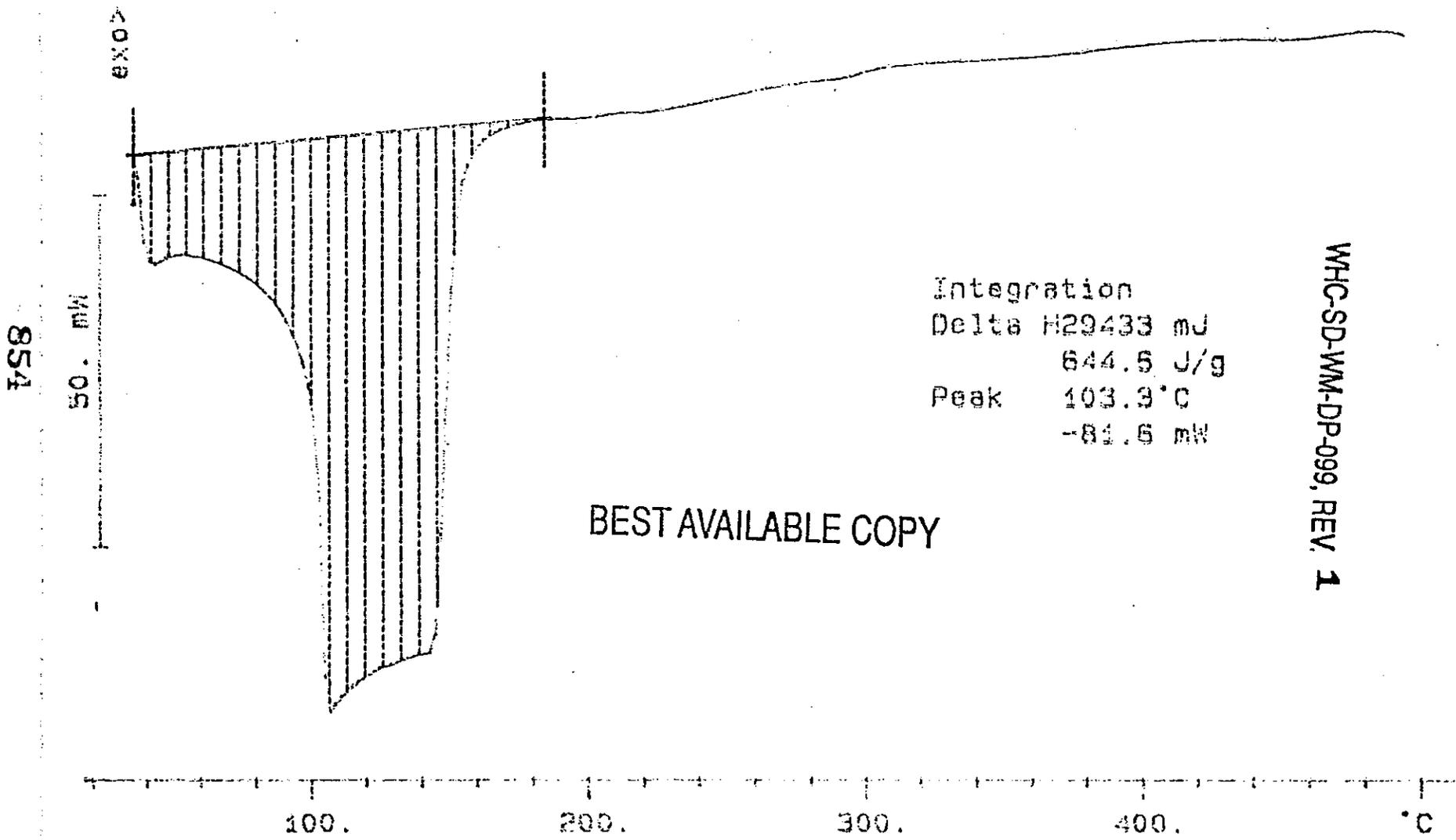
File: 00158.001

DSC METTLER

02-Mar-95

Ident: 0.0

222-S Laboratory



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WHC-SD-WM-DP-099, REV. 1

854

# LABCORE Data Entry Template for Worklist# 510

Analyst: SMF Instrument: DSC01 \_\_\_\_\_ Method: LA-514-113/B-1

Worklist Comment: Please run C-103 DSC under N2. bdv

WHC-SD-WM-DP-099, REV. 1

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	29.1	N/A	Joule
2	SAMPLE	S95T000048	0		DSC-01	SOLID	N/A	∅		Joule
3	DUP	S95T000048	0		DSC-01	SOLID	∅	∅	N/A	Joule

Final page for worklist # 510

*Susan M. Fulton*  
Analyst Signature

3-2-95  
Date  
3-7-95  
3-9-95

*R. Jones*  
Verified by Blandina Valenzuela

Data Entry Comments:

*Brown muddy stuff w/ some standing liquid*

S95T000048 produced two endotherms, first at 109.6°C with a delta H of

Units shown for QC (SPK) may not reflect the actual units.

521.5 J/g; second at 306.1°C with a delta H of 495.3 J/g

DSC STD 12N14A

6.688 mg

Rate: 10.0 °C/min

File: 00133.001

DSC METTLER 02-Mar-95

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 856 TO 858.

exo >

10.0 mW

Integration

Delta H 194 mJ

29.1 J/g

Peak 158.5 °C

-14.3 mW

WHC-SD-WM-DP-099, REV. 1

120.

140.

160.

180. °C

*Lucie M. Fulton*  
3/8/95 BV

856

S95T000048 N2

28.318 mg

Rate: 10.0 °C/min

File: 00134.001

DSC METTLER

02-Mar-95

Ident: 0.0

222-S Laboratory

EXO >

50. mW

Integration

Delta H14768 mJ

521.5 J/g

Peak 109.6 °C

-74.6 mW

Integration

Delta H14025 mJ

495.3 J/g

Peak 306.1 °C

-44.1 mW

BEST AVAILABLE COPY

WHC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

857

S95T000048 (DUP) N2

9.764 mg

Rate: 10.0 °C/min

File: 00136.001

DSC METTLER

02-Mar-95

Ident: 0.0

222-S Laboratory

EXO

20. mW

Integration  
Delta H 5692 mJ  
582.9 J/g  
Peak 107.7 °C  
-32.3 mW

Integration  
Delta H 4590 mJ  
470.1 J/g  
Peak 302.2 °C  
-16.5 mW

WHC-SD-WM-DP-099, REV 1

100.

200.

300.

400.

°C

858

# LBCORE Data Entry Template for Worklist# 653

Analyst: SMF Instrument: DSC01 Book # 12N14-A

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

WHC-SD-WM-DP-099, REV. 1

Worklist Comment: Please run C-103 DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>29.7</u>	<u>N/A</u>	Joules/g
95000013	C-103	2 SAMPLE	S95T000224	0	DSC-01	SOLID	<u>N/A</u>	<u>∅</u>		Joules/g
95000013	C-103	3 DUP	S95T000224	0	DSC-01	SOLID	<u>∅</u>	<u>∅</u>	<u>N/A</u>	Joules/g
		4 STD			DSC-01	SOLID	<u>28.45</u>	<u>29.4</u>	<u>N/A</u>	Joules/g
95000013	C-103	5 SAMPLE	S95T000225	0	DSC-01	SOLID	<u>N/A</u>	<u>∅</u>		Joules/g
95000013	C-103	6 DUP	S95T000225	0	DSC-01	SOLID	<u>∅</u>	<u>∅</u>	<u>N/A</u>	Joules/g

Final page for worklist # 653

attached for signatures  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

[Signature] 3-14-95  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

Verified by Blandina Valenzuela 3/15/95

Data Entry Comments: S95T000224 produced one endotherm at 105.3°C with a  
delta H of 1275.8 J/g. S95T000225 produced one endotherm at  
103.3°C with a delta H of 1466.5 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.

# LBCORE Data Entry Template for Worklist# 653

Analyst: GAN Instrument: DSC01 Book # 12N14-A

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

WHC-SD-WM-DP-099, REV. 1

Worklist Comment: Please run C-103 DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.15</u>	<u>29.7</u>	N/A	Joules/g
95000013	C-103	2 SAMPLE	S95T000224	0	DSC-01	SOLID	N/A	<u>3/16/95</u> <u>BDV</u>	N/A	Joules/g
95000013	C-103	3 DUP	S95T000224	0	DSC-01	SOLID	<u>3/16/95</u> <u>BDV</u>	<u>3/16/95</u> <u>BDV</u>	N/A	Joules/g
95000013	C-103	4 SAMPLE	S95T000225	0	DSC-01	SOLID	N/A			Joules/g
95000013	C-103	5 DUP	S95T000225	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 653

Susie M. Fulton 3-13-95  
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:  
S95T000224 - dark brown thin muddy liquid  
S95T000225 - also dark brown thin  
muddy liquid

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.

DSC STD 12N14-A

6.672 mg

Rate: 10.0 °C/min

File: 00200.001

DSC METTLER

12-Mar-95

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 861 TO 866.

EXO >

10. mW

Integration  
Delta H 198 mJ  
29.7 J/g  
Peak 158.7 °C  
-13.8 mW

WHC-SD-WM-DP-099, REV 1

120.

140.

160.

180.

°C

3/13/95 BUV

*Lucie M. Dutton*

861

S95T000224 N2

12.537 mg

Rate: 10.0 °C/min

File: 00201.001

DSC METTLER

12-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW

Integration  
Delta H15995 mJ  
1275.8 J/g  
Peak 105.3 °C  
-86.9 mW

WHG-SD-WM-DP-099, REV.1

100.

200.

300.

400.

°C

862

S95T000224 (DUP) N2

20.107 mg

Rate: 10.0 °C/min

File: 00203.001

DSC METTLER

12-Mar-95

Ident: 0.0

222-S Laboratory

exo >

Integration  
Delta H21717 mJ  
1080.1 J/g  
Peak 101.3 °C  
-87.5 mW

WHC-SD-WM-DP-099, REV. 1

863

50. mW

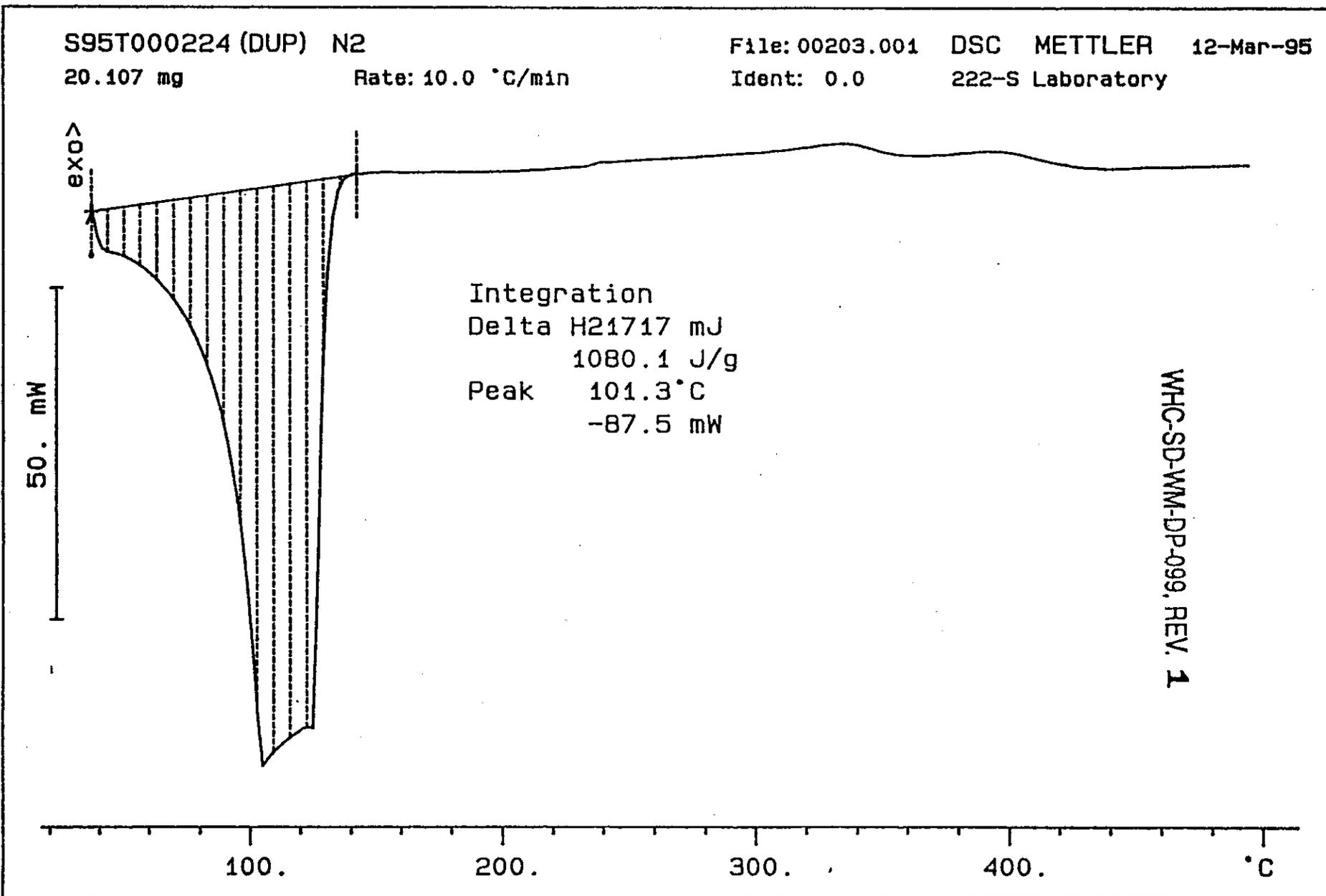
100.

200.

300.

400.

°C



DSC STD 12N14-A

6.672 mg

Rate: 10.0 °C/min

File: 00207.001

DSC METTLER

13-Mar-95

Ident: 0.0

222-S Laboratory

EXO >

10. mW

Integration

Delta H 196 mJ

29.4 J/g

Peak 158.5 °C

-14.2 mW

WHC-SD-WM-DP-099, REV1

120.

140.

160.

180. °C

3/14/94 BDV

*Laurie M. Fulton*

864

S95T000225 N2

10.126 mg

Rate: 10.0 °C/min

File: 00209.001

DSC METTLER

13-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW

Integration  
Delta H14850 mJ  
1466.5 J/g  
Peak 103.3 °C  
-83.3 mW

WHC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

865

S95T000225 (DUP) N2

10.702 mg

Rate: 10.0 °C/min

File: 00211.001

DSC METTLER

13-Mar-95

Ident: 0.0

222-S Laboratory

exo >

50. mW

Integration  
Delta H 15396 mJ  
1438.6 J/g  
Peak 103.3 °C  
-83.1 mW

WMC-SD-WM-DP-099, REV. 1

100.

200.

300.

400.

°C

# LABCORE Data Entry Template for Worklist# 741

Analyst: BDV Instrument: DSC01 Book # \_\_\_\_\_

Method: LA-514-113 Rev/Mod \_\_\_\_\_ WHC-SD-WM-DP-099. REV. 1

Worklist Comment: Calculated C-103 dry DSC. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	DSC TGA DSC			UNIT
							ACTUAL	FOUND	DL	
94000012	C-103	1 SAMPLE	S95T000038	0	DSC-02	SOLID	97.3	55.34	218	Joules/g Dry
94000012	C-103	2 DUP	S95T000038	0	DSC-02	SOLID	101.4	55.34	227	Joules/g Dry
94000012	C-103	3 SAMPLE	S95T000045	0	DSC-02	SOLID	95.8	62.20	253	Joules/g Dry
94000012	C-103	4 DUP	S95T000045	0	DSC-02	SOLID	119.4	62.20	316	Joules/g Dry
94000012	C-103	5 SAMPLE	S95T000046	0	DSC-02	SOLID	0	37.43	0	Joules/g Dry
94000012	C-103	6 DUP	S95T000046	0	DSC-02	SOLID	337.6	37.43	540	Joules/g Dry
94000012	C-103	7 SAMPLE	S95T000052	0	DSC-02	LIQUID	156.8	79.99	784	Joules/g Dry
94000012	C-103	8 DUP	S95T000052	0	DSC-02	LIQUID	52.7	79.99	263	Joules/g Dry
94000012	C-103	9 DUP2	S95T000052	0	DSC-02	LIQUID	46.2	79.99	231	Joules/g Dry

Final page for worklist # 741

Blandina Valenzuela 3/21/95  
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.

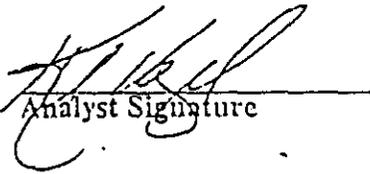
# LABCORE Data Entry Template for Worklist# 162

Analyst: KLW Instrument: TGA01 \_\_\_\_\_ Method: LA-560-112 A-2

Worklist Comment: S94T000200, please run under N2, JMF.

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Un
1	STD	<u>NR8A</u>			TGA-01	LIQUID	<u>59.19</u>	<u>58.93</u>	<u>99.6%</u>	
2	SAMPLE	S94T000200	0		TGA-01	LIQUID	<u>N/A</u>	<u>88.29%</u>		
3	DUP	S94T000200	0		TGA-01	LIQUID	<u>88.29</u>	<u>88.57</u>		<u>N/A</u>

Final page for worklist # 162

  
Analyst Signature

11/22/94  
Date

WHC-SD-WM-DP-099, REV 1

Data Entry Comments:

DATA Entered 11/27/94 GSH

Verified 11/27/94 J. M. Faye

Units shown for QC (SPK) may not reflect the actual units.

Page: 1

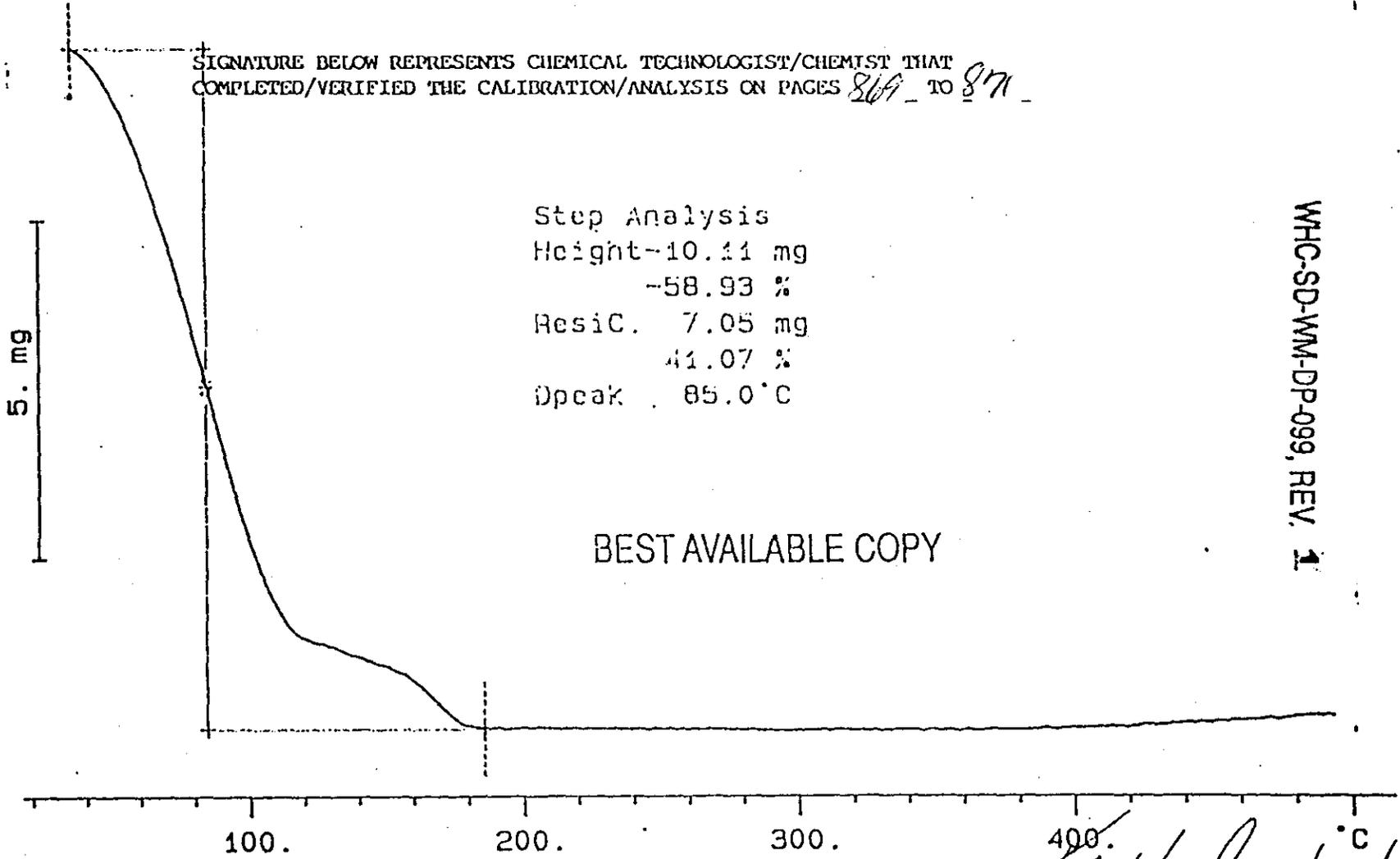
869

TGA STD  
17.158 mg

Rate: 10.0 °C/min

File: 00002.001 TG METTLER 22-Nov-94  
Ident: 0.0 222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 869 TO 871



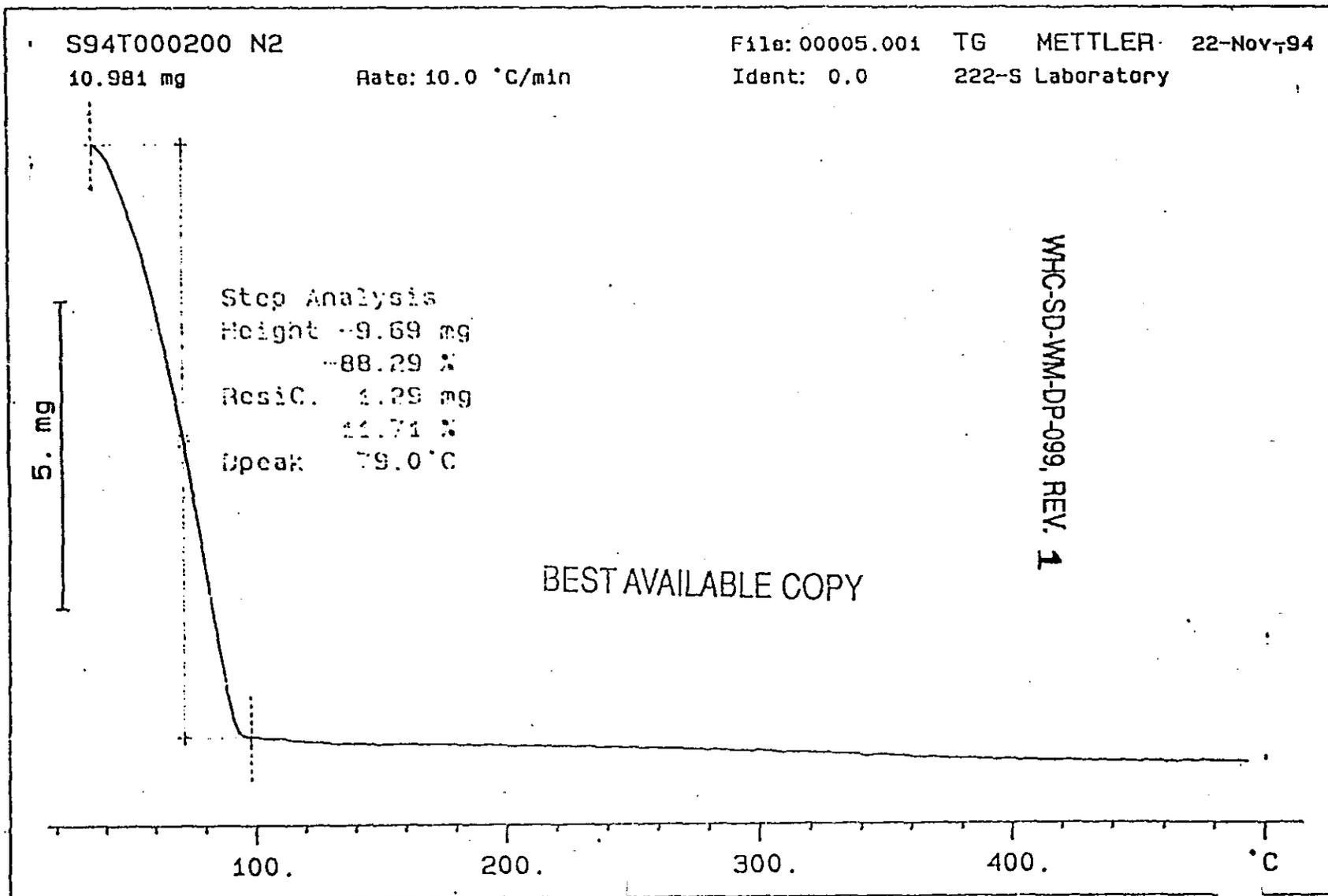
Step Analysis  
 Height-10.11 mg  
           -58.93 %  
 ResidC. 7.05 mg  
           41.07 %  
 Dpeak . 85.0 °C

BEST AVAILABLE COPY

WHC-SD-WM-DP-099, REV. 1

*Handwritten signature* 11/22/94

870



S94T000200 (DUP) N2

17.534 mg

Rate: 10.0 °C/min

File: 00006.001

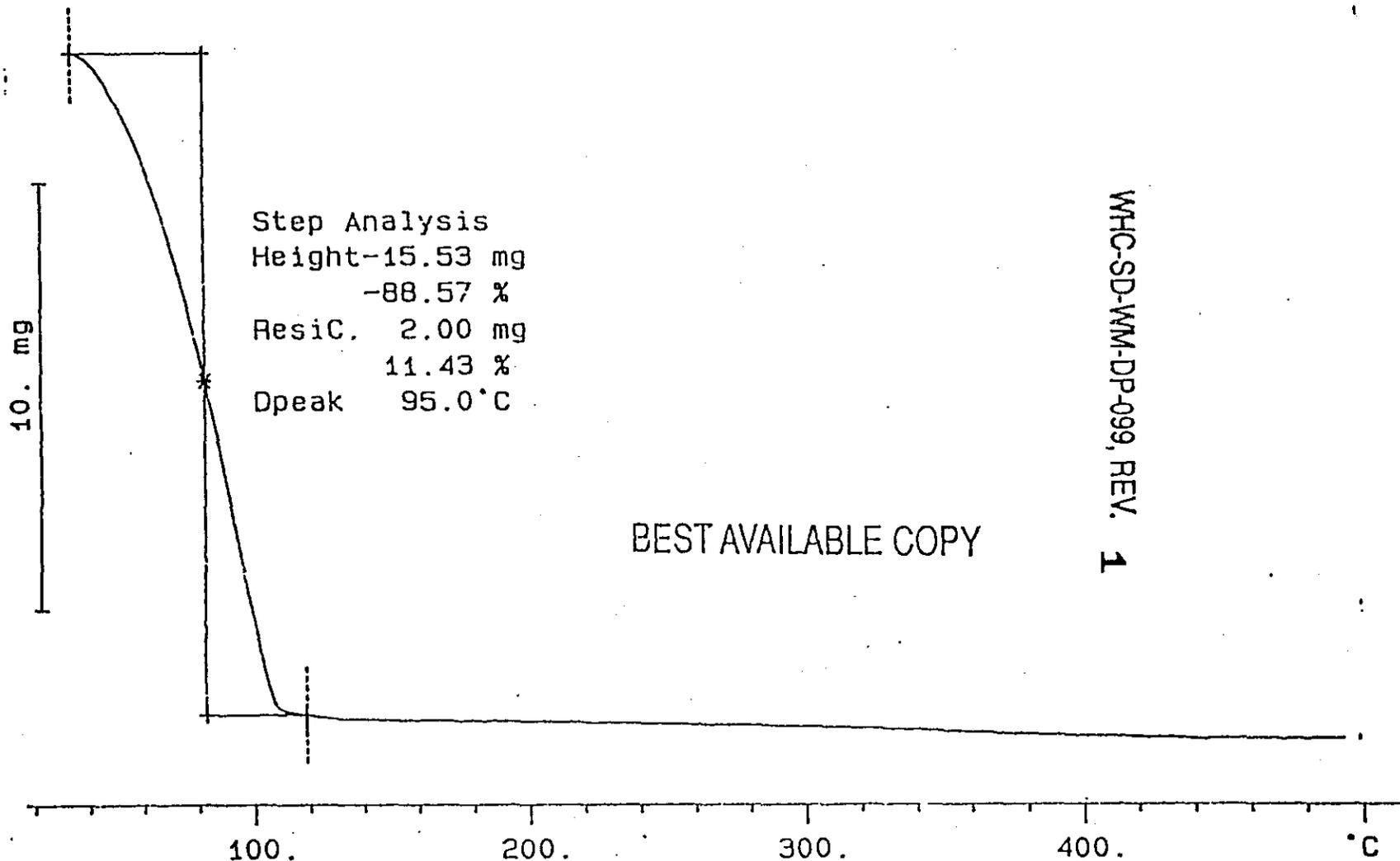
TG

METTLER

22-Nov-94

Ident: 0.0

222-S Laboratory



BEST AVAILABLE COPY

WHC-SD-WM-DP-099, REV. 1

87A

# LABCORE Data Entry Template for Worklist# 592

Analyst: SMF Instrument: TGA01 \_\_\_\_\_ Book # 42N8A

Method: LA-560-112 Rev/Mod A-2

Worklist Comment: Please run C-103 under N2. bdv

WHC-SD-WM-DP-099, REV 1

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD	42N8A		TGA-01	LIQUID	59.19	57.73	N/A	%
94000012	C-103	2 SAMPLE	S95T000052	0	TGA-01	LIQUID	N/A	82.12		%
94000012	C-103	3 DUP	S95T000052	0	TGA-01	LIQUID	82.12	77.85	N/A	%
		4 STD	42N8A		TGA-01	LIQUID	59.19	58.58	N/A	%
94000012	C-103	5 SAMPLE	S95T000049	0	TGA-01	LIQUID	N/A	81.66		%
94000012	C-103	6 DUP	S95T000049	0	TGA-01	LIQUID	81.66	87.30	N/A	%

Final page for worklist # 592

See attached for signatures  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_  
Rejon 3-7-95

Blandina Valenzuela 3/9/95  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

Data Entry Comments:

dark brown liquid w/ small amount of fine solids

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# 592

Analyst: SNF - Instrument: TGA01 \_\_\_\_\_ Method: LA-560-112/4-2

Worklist Comment: Please run C-103 under N2. bdv

WHC-SD-WM-DP-099, REV.1

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD				TGA-01	LIQUID	<u>59.19</u>	<u>57.73</u>	<u>N/A</u>	%
2	SAMPLE	S95T000052	0		TGA-01	LIQUID	<u>N/A</u>	<u>82.12</u>		%
3	DUP	S95T000052	0		TGA-01	LIQUID	<u>82.12</u>	<u>77.85</u>	<u>N/A</u>	%
4	SAMPLE	S95T000049	0		TGA-01	LIQUID	<u>N/A</u>			%
5	DUP	S95T000049	0		TGA-01	LIQUID			<u>N/A</u>	%

Final page for worklist # 592

*Lucie M. Dutton*

Analyst Signature

3-3-95  
Date

Data Entry Comments:

*Dark brown liquid w/ small amount fine solids*

Units shown for QC (SPK) may not reflect the actual units.

Page: 1

TGA STD 42N8A

File: 00161.001

TG

METTLER

03-Mar-95

14.503 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 874 TO 879.

Step Analysis

Height -8.43 mg

-57.73 %

Resid. 5.17 mg

42.27 %

Dpeak 74.2 °C

WHC-SD-MM-DP-099, REV. 1

BEST AVAILABLE COPY

874

5.17 mg

50.

100.

150.

200.

°C

*Lucie M. Fulton*

3/6/95 BDV

S95T000052 (N2)

11.152 mg

Rate: 10.0 °C/min

File: 00166.001 TG METTLER 03-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.16 mg

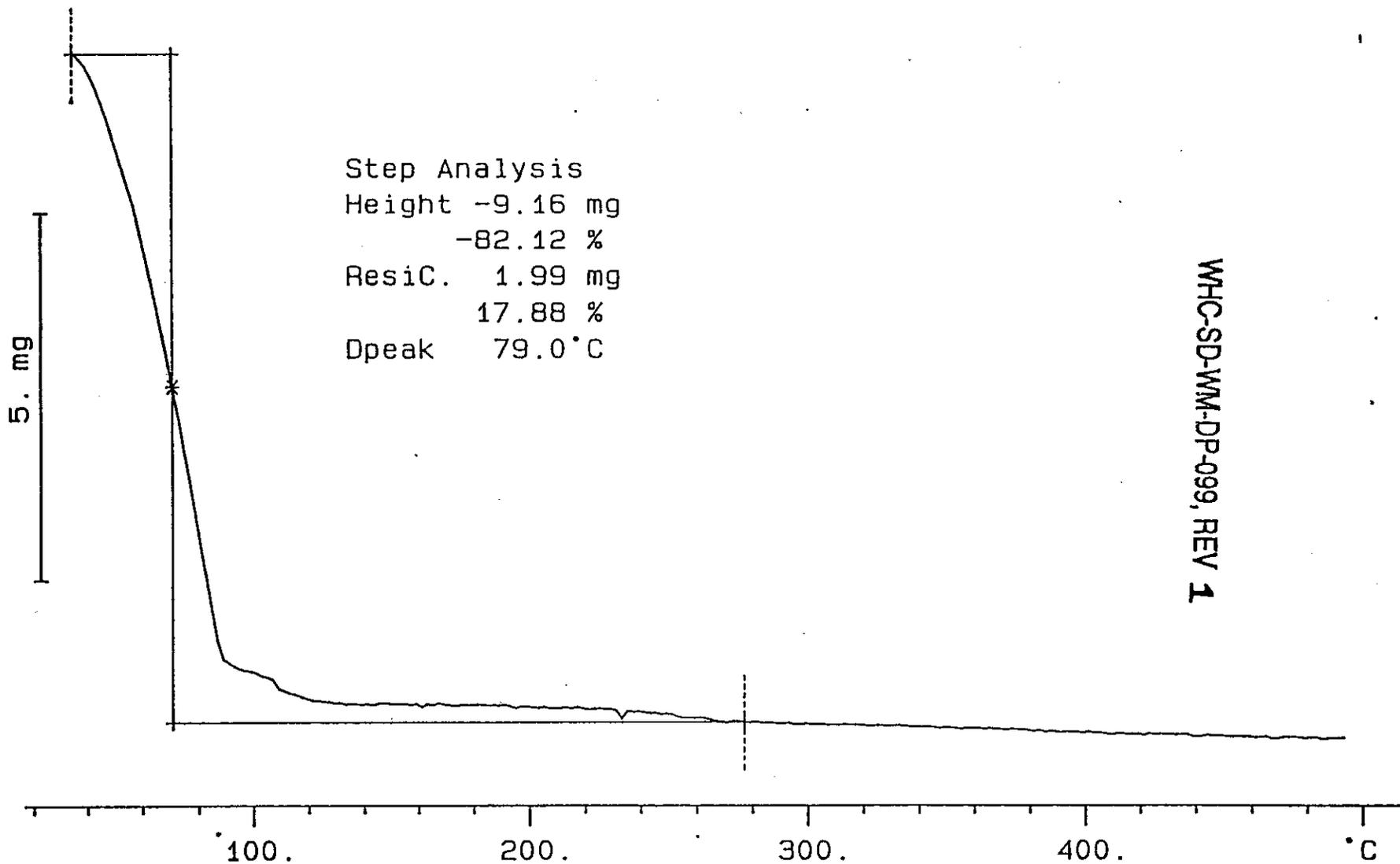
-82.12 %

ResiC. 1.99 mg

17.88 %

Dpeak 79.0 °C

WHC-SD-WM-DP-099, REV 1



875

S95T000052 DUP (N2)

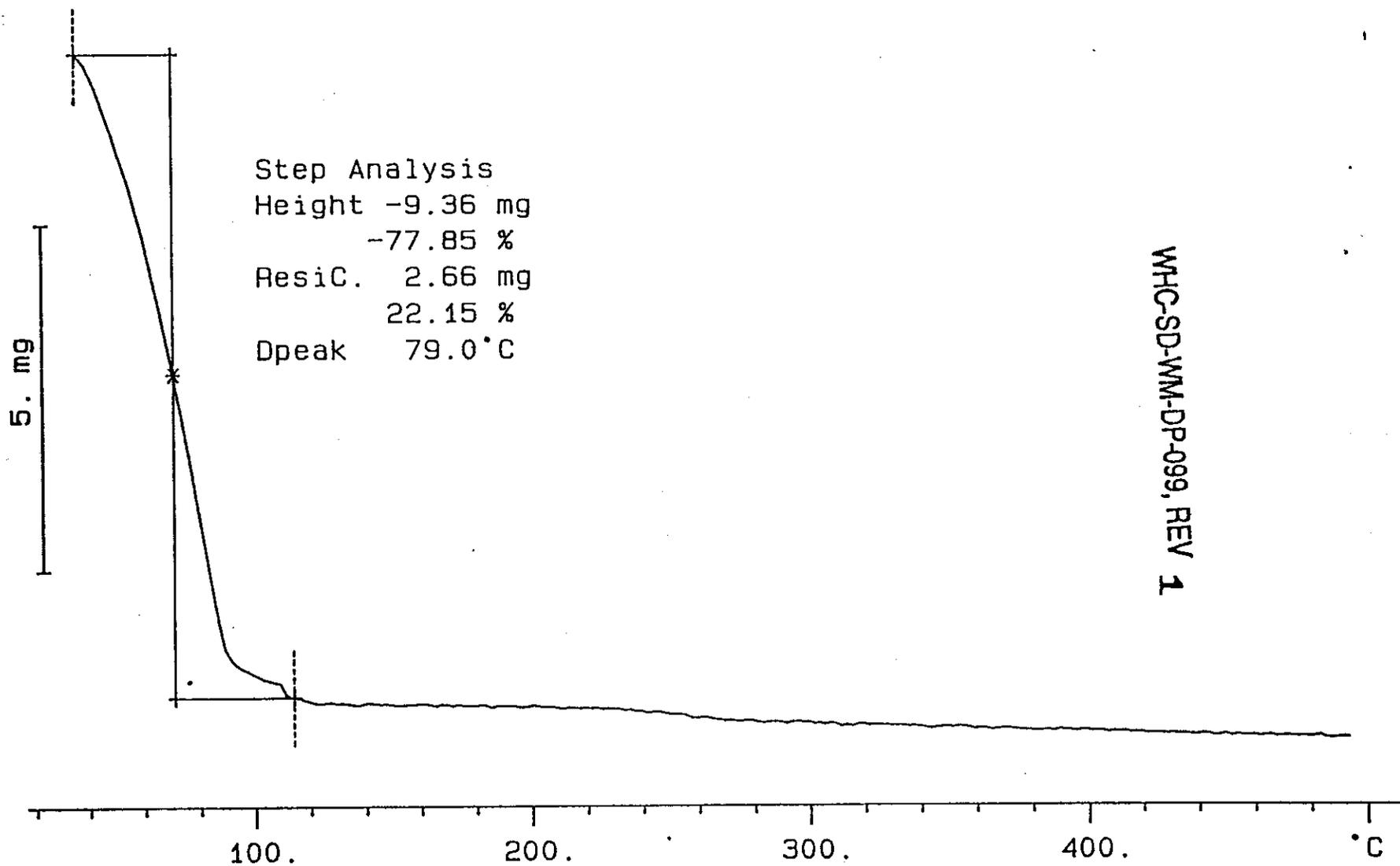
File: 00168.001 TG METTLER 03-Mar-95

12.025 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory



876

MHC-SD-WM-DP-099, REV 1

TGA STD 42N8A

15.423 mg

Rate: 10.0 °C/min

File: 00172.001

TG

METTLER

04-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.04 mg

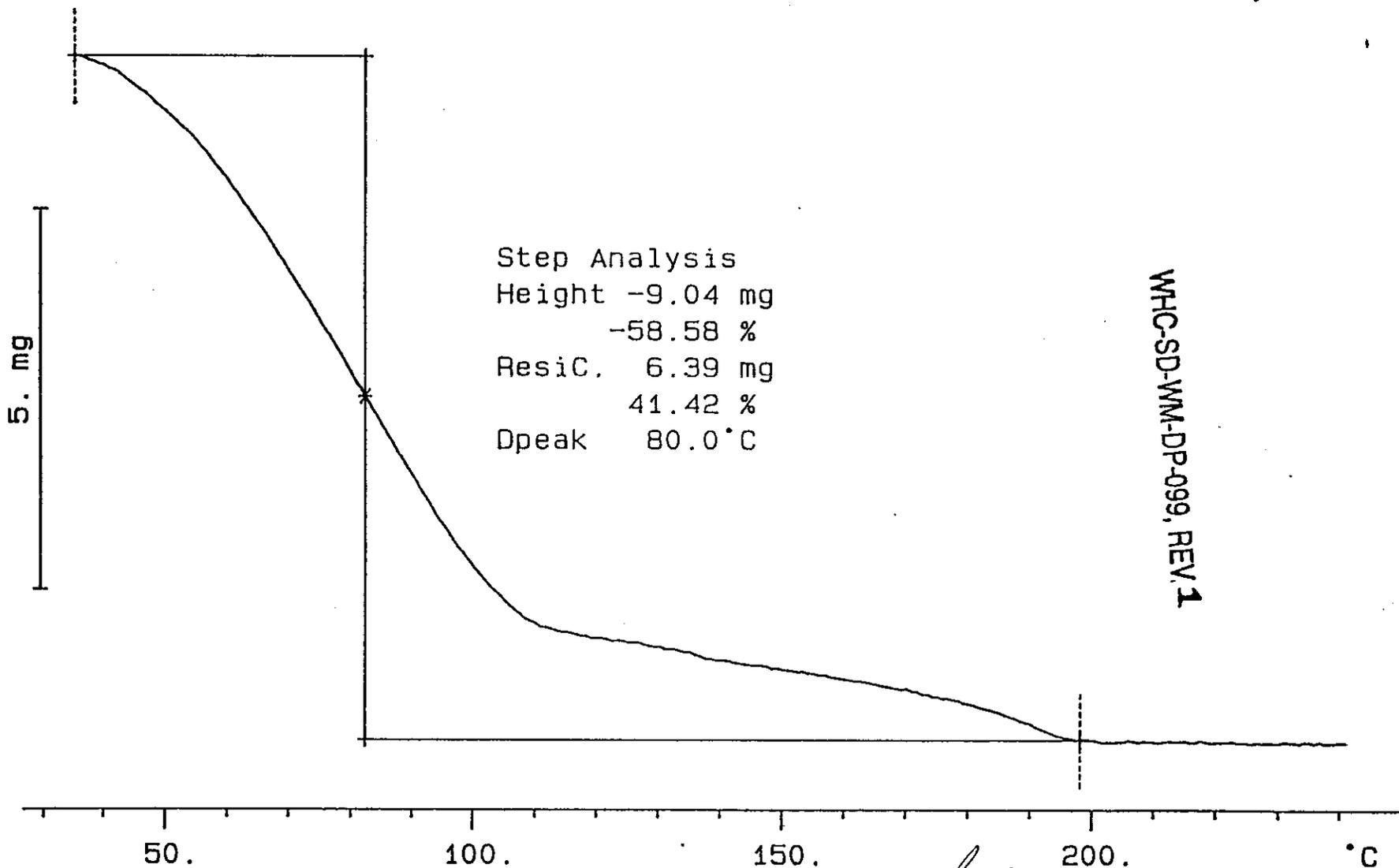
-58.58 %

ResiC. 6.39 mg

41.42 %

Dpeak 80.0 °C

WHC-SD-WM-DP-099, REV.1



877

*Laura M. Fulton*

S95T000049 (N2)

11.778 mg

Rate: 10.0 °C/min

File: 00174.001

TG

METTLER

04-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

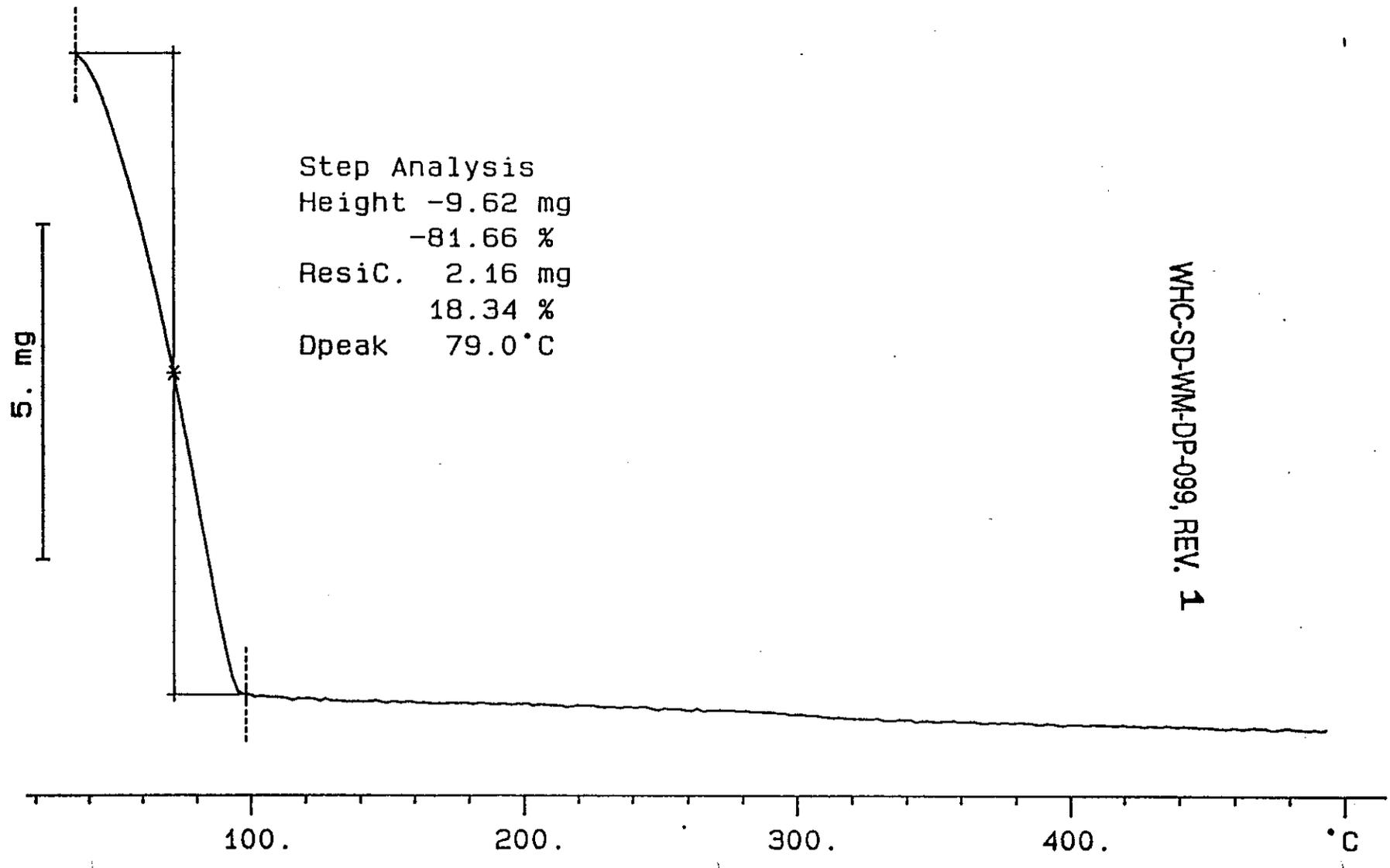
Height -9.62 mg

-81.66 %

ResiC. 2.16 mg

18.34 %

Dpeak 79.0 °C



878

WHC-SD-WM-DP-099, REV. 1

S95T000049 DUP (N2)

File: 00175.001 TG METTLER 04-Mar-95

11.453 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height-10.00 mg

-87.30 %

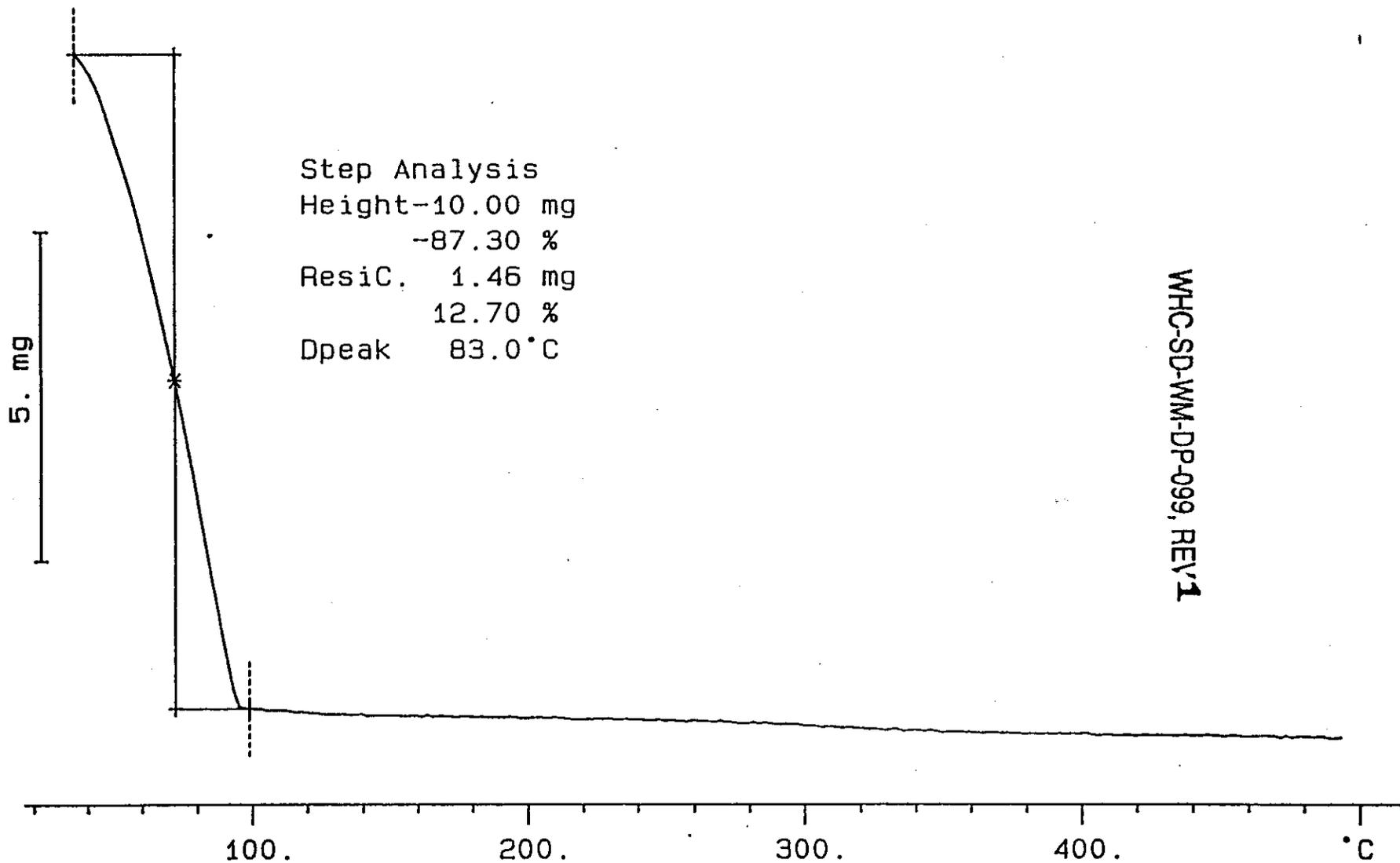
ResiC. 1.46 mg

12.70 %

Dpeak 83.0 °C

879

WHC-SD-WM-DP-099, REV 1



# LABCORE Data Entry Template for Worklist# 662

Analyst: \_\_\_\_\_ Instrument: TGA01 \_\_\_\_\_ Book # 42N8A

Method: LA-560-112 Rev/Mod A-2

Worklist Comment: Please run C-103 TGA under N2. bdv WHC-SD-WM-DP-099, REV.1

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.19</u>	<u>58.25</u>	<u>N/A</u>	%
95000013	C-103	2 SAMPLE	S95T000214	0	TGA-01	LIQUID	<u>N/A</u>	<u>87.86</u>		%
95000013	C-103	3 DUP	S95T000214	0	TGA-01	LIQUID	<u>87.86</u>	<u>87.28</u>	<u>N/A</u>	%
95000013	C-103	4 SAMPLE	S95T000220	0	TGA-01	LIQUID	<u>N/A</u>	<u>87.47</u>		%
		5 STD			TGA-01	LIQUID	<u>59.19</u> <u>87.47</u>	<u>58.63</u>	<u>N/A</u>	%
95000013	C-103	6 DUP	S95T000220	0	TGA-01	LIQUID	<u>87.47</u>	<u>86.99</u>	<u>N/A</u>	%

Final page for worklist # 662

See attached for signatures  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

Data Entry Comments:

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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# 662

Analyst: DWS Instrument: TGA01 Book # 42N8A

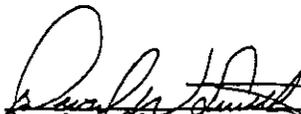
Method: LA-560-112 Rev/Mod F-2

Worklist Comment: Please run C-103 TGA under N2. bdv

WHC-SD-WM-DP-099, REV.1

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.19</u>	<u>58.25</u>	N/A	%
95000013	C-103	2 SAMPLE	S95T000214	0	TGA-01	LIQUID	N/A	<u>87.06</u>		%
95000013	C-103	3 DUP	S95T000214	0	TGA-01	LIQUID	<u>87.06</u>	<u>87.28</u>	N/A	%
95000013	C-103	4 SAMPLE	S95T000220	0	TGA-01	LIQUID	N/A	<u>87.17</u>		%
95000013	C-103	5 DUP	S95T000220	0	TGA-01	LIQUID	<u>87.17</u>	<u>87.</u>	N/A	%

Final page for worklist # 662

  
Analyst Signature 3-14-95 BDV  
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.

TGA STD 42NB-A

File: 00187.001 TG METTLER 10-Mar-95

14.419 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 882 TO 887.

882

5. mg

Step Analysis

Height -8.40 mg

-58.25 %

ResiC. 6.02 mg

41.75 %

Dpeak 89.7 °C

WHC-SD-WM-DP-099, REV. 1

3-10-95

*Signature*

50.

100.

150.

°C

S95T000214 .N2

11.412 mg

Rate: 10.0 °C/min

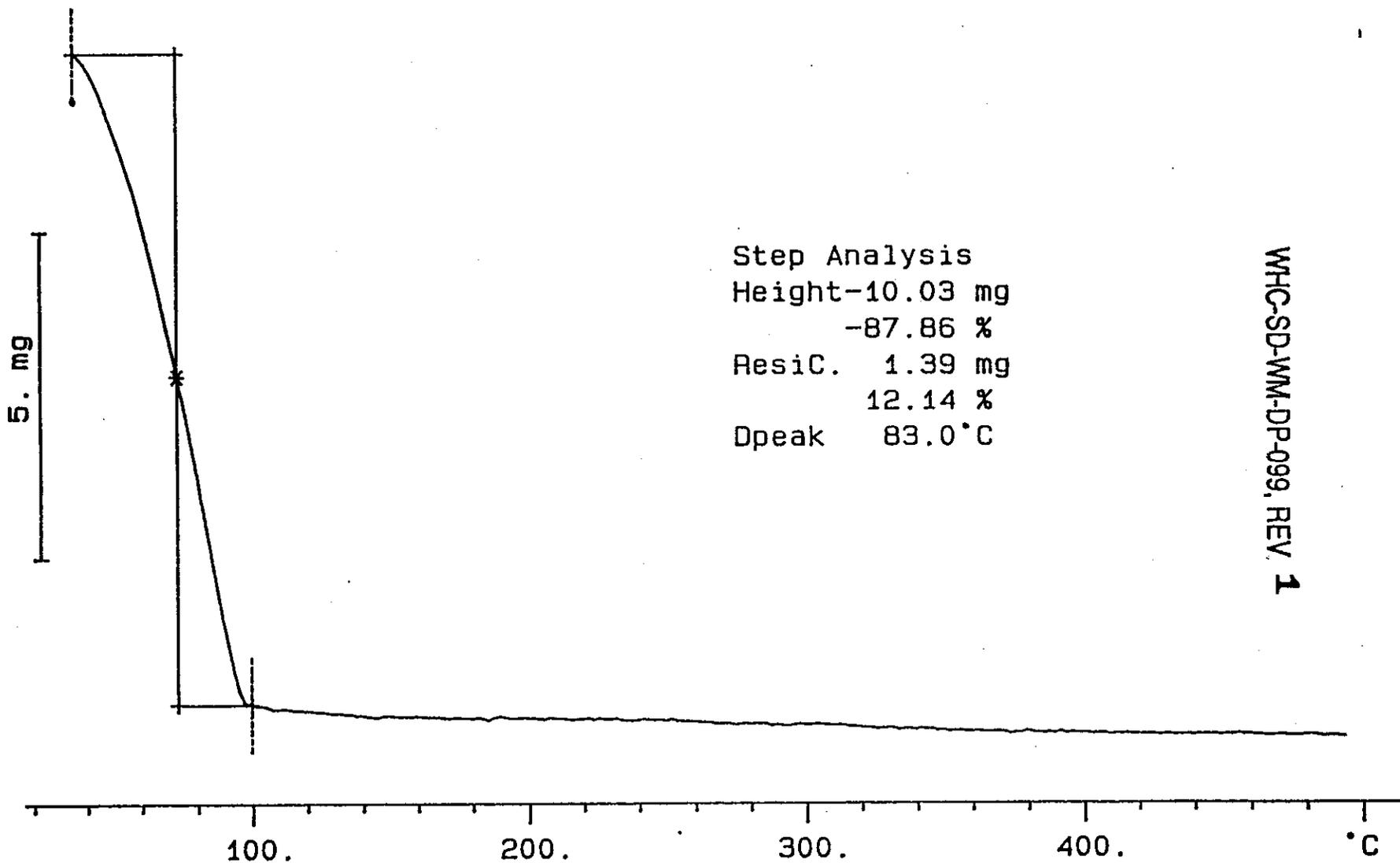
File: 00191.001

TG METTLER 10-Mar-95

Ident: 0.0

222-S Laboratory

883



WHC-SD-WM-DP-099, REV. 1

S95T000214 (DUP) N2

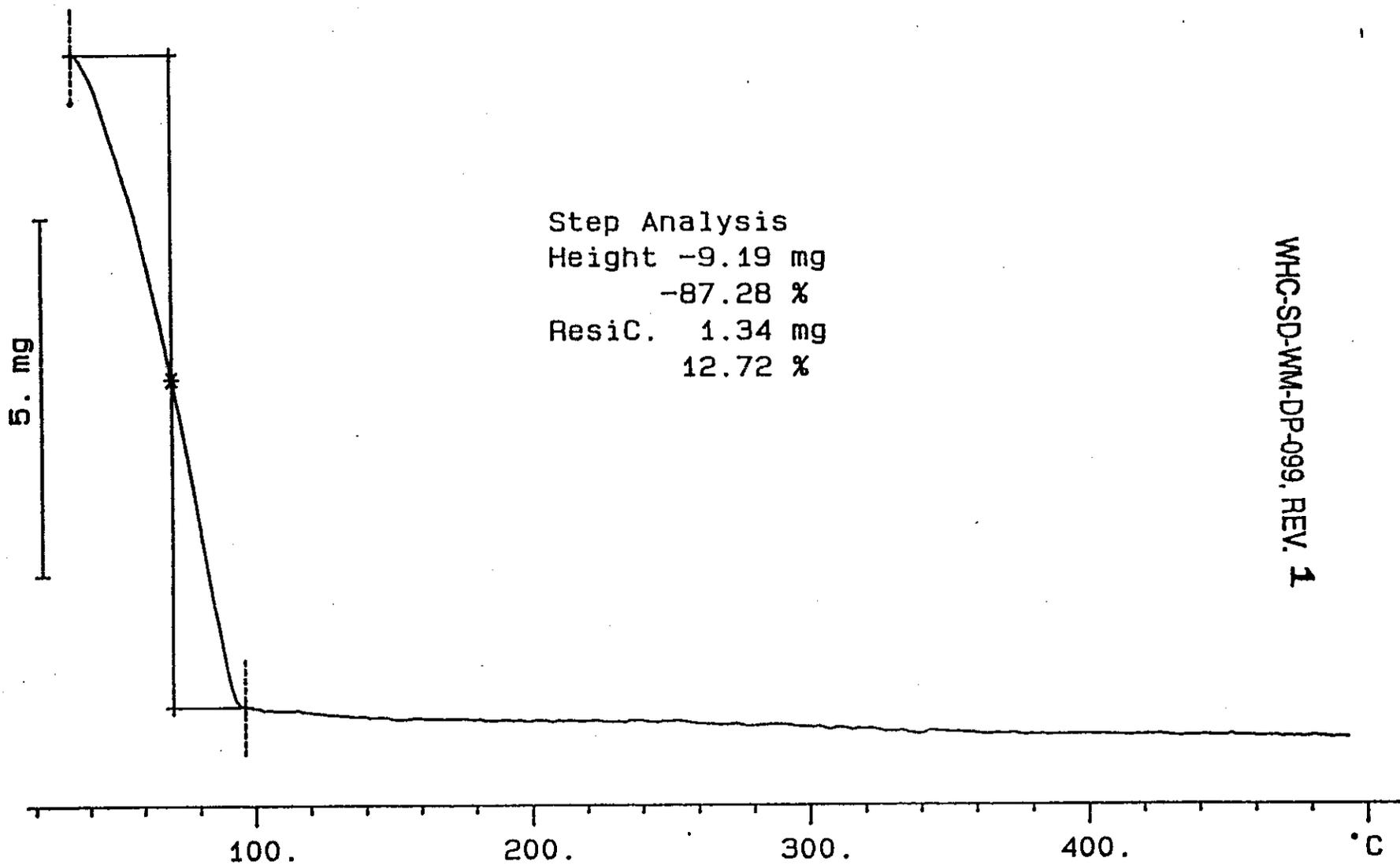
File: 00195.001 TG METTLER 10-Mar-95

10.529 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory



WHC-SD-WM-DP-099, REV. 1

884

S95T000220 N2

10.478 mg

Rate: 10.0 °C/min

File: 00197.001

TG

METTLER

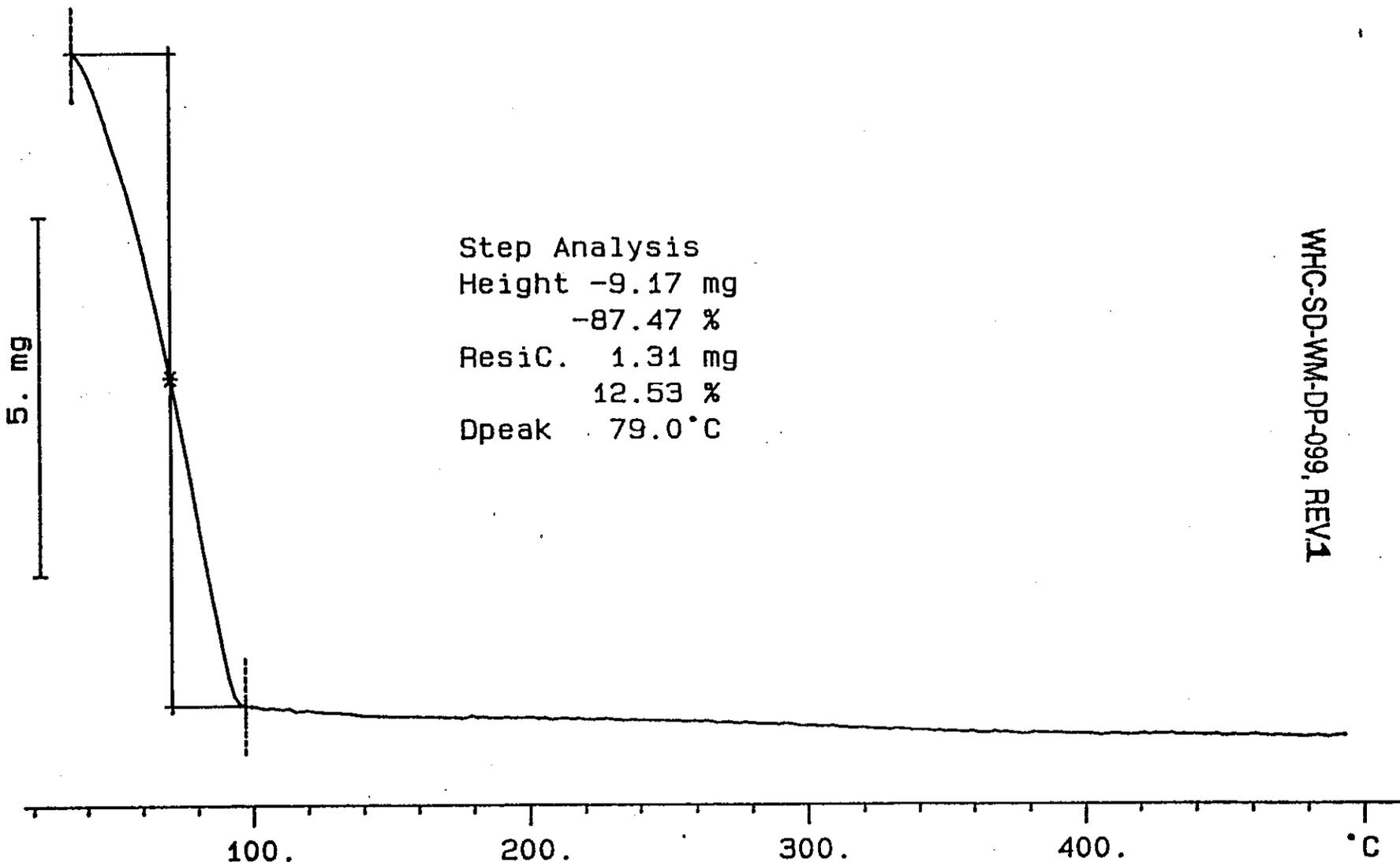
10-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis  
Height -9.17 mg  
-87.47 %  
ResiC. 1.31 mg  
12.53 %  
Dpeak 79.0 °C

WHC-SD-WM-DP-099, REV.1



885

TGA STD 42N8-A

13.473 mg

Rate: 10.0 °C/min

File: 00205.001

TG

METTLER

13-Mar-95

Ident: 0.0

222-S Laboratory

986

5. mg

Step Analysis

Height -7.90 mg

-58.63 %

ResiC. 5.57 mg

41.37 %

Dpeak 84.3 °C

WHC-SD-WM-DP-099, REV. 1

*Patrick J. McCown*  
3/13/95

50.

100.

150.

°C

S95T000220 (DUP) N2

File: 00206.001

TG

METTLER

13-Mar-95

10.176 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.85 mg

-86.99 %

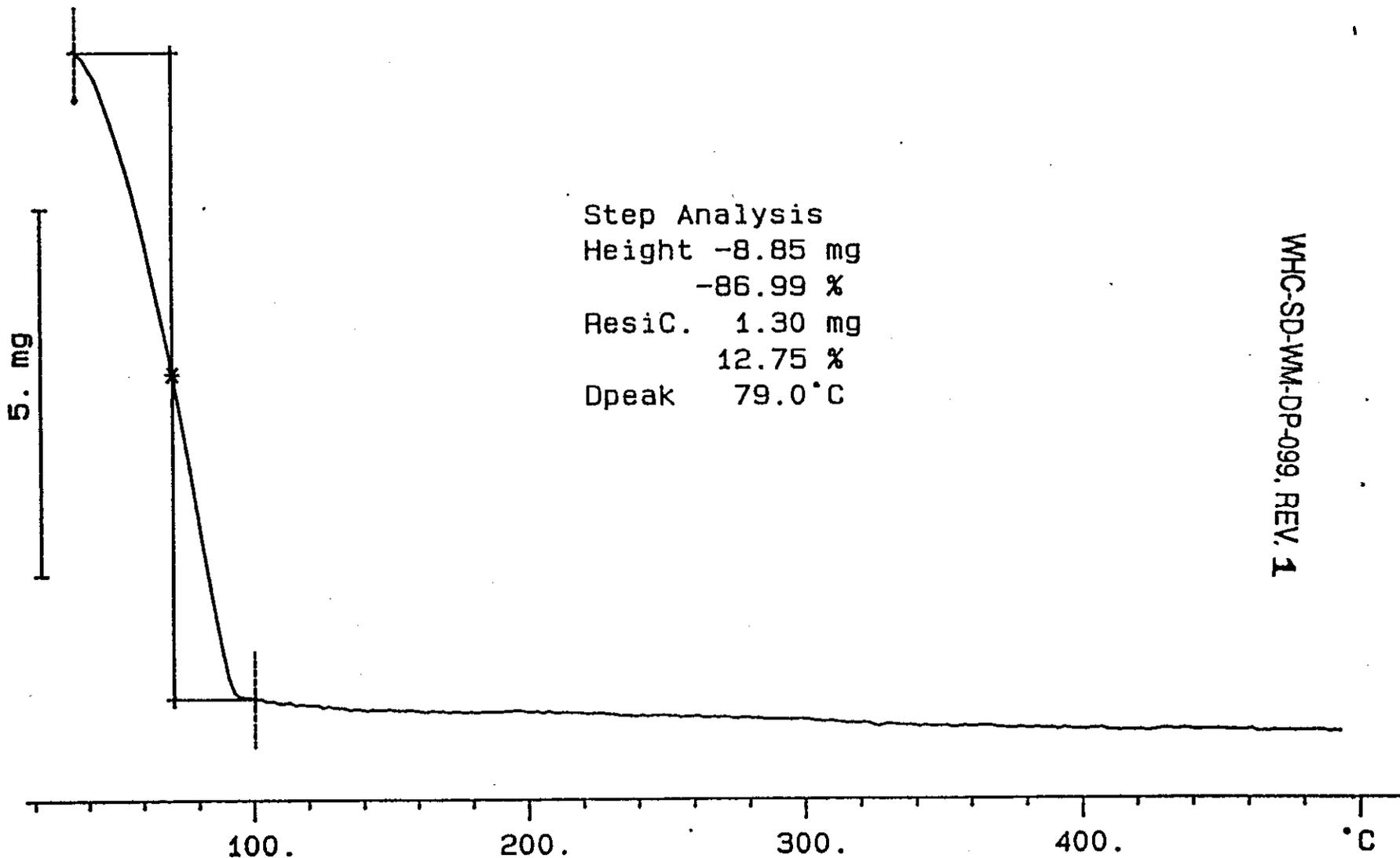
ResiC. 1.30 mg

12.75 %

Dpeak 79.0 °C

WHC-SD-WM-DP-099, REV. 1

887



# LABCORE Data Entry Template for Worklist# 663

Analyst: WJ Instrument: TGA01 Book # \_\_\_\_\_

Method: LA-560-112 Rev/Mod A2

Worklist Comment: Please run C-103 TGA under N2. bdv **WHC-SD-WM-DP-099, REV. 1**

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD	42WBA		TGA-01	LIQUID	59.19	57.89	N/A	%
95000013	C-103	2 SAMPLE	S95T000218	0	TGA-01	LIQUID	N/A	87.79		%
95000013	C-103	3 DUP	S95T000218	0	TGA-01	LIQUID	87.79	88.10 73.04	3/15/95 N/A	bdv%

Final page for worklist # 663

[Signature] 3-14-95  
Analyst Signature Date

\_\_\_\_\_  
Analyst Signature Date

[Signature] 3-15-95  
Verified by Blandina Valenzuela

3-15-95

Data Entry Comments:

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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 889 TO 891.

TGA STD 42N8-A

21.097 mg

Rate: 10.0 °C/min

File: 00214.001

TG

METTLER

14-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height-12.21 mg

-57.89 %

ResiC. 8.88 mg

42.08 %

Dpeak 94.3 °C

888

5. mg

WHC-SD-WM-DP-099, REV. 1



3-14-95

50.

100.

150.

°C

S95T000218 N2

10.324 mg

Rate: 10.0 °C/min

File: 00216.001

TG

METTLER

14-Mar-95

Ident: 0.0

222-S Laboratory

068

5. mg

Step Analysis  
Height -9.06 mg  
-87.79 %  
ResiC. 1.23 mg  
11.93 %  
Dpeak 85.0 °C

WHC-SD-WM-DP-099, REV 1

100.

200.

300.

400.

°C

S95T000218 (DUP) N2

11.107 mg

Rate: 10.0 °C/min

File: 00220.001

TG

METTLER

14-Mar-95

Ident: 0.0

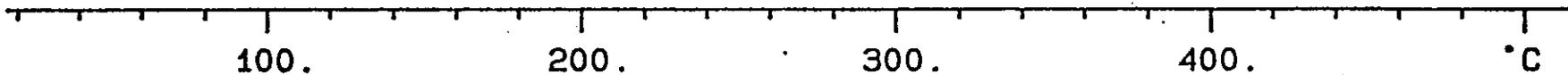
222-S Laboratory

894

5. mg

. Step Analysis  
Height -9.79 mg  
-88.10 %  
ResidC. 1.28 mg  
11.52 %  
Dpeak 83.0 °C

WHC-SD-WM-DP-099, REV. 1



# LABCORE Data Entry Template for Worklist# 664

Analyst: SW Instrument: TGA01 Book # 4208-A

Method: LA-560-112 Rev/Mod A-2

Worklist Comment: Please run C-103 TGA under N2. bdv **WHC-SD-WM-DP-099, REV. 1**

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.19</u>	<u>58.79</u>	<u>N/A</u>	<u>%</u>
9500013	C-103	2 SAMPLE	S95T000222	0	TGA-01	LIQUID	<u>N/A</u>	<u>89.50</u>		<u>%</u>
9500013	C-103	3 DUP	S95T000222	0	TGA-01	LIQUID	<u>89.50</u>	<u>89.38</u>	<u>N/A</u>	<u>%</u>

Final page for worklist # 664

Susie M. Fulton 3-9-95  
Analyst Signature Date

[Signature] 3-13-95  
Analyst Signature Date

Verified by Blandina D. Valenzuela 3-13-95

Data Entry Comments: Honey Brown liquid

TGA STD 42N8A

File: 00181.001

TG

METTLER

09-Mar-95

14.987 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 893 TO 895

893

5. mg

Step Analysis

Height -8.81 mg

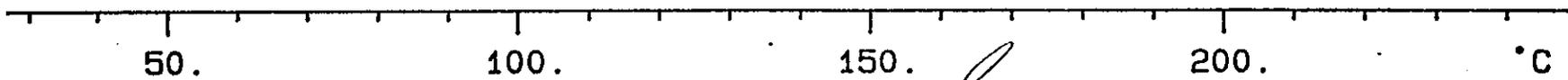
-58.79 %

ResiC. 6.18 mg

41.21 %

Dpeak 81.7 °C

WHC-SD-WM-DP-099, REV.1



*Susie M. Fulton* 3/10/95BDV

S95T000222 N2

11.143 mg

Rate: 10.0 °C/min

File: 00183.001

TG

METTLER

09-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.97 mg

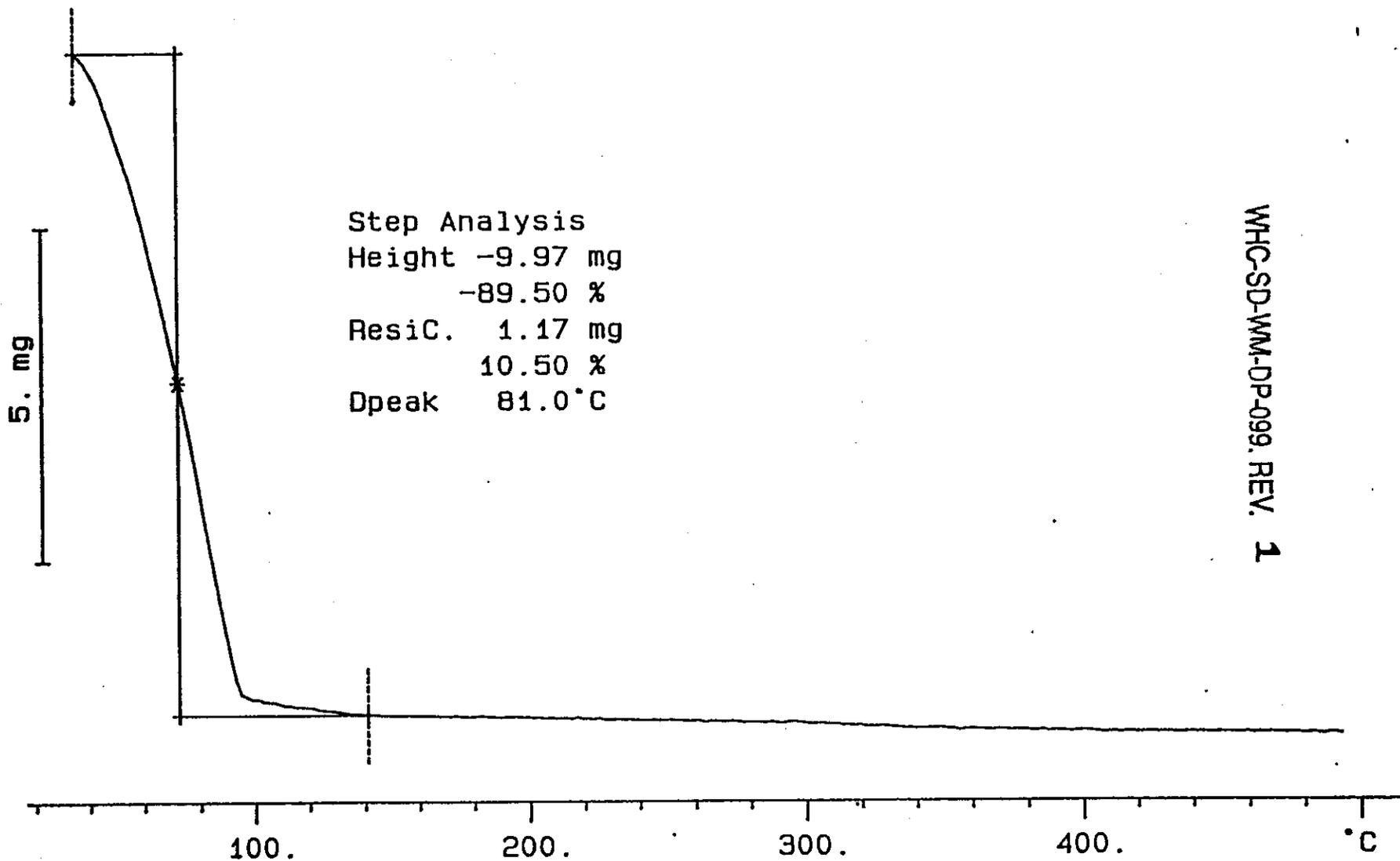
-89.50 %

ResiC. 1.17 mg

10.50 %

Dpeak 81.0 °C

WHC-SD-WM-DP-099. REV. 1



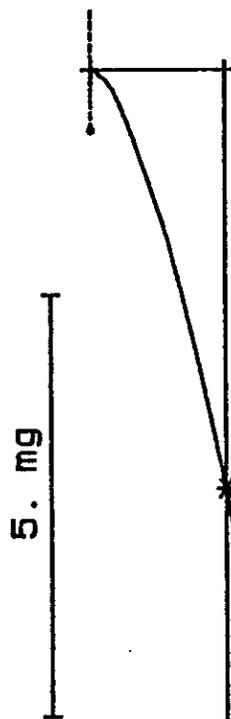
894

S95T000222(DUP) N2

File: 00185.001 TG METTLER 09-Mar-95  
Ident: 0.0 222-S Laboratory

11.204 mg

Rate: 10.0 °C/min



Step Analysis

Height-10.01 mg

-89.38 %

ResiC. 1.19 mg

10.62 %

Dpeak 81.0 °C

WMC-SD-WM-DP-099. REV. 1

895

100.

200.

300.

400.

°C

# LABCORE Data Entry Template for Worklist# 495

Analyst: SMF - Instrument: TGA01 \_\_\_\_\_ Method: LA-560-112/A 2

Worklist Comment: Please run C-103 TGA under N2. bdv

WHC-SD-WM-DP-099, REV. 1

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD				TGA-01	SOLID	<u>59.19</u>	<u>57.46</u>	N/A	%
2	SAMPLE	S95T000038	0		TGA-01	SOLID	<u>N/A</u>	<u>56.63</u>		%
3	DUP	S95T000038	0		TGA-01	SOLID	<u>56.63</u>	<u>54.05</u>	N/A	%
4	SAMPLE	S95T000045	0		TGA-01	SOLID	<u>N/A</u>	<u>63.09</u>		%
5	DUP	S95T000045	0		TGA-01	SOLID	<u>63.09</u>	<u>61.30</u>	N/A	%

Final page for worklist # 495

Susie M. Fulton  
Analyst Signature

3-2-95  
Date

[Signature]

3-7-95

Verified by Blandina Valenzuela

3-9-95

Data Entry Comments:

Sample thin, dark brown muck or sludge

TGA STD 42N8-A

File: 00139.001 TG METTLER 02-Mar-95

13.479 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 892 TO 901.

Step Analysis

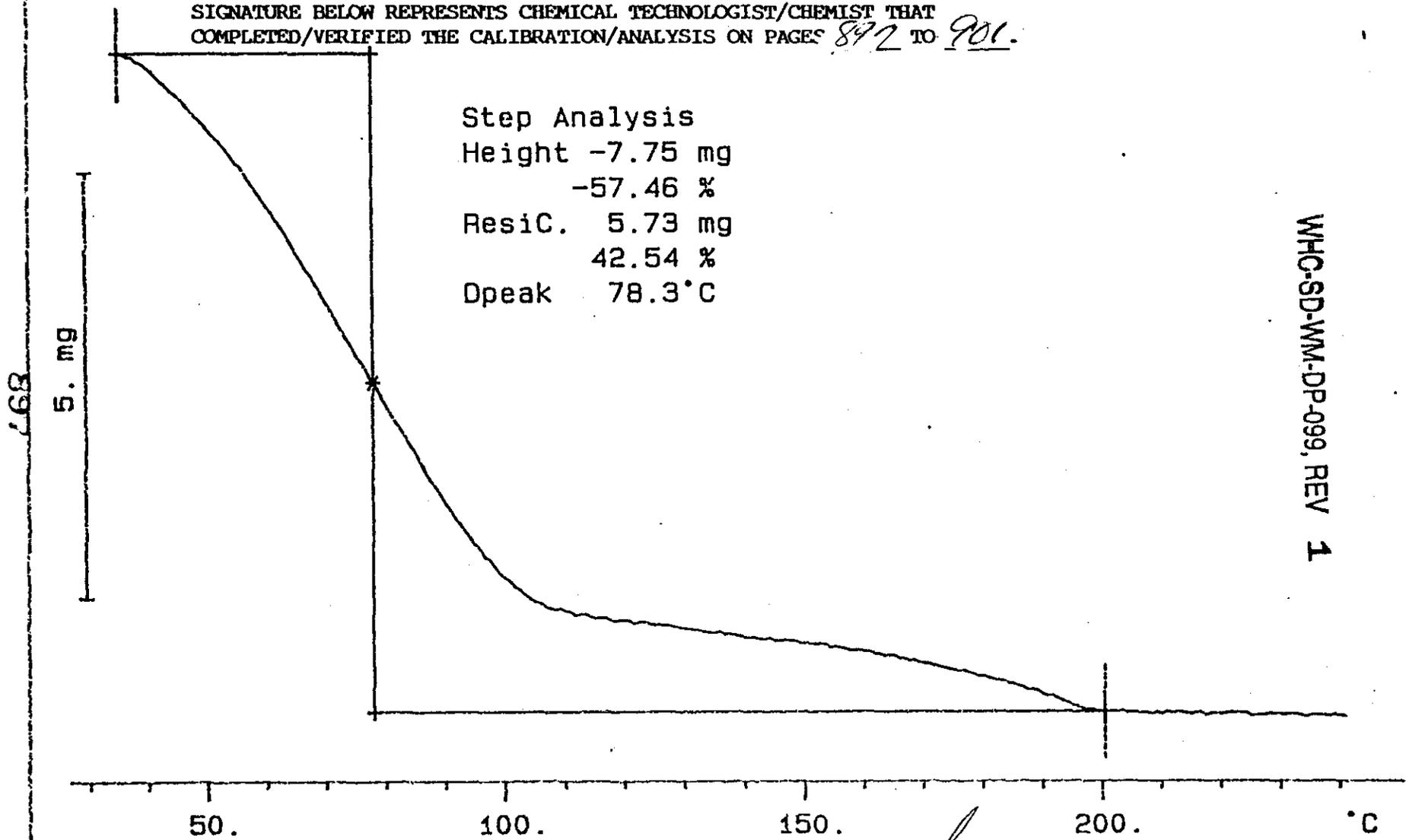
Height -7.75 mg

-57.46 %

ResiC. 5.73 mg

42.54 %

Dpeak 78.3 °C



WHC-SD-WM-DP-099, REV 1

Susie M. Fullon 3/8/95 BDN

S95T000038 N2

20.589 mg

Rate: 10.0 °C/min

File: 00143.001

TG

METTLER

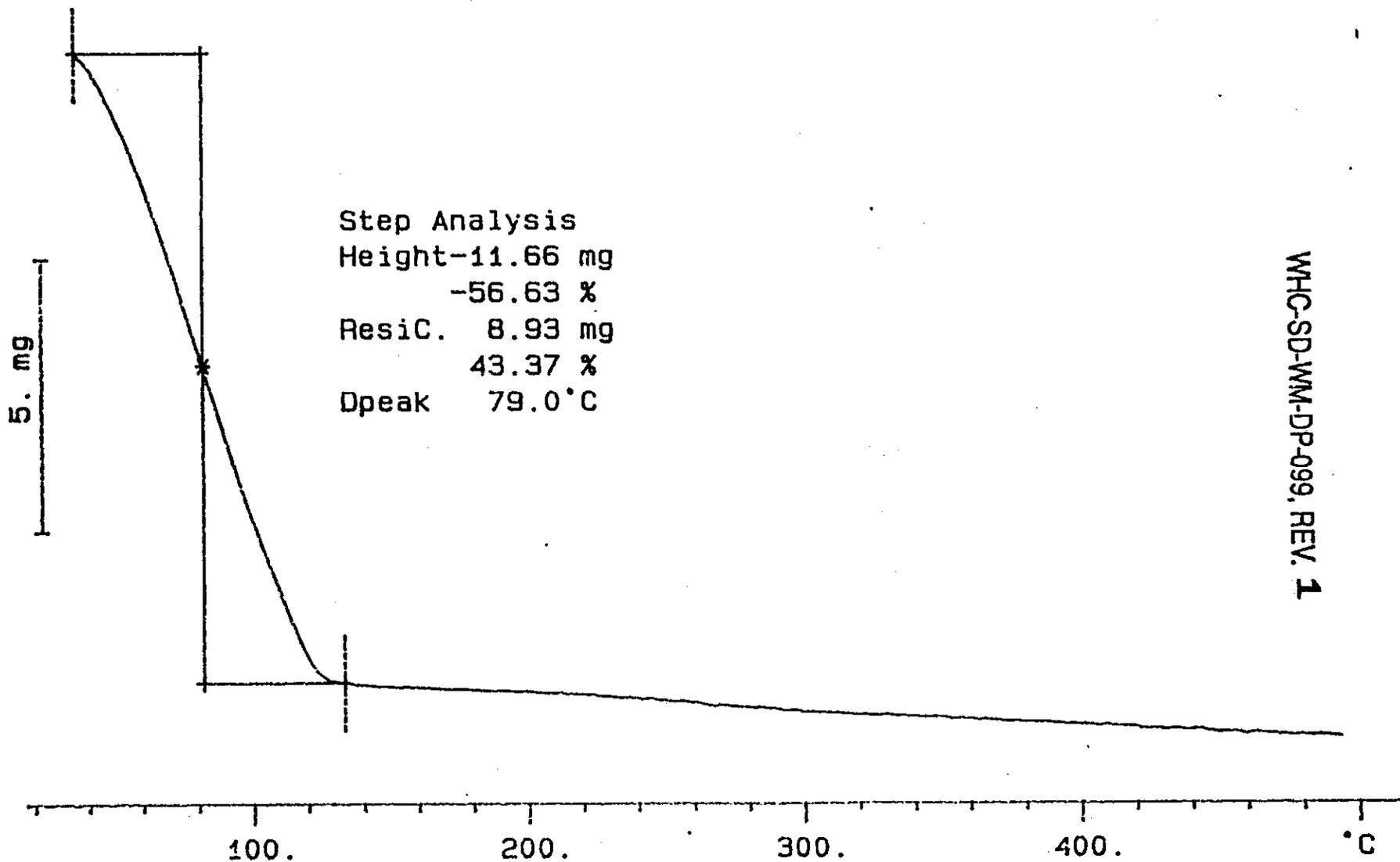
02-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis  
Height-11.66 mg  
-56.63 %  
ResiC. 8.93 mg  
43.37 %  
Dpeak 79.0 °C

MHC-SD-WM-DP-099, REV. 1



893



S95T000045 N2

11.398 mg

Rate: 10.0 °C/min

File: 00147.001

TG

METTLER

02-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

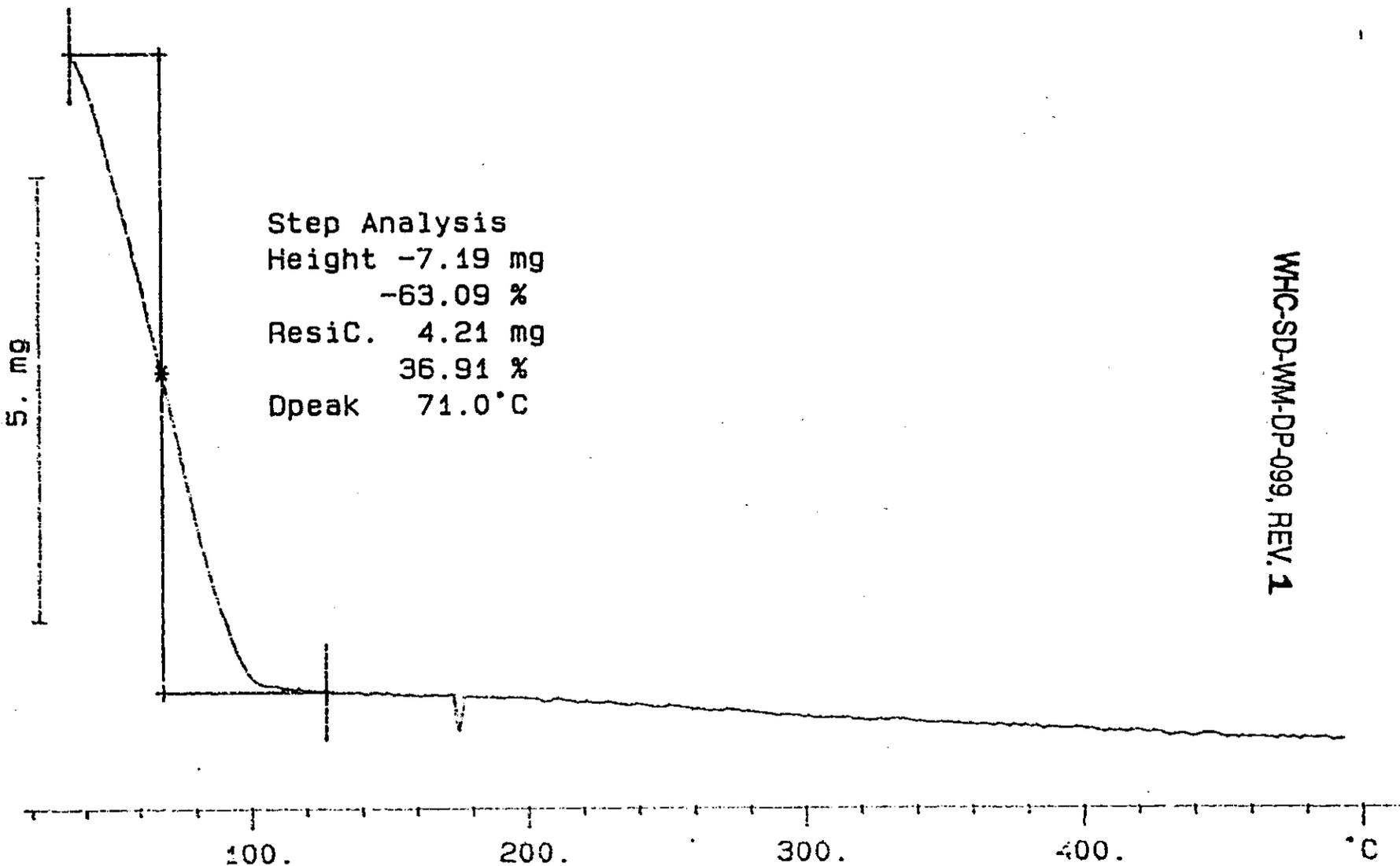
Height -7.19 mg

-63.09 %

ResiC. 4.21 mg

36.91 %

Dpeak 71.0 °C



006

WHC-SD-WM-DP-099, REV. 1

S95T000045 (DUP) N2

File: 00149.001

TG

METTLER

02-Mar-95

16.534 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height-10.14 mg

-61.30 %

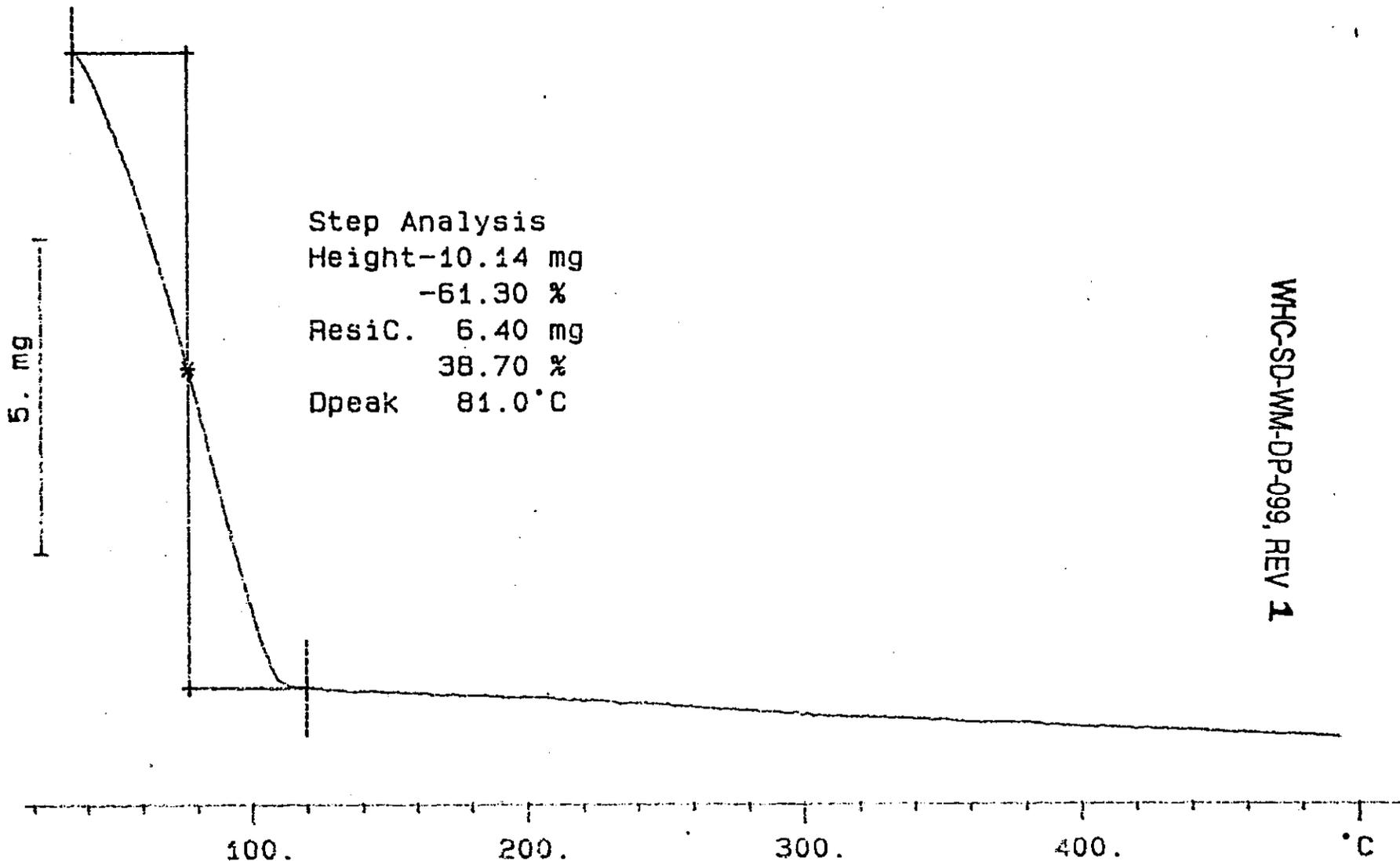
ResidC. 6.40 mg

38.70 %

Dpeak 81.0 °C

WHC-SD-WM-DP-099, REV 1

901



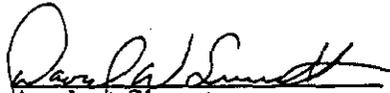
# LABCORE Data Entry Template for Worklist# 489

Analyst: DWS - Instrument: TGA01 \_\_\_\_\_ Method: LA-560-112 A-2

Worklist Comment: Please run C-103 TGA under N2. bdv **WHC-SD-WM-DP-099, REV. 1**

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	4LN8-A			TGA-01	SOLID	59.19	58.18	N/A	%
2	SAMPLE	S95T000046	0		TGA-01	SOLID	N/A	30.82		%
3	DUP	S95T000046	0		TGA-01	SOLID	30.82	44.04	N/A	%
4	SAMPLE	S95T000047	0		TGA-01	SOLID	N/A	49.75		%
5	DUP	S95T000047	0		TGA-01	SOLID	49.75	51.26	N/A	%

Final page for worklist # 489

  
Analyst Signature

3-3-95  
Date

Data entered and verified by  
Blandina D. Valenzuela

3-9-95

Data Entry Comments:

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SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 903 TO 907

TGA STD 42NB-A

15.050 mg

Rate: 10.0 °C/min

File: 00151.001

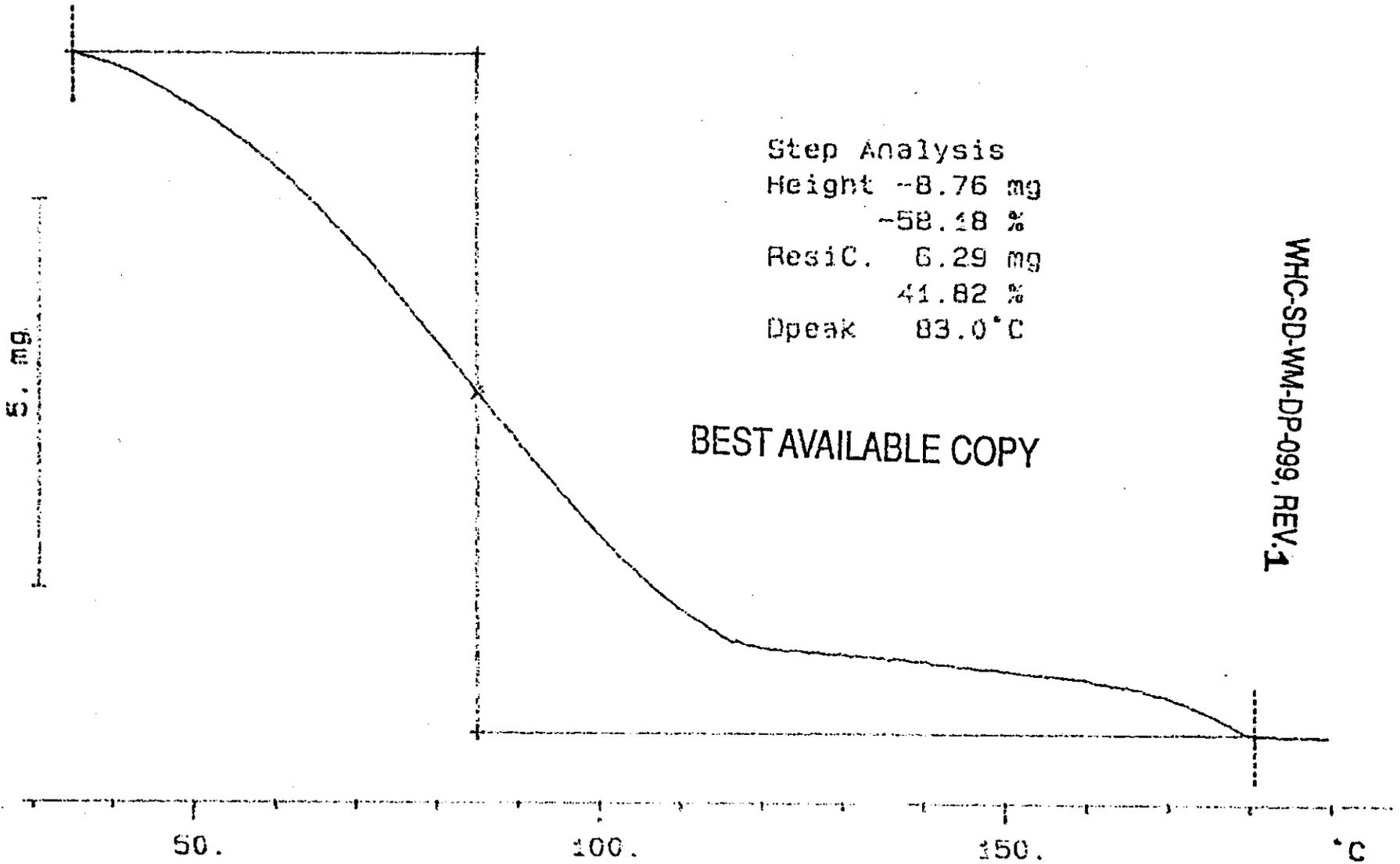
TG

METTLER

03-Mar-95

Ident: 0.0

222-S Laboratory



Step Analysis  
Height -8.76 mg  
-58.18 %  
ResidC. 6.29 mg  
41.82 %  
Dpeak 83.0 °C

WHC-SD-WM-DP-099, REV.1

903

*David W. Smith*  
3-3-95

S95T000046 N2

13.657 mg

Rate: 10.0 °C/min

File: 00153.001

TG

METTLER

03-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -4.21 mg

-30.82 %

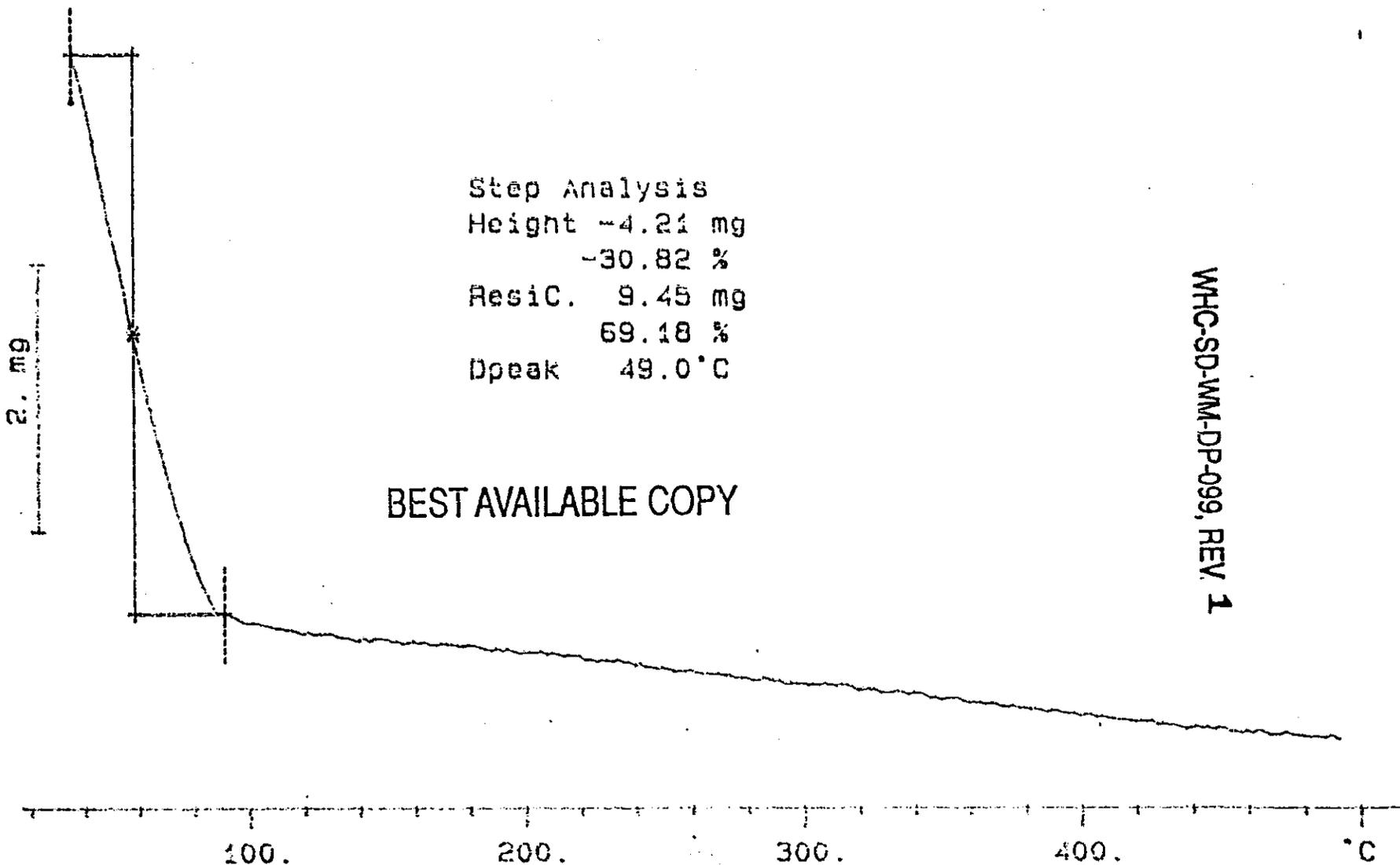
ResidC. 9.45 mg

69.18 %

Dpeak 49.0 °C

BEST AVAILABLE COPY

WHC-SD-WM-DP-099, REV. 1



904

S95T000046 (DUP) N2

31.140 mg

Rate: 10.0 °C/min

File: 00155.001

TG

METTLER

03-Mar-95

Ident: 0.0

222-5 Laboratory

Step Analysis

Height-13.71 mg

-44.04 %

ResidC. 17.43 mg

55.96 %

Dpeak 79.0 °C

WHC-SD-WM-DP-099, REV. 1

BEST AVAILABLE COPY

906

6w  
3

100.

200.

300.

400.

°C



S95T000047 (DUP) N2

File: 00159.001

TC

METTLER

03-Mar-95

52.025 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height-26.67 mg

-51.26 %

Resid. 25.36 mg

48.74 %

Dpeak 115.0 °C

BEST AVAILABLE COPY

WHC-SD-WM-DP-099, REV.1

907

60.03

100.

200.

300.

400.

°C

# LABCORE Data Entry Template for Worklist# 513

Analyst: SMF Instrument: TGA01 Book # 42N8A

Method: LA-560-112 Rev/Mod A-2

WHC-SD-WM-DP-099, REV. **1**

Worklist Comment: Please run C-103 TGA under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	<u>59.19</u>	<u>58.92</u>	<u>N/A</u>	%
94000012	C-103	2 SAMPLE	S95T000048	0		TGA-01	SOLID	<u>N/A</u>	<u>13.47</u>		%
94000012	C-103	3 DUP	S95T000048	0		TGA-01	SOLID	<u>13.47</u>	<u>26.37</u>	<u>N/A</u>	%
		4 STD				TGA-01	SOLID	<u>59.19</u>	<u>56.30</u>	<u>N/A</u>	%
94000012	C-103	5 DUP2	S95T000048	0		TGA-01	SOLID	<u>13.47</u>	<u>29.70</u>	<u>N/A</u>	%

Final page for worklist # 513

See attached for signatures 3/8/95  
Analyst Signature Date

Analyst Signature Date

Data entered and verified by  
Blandina D. Valenzuela

3-9-95

Data Entry Comments: DARK brown consistency very thin muddy. S95T000048  
produced a second weight loss step of 25% at 287.0°C

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# 513

Analyst: SMF Instrument: TGA01 \_\_\_\_\_ Method: LA-560-112/A-2

Worklist Comment: Please run C-103 TGA under N2. bdv

WHC-SD-WM-DP-099, REV. 1

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	<u>42N8-A</u>			TGA-01	SOLID	<u>59.19</u>	<u>58.92</u>	<u>N/A</u>	%
2	SAMPLE	S95T000048	0		TGA-01	SOLID	<u>N/A</u>			%
3	DUP	S95T000048	0		TGA-01	SOLID			<u>N/A</u>	%

Final page for worklist # 513

*Luis M. Fulton*  
Analyst Signature

3-2-95  
Date

Data Entry Comments: Dark brown consistency very thin muddy

TGA STD 42N8-A

File: 00132.001 TG METTLER 02-Mar-95

12.049 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 90 TO 94 *9/25/95*

Step Analysis

Height -7.10 mg

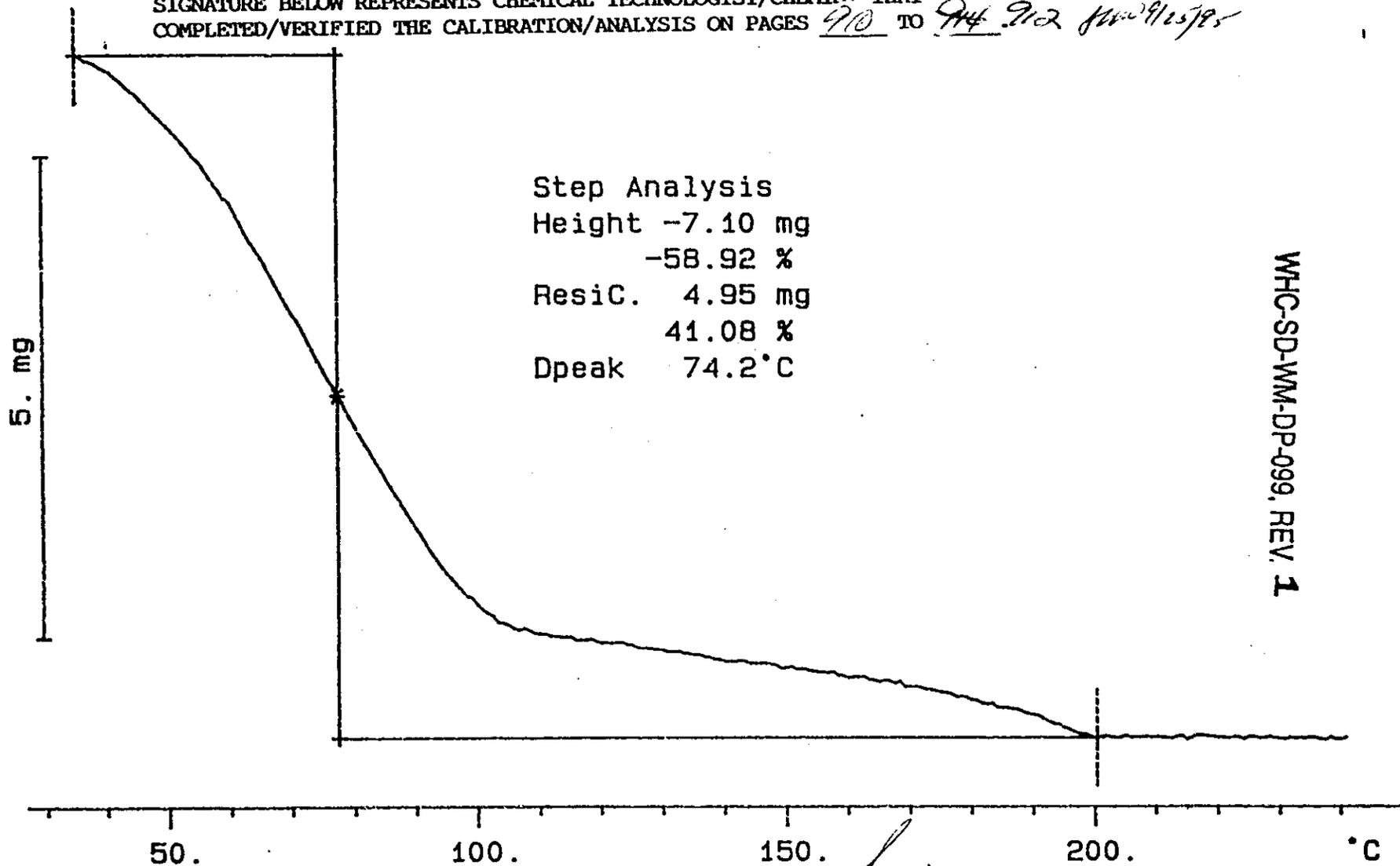
-58.92 %

ResiC. 4.95 mg

41.08 %

Dpeak 74.2 °C

WHC-SD-WM-DP-099, REV. 1



*Lusie M. Fulton*  
3/6/95 BD.

S95T000048 N2

12.176 mg

Rate: 10.0 °C/min

File: 00135.001 TG METTLER 02-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -1.64 mg

-13.47 %

ResiC. 10.51 mg

86.34 %

Dpeak 55.0 °C

Step Analysis

Height -3.04 mg

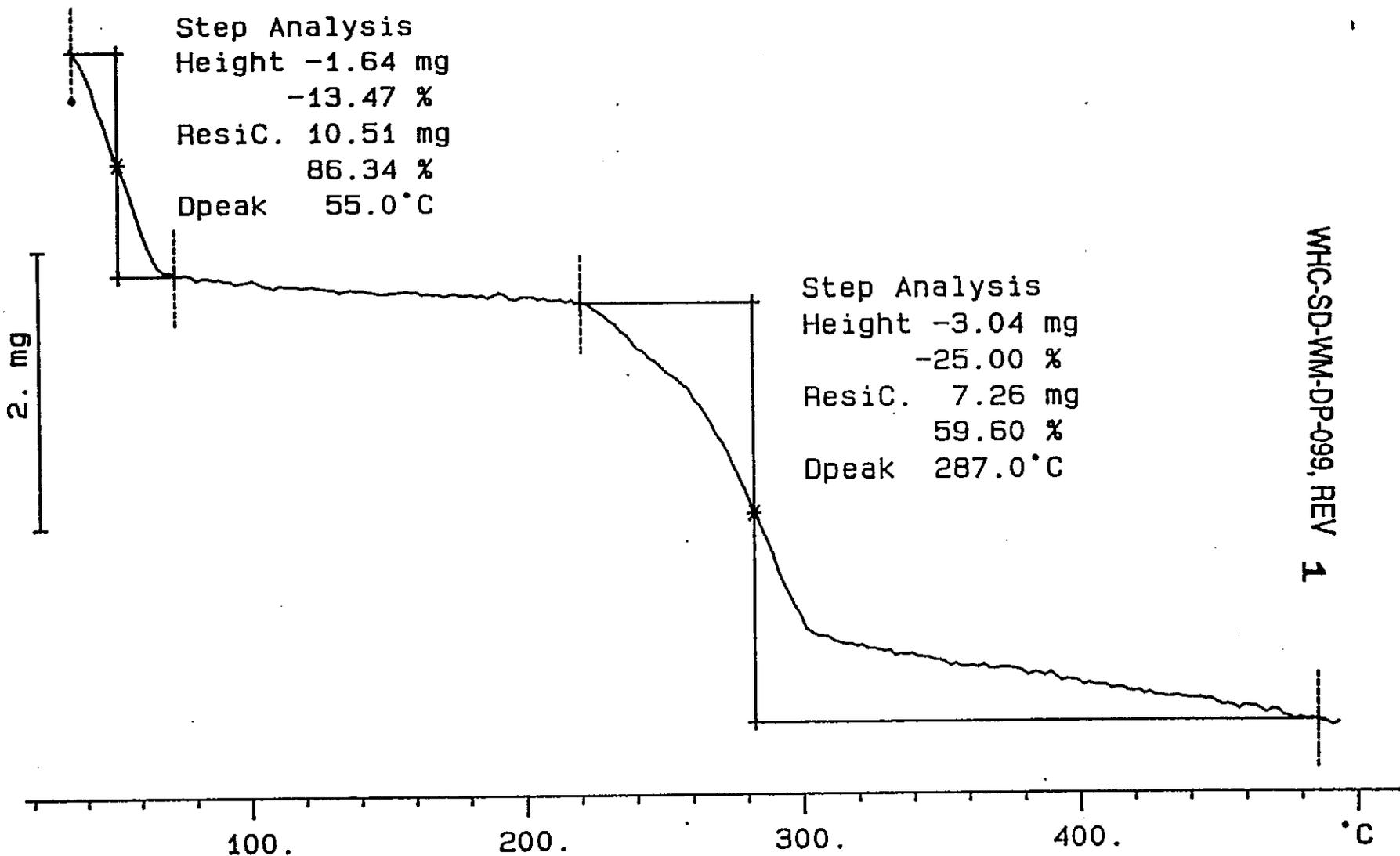
-25.00 %

ResiC. 7.26 mg

59.60 %

Dpeak 287.0 °C

WHC-SD-WM-DP-099, REV 1



911

S95T000048 (DUP) N2

28.263 mg

Rate: 10.0 °C/min

File: 00137.001 TG METTLER 02-Mar-95

Ident: 0.0 222-S Laboratory

Step Analysis

Height -7.45 mg

-26.37 %

ResiC. 20.76 mg

73.45 %

Step Analysis

Height -5.99 mg

-21.20 %

ResiC. 14.49 mg

51.26 %

Dpeak 297.0 °C

5. mg

WHC-SD-WM-DP-099, REV 1

100.

200.

300.

400.

°C

913

TGA STD 42N8A

20.910 mg

Rate: 10.0 °C/min

File: 00176.001

TG

METTLER

06-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height-11.77 mg

-56.30 %

ResiC. 9.13 mg

43.65 %

Dpeak 89.0 °C

WHC-SD-WM-DP-099, REV. 1

913

5. mg

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 913 TO 914.

50.

100.

3/8/95

150

Blarina Valenzuela for SM Fulton

S95T000048 DUP2 (N2)

15.238 mg

Rate: 10.0 °C/min

File: 00177.001

TG

METTLER

06-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -4.53 mg

-29.70 %

ResiC. 10.67 mg

70.00 %

Dpeak 61.0 °C

Step Analysis

Height -2.96 mg

-19.44 %

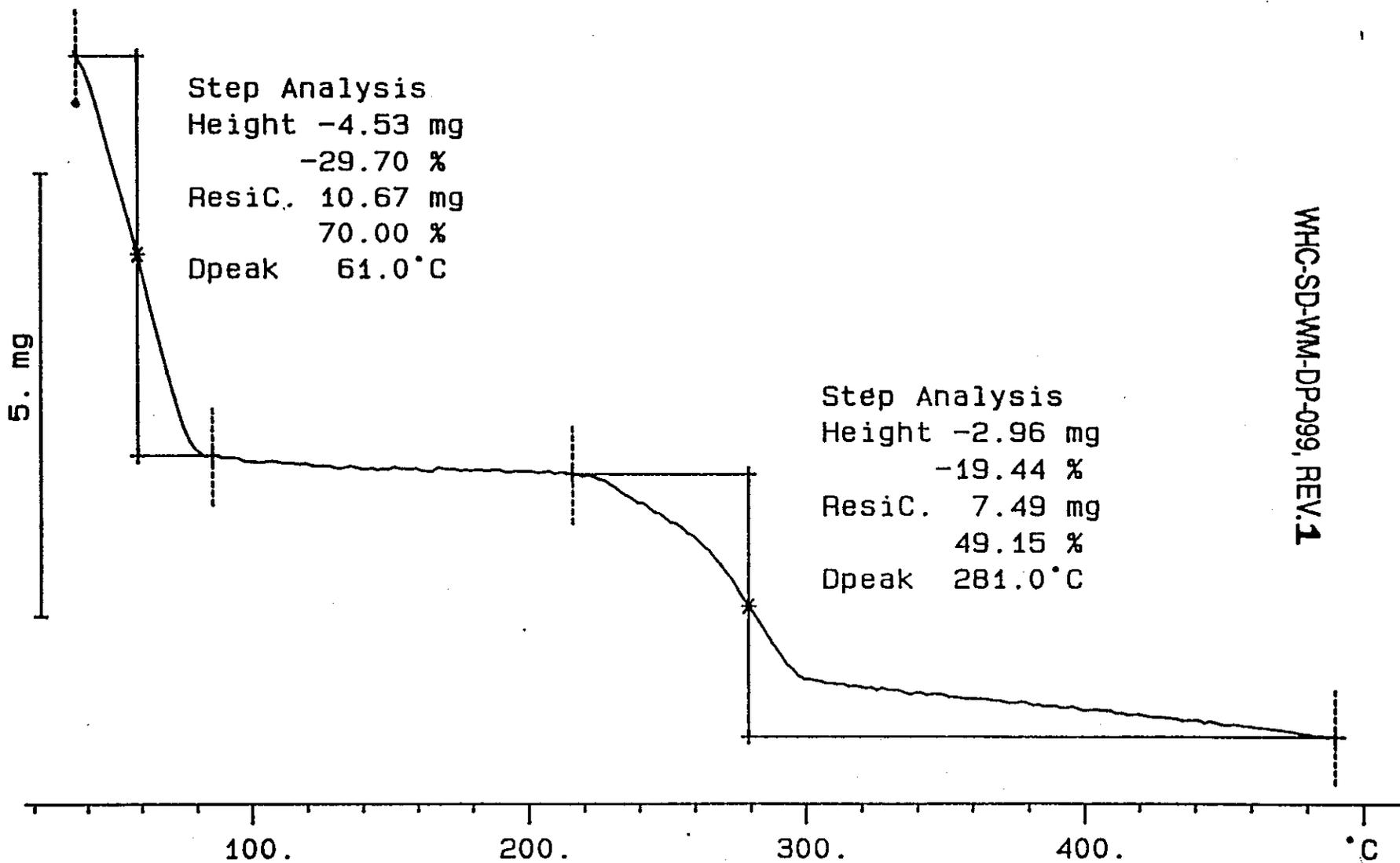
ResiC. 7.49 mg

49.15 %

Dpeak 281.0 °C

WHC-SD-WM-DP-099, REV.1

914



# LABCORE Data Entry Template for Worklist# 665

Analyst: SMF Instrument: TGA01 Book # 42N8-A

Method: LA-560-112 Rev/Mod A-2

Worklist Comment: Please run C-103 TGA under N2. bdv WHC-SD-WM-DP-099, REV. 1

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	<u>59.19</u>	<u>58.98</u>	<u>N/A</u>	%
95000013	C-103	2 SAMPLE	S95T000224	0		TGA-01	SOLID	<u>N/A</u>	<u>79.15</u>		%
95000013	C-103	3 DUP	S95T000224	0		TGA-01	SOLID	<u>79.15</u>	<u>69.13</u>	<u>N/A</u>	%
		4 STD				TGA-01	SOLID	<u>59.19</u>	<u>59.02</u>	<u>N/A</u>	%
95000013	C-103	5 SAMPLE	S95T000225	0		TGA-01	SOLID	<u>N/A</u>	<u>76.46</u>		%
95000013	C-103	6 DUP	S95T000225	0		TGA-01	SOLID	<u>76.46</u>	<u>73.49</u>	<u>N/A</u>	%

Final page for worklist # 665

See attached for signatures  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

[Signature] 3-14-95  
Analyst Signature \_\_\_\_\_ Date \_\_\_\_\_

Verified by Blandino Valenzuela

3/15/95

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.

# LABCORE Data Entry Template for Worklist# 665

Analyst: SMF Instrument: TGA01 Book # 2N8-17

Method: LA-560-112 Rev/Mod A-2

WHC-SD-WM-DP-099, REV. 1

Worklist Comment: Please run C-103 TGA under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<sup>3/16/95 BDV</sup> <del>59.19</del>	<sup>3/16/95 BDV</sup> 58.98	N/A	%
95000013	C-103	2 SAMPLE	S95T000224	0	TGA-01	SOLID	N/A	<sup>3/16/95 BDV</sup> 79.15		%
95000013	C-103	3 DUP	S95T000224	0	TGA-01	SOLID	<sup>3/16/95 BDV</sup> <del>79.15</del>	<sup>3/16/95 BDV</sup> 69.13	N/A	%
95000013	C-103	4 SAMPLE	S95T000225	0	TGA-01	SOLID	N/A			%
95000013	C-103	5 DUP	S95T000225	0	TGA-01	SOLID			N/A	%

Final page for worklist # 665

Lucie M. Gulston 3-13-95  
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

S95T000224 - dark brown, thin muddy liquid  
S95T000225 - also dark brown, thin  
muddy liquid  
SMF 3-14-95

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.

TGA STD 42N8-A

File: 00199.001

TG

METTLER

12-Mar-95

13.853 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT  
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 946 TO 922  
917

Step Analysis

Height -8.17 mg

-58.98 %

ResiC. 5.68 mg

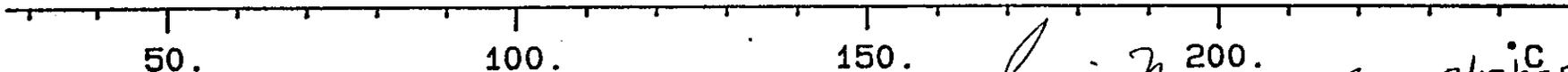
41.02 %

Dpeak 77.5 °C

WHC-SD-WM-DP-099, REV. 1

917

5. mg



*Lusia M. Fulton* 3/13/95 BDV

S95T000224 N2

24.759 mg

Rate: 10.0 °C/min

File: 00202.001 TG METTLER 12-Mar-95

Ident: 0.0 222-S Laboratory

Step Analysis

Height-19.60 mg

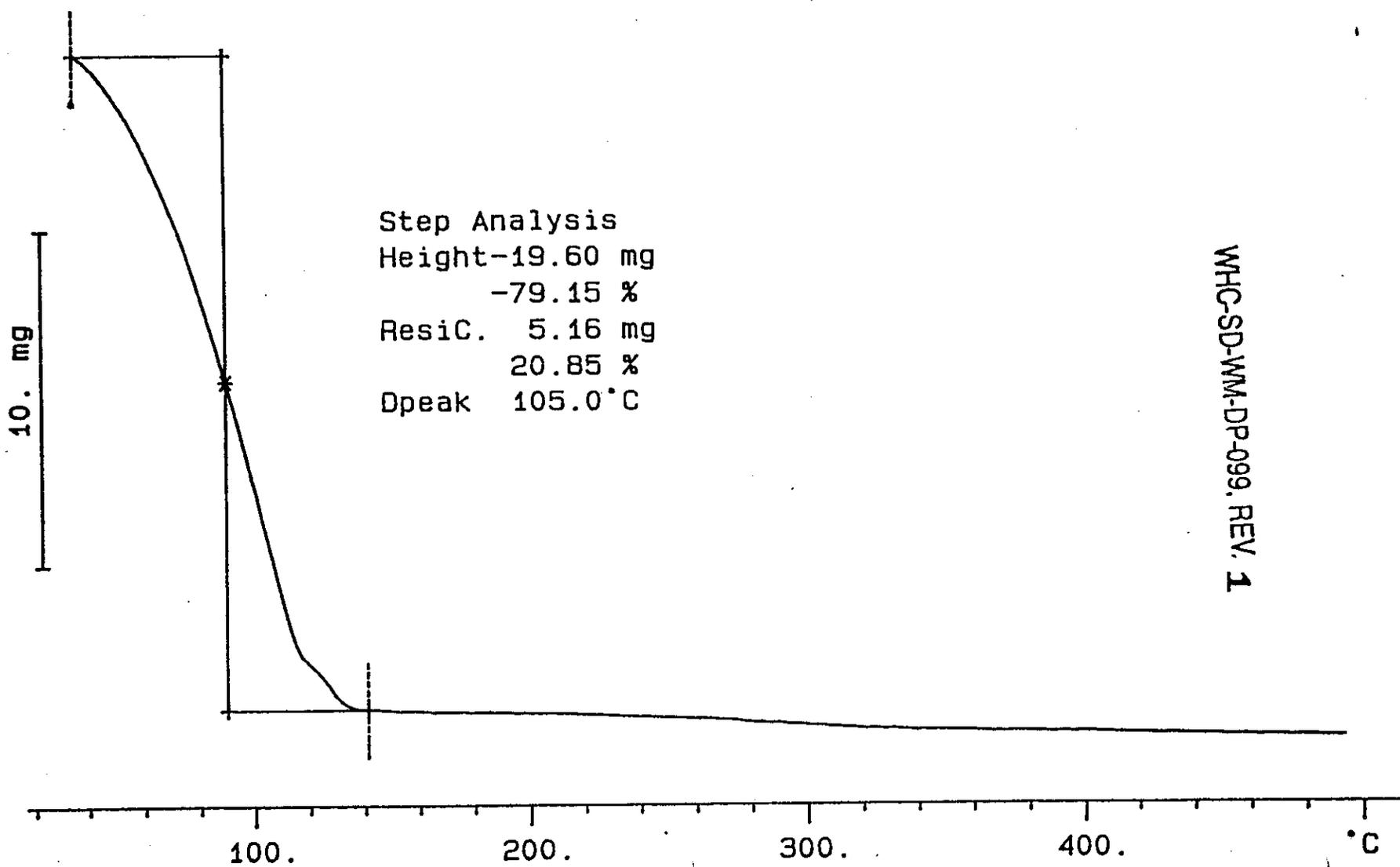
-79.15 %

ResiC. 5.16 mg

20.85 %

Dpeak 105.0 °C

WHC-SD-WM-DP-099, REV. 1



918

S95T000224 (DUP) N2

File: 00204.001 TG METTLER 12-Mar-95

9.754 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height -6.74 mg

-69.13 %

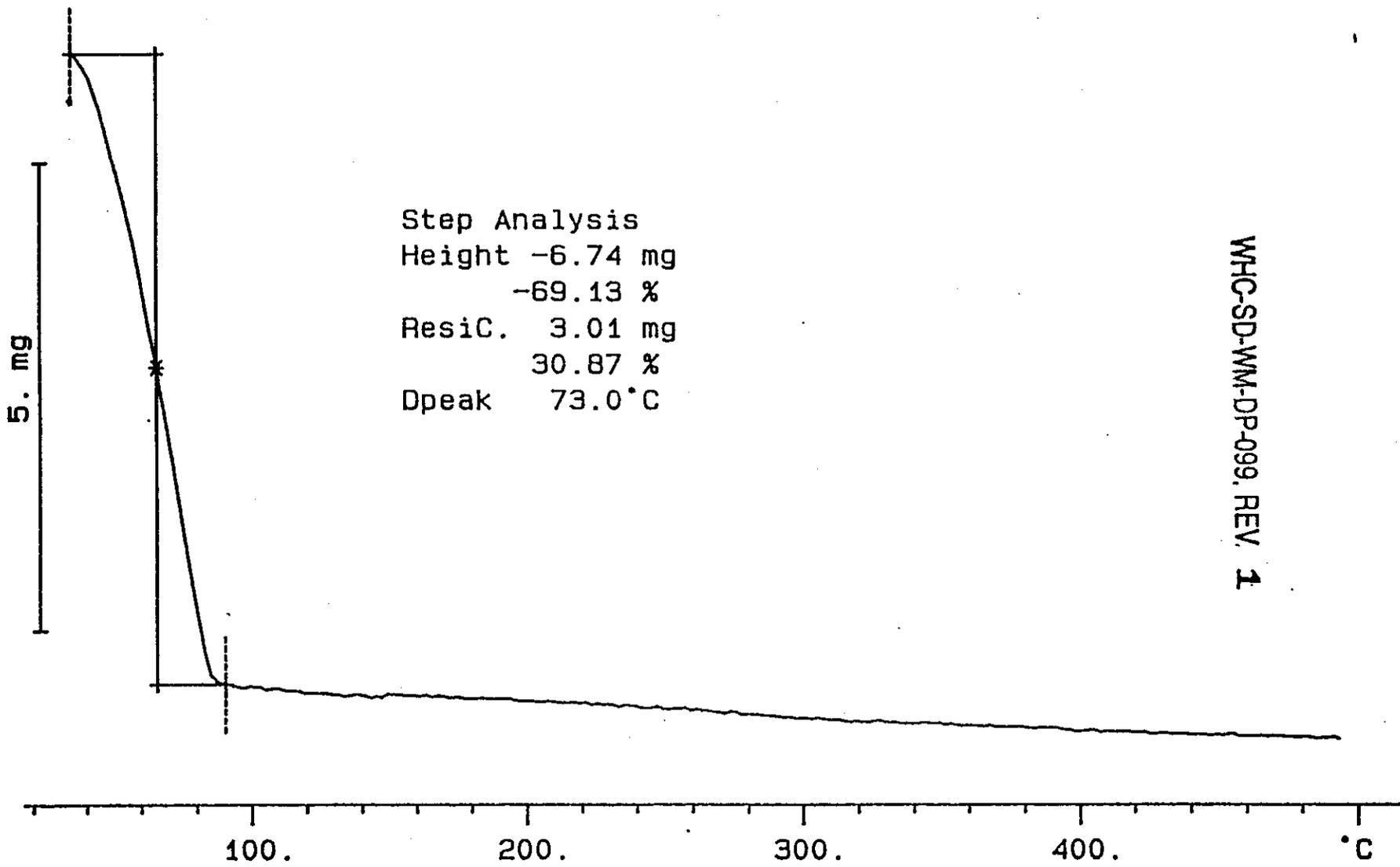
ResiC. 3.01 mg

30.87 %

Dpeak 73.0 °C

WHC-SD-WM-DP-099, REV. 1

919



TGA STD 42N8-A

16.900 mg

Rate: 10.0 °C/min

File: 00208.001

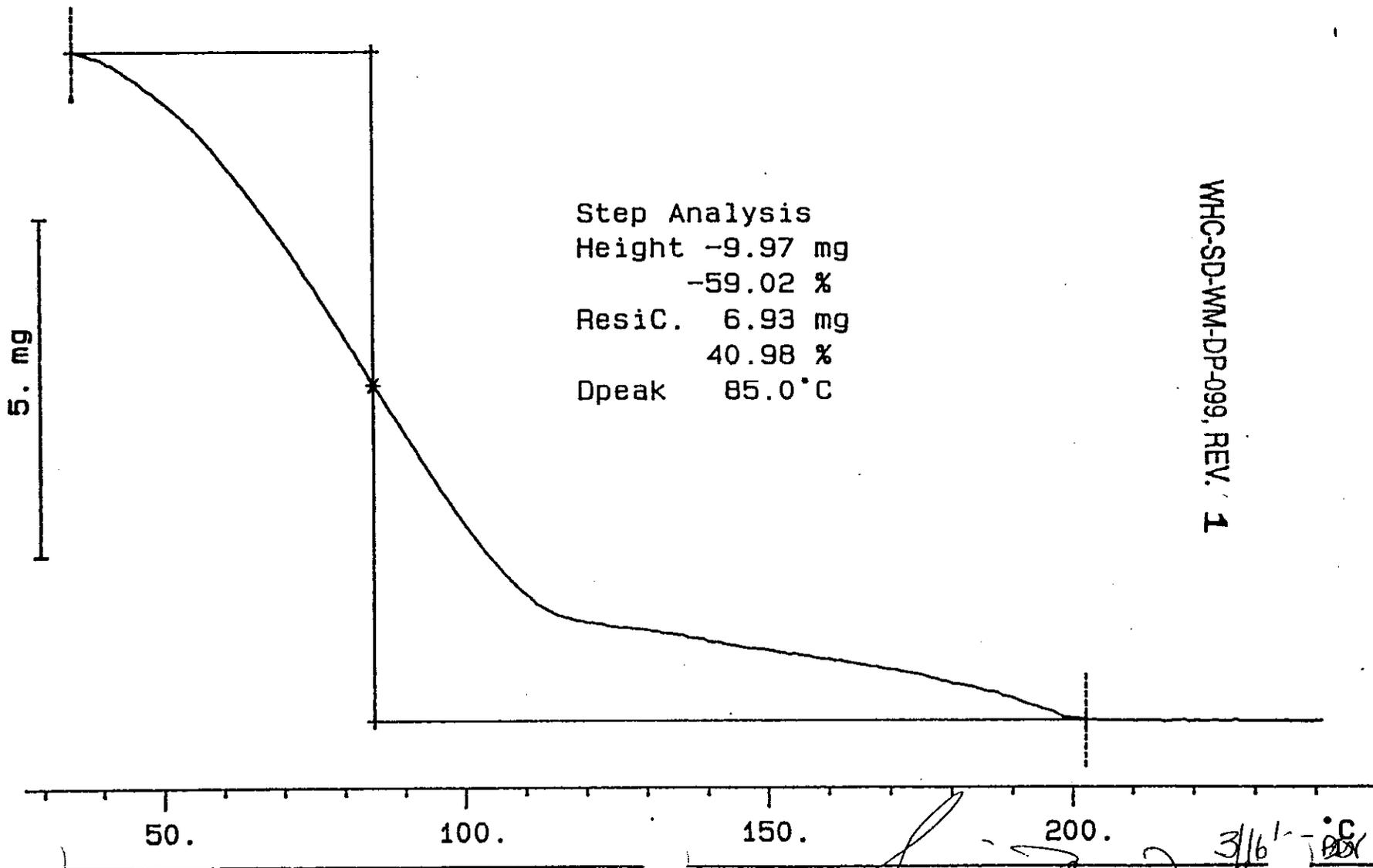
TG

METTLER

13-Mar-95

Ident: 0.0

222-S Laboratory



*Lusie M. Fulson* 3/16/95

S95T000225 N2

26.374 mg

Rate: 10.0 °C/min

File: 00210.001

TG

METTLER

13-Mar-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height-20.17 mg

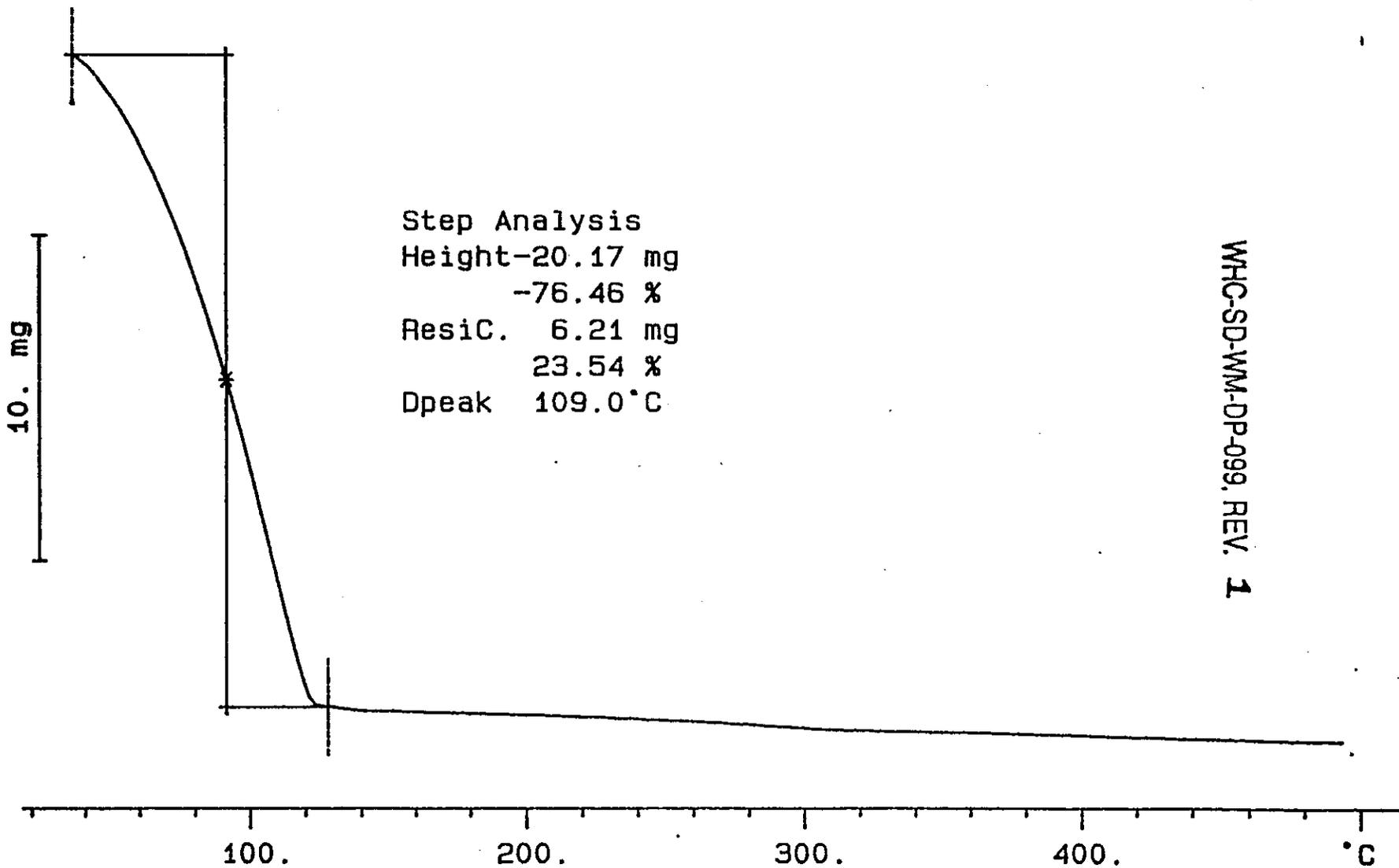
-76.46 %

ResiC. 6.21 mg

23.54 %

Dpeak 109.0 °C

WHC-SD-WM-DP-099, REV. 1



921

S95T000225 (DUP) N2

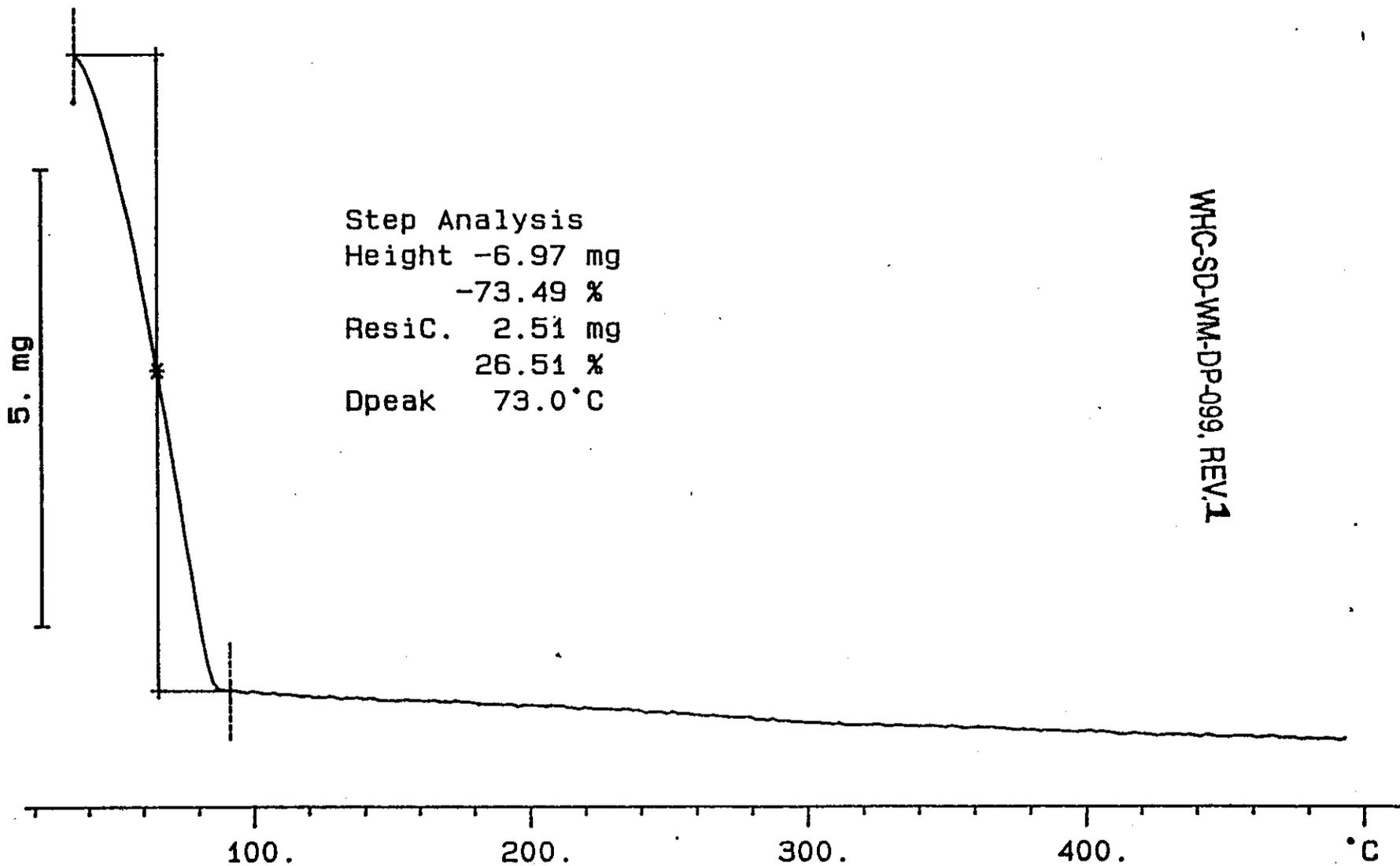
File: 00212.001 TG METTLER 13-Mar-95

9.477 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory



WHC-SD-WM-DP-099, REV.1

922